

Panasonic Industrial Company



ALUMINUM ELECTROLYTIC CAPACITORS LARGE CAN SCREW TERMINAL & SNAP-IN

Panasonic ideas for life

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS



Panasonic Electronic Devices Corporation of America has been manufacturing aluminum electrolytic capacitors since 1982.

The Knoxville, Tennessee manufacturing plant initially produced the popular 2 pin, snap-in capacitor. Manufacturing has expanded with a full range of "large can" capacitors

Product features in this catalog include:

- **Higher capacitance series (TS-UQ & TS-HC)**
- **Higher ripple current capacitor series (TS-ED & TS-EE)**
- **3 Pin, keyed polarity option**
- **Extended CV ratings for many series**
- **RoHS compliant product will have boxes marked according to JEITA ETR-7021**
No Pb on the box label indicates RoHS compliance

Contact the factory for more information

Special designs and more comprehensive technical information are available upon request. Contact your Panasonic sales representative for details.

The information contained herein is believed to be accurate at the time of publication. Design and specifications are subject to change without notice.

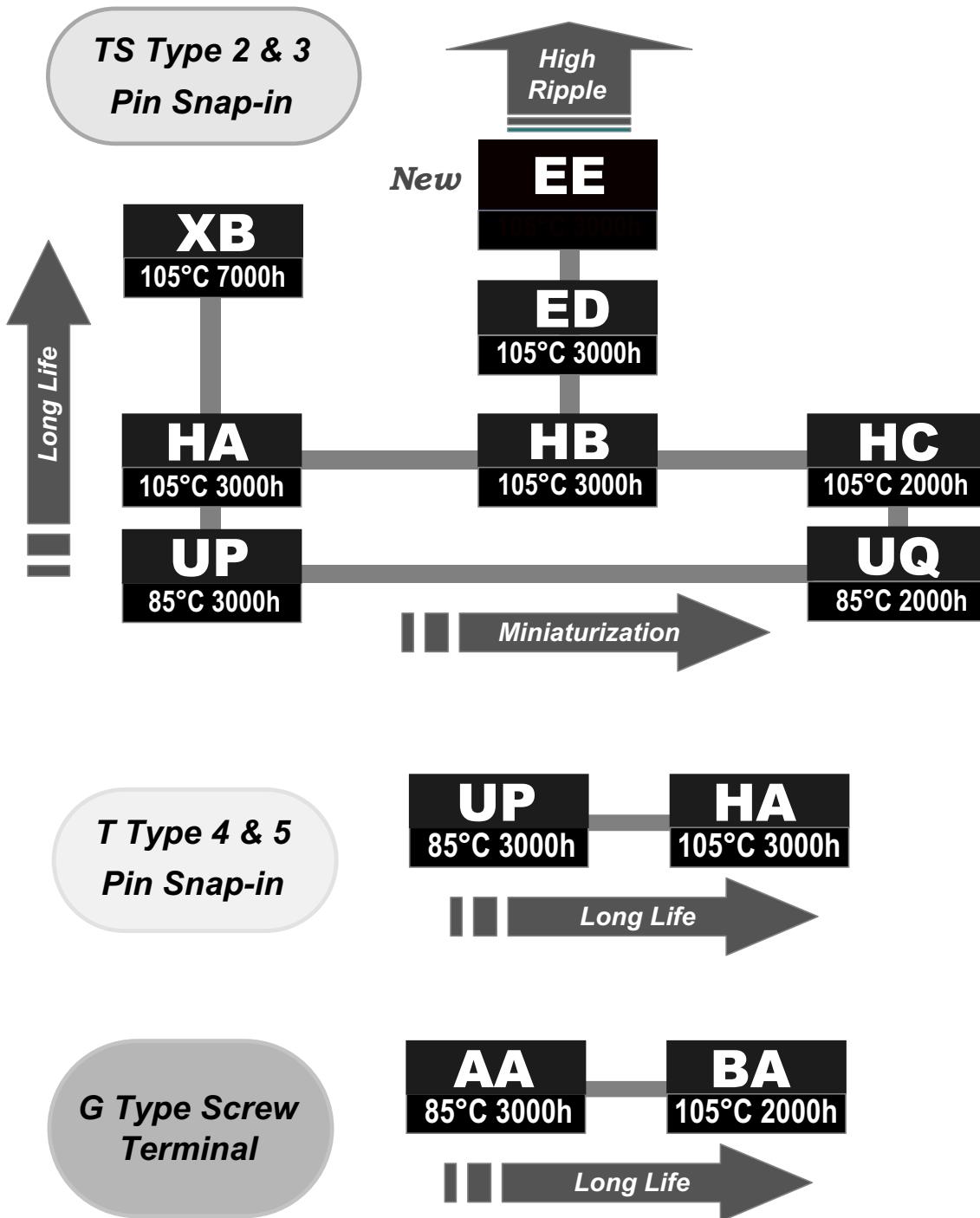
No ozone depleting substances (ODS) under the Montreal Protocol are used in the manufacturing process for these products.

Panasonic Electronic Devices Corporation of America is ISO 9001- 2000 and ISO 14001 registered.

| Series | Endurance (Load Life) | Voltage Range (WV) | Cap. Range (μ F) | Size Range D x L (mm) | Features | Page |
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| Application Guidelines | | | | | | 5 |
| TS Type, 2 & 3 Terminal Snap-in | | | | | General Information | 9 |
| UQ | 85°C 2000h | 16 ~ 450 | 82 ~ 100,000 | 22 x 25 ~ 35 x 50 | Highest CV, general purpose snap-in. 30% smaller than UP series. | 10 |
| UP | 85°C 2000 ~ 3000h | 16 ~ 500 | 33 ~ 68,000 | 22 x 20 ~ 35 x 50 | Suitable for most general purpose industrial applications. Extended ratings. | 16 |
| HC | 105°C 2000h | 10 ~ 450 | 100 ~ 100,000 | 22 x 25 ~ 35 x 50 | Highest CV, long life snap-in. | 21 |
| HB | 105°C 3000h | 160 ~ 450 | 82 ~ 2,700 | 22 x 25 ~ 35 x 50 | Long life with high ripple current capability. Miniaturized ratings (25% smaller than HA series). | 28 |
| HA | 105°C 2000 ~ 3000h | 10 ~ 450 | 33 ~ 68,000 | 22 x 20 ~ 35 x 50 | Long life with high ripple current capability. | 30 |
| ED | 105°C 3000h | 200 ~ 450 | 56 ~ 2,200 | 22 x 25 ~ 35 x 50 | Very high ripple current capability for demanding inverter applications. | 34 |
| EE | 105°C 3000h | 200 | 300 ~ 1,800 | 22 x 25 ~ 35 x 45 | Highest ripple current. | 36 |
| XB | 105°C 7000h | 160 ~ 450 | 39 ~ 2,200 | 22 x 25 ~ 35 x 50 | Longest life snap-in suitable for elevated ambient temperatures. | 37 |
| T Type, 4 & 5 Terminal Snap-in | | | | | General Information | 39 |
| UP | 85°C 3000h | 16 ~ 500 | 470 ~ 120,000 | 35 x 40 ~ 50 x 105 | Suitable for most general purpose industrial applications. Extended ratings. | 40 |
| HA | 105°C 3000h | 16 ~ 450 | 390 ~ 120,000 | 35 x 40 ~ 50 x 105 | Long life, extended ratings. | 43 |
| G Type, Screw Terminal | | | | | General Information | 46 |
| AA | 85°C 3000h | 16 ~ 500 | 150 ~ 1,200,000 | 35 x 40 ~ 77 x 220 | Suitable for most general purpose industrial applications. | 47 |
| BA | 105°C 2000h | 10 ~ 450 | 220 ~ 1,200,000 | 35 x 40 ~ 77 x 220 | Long life. | 51 |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

Capacitor Series Comparison



1 General Specifications

Capacitance

Nominal capacitance is specified at a frequency of 120Hz and a temperature of 20°C. Unless specified otherwise, standard capacitance tolerance is $\pm 20\%$ of the nominal value.

Working Voltage

The maximum allowable sum of continuous DC voltage plus peak ripple voltage which can be applied to the capacitor.

Surge Voltage

The maximum transient voltage level allowed for short periods of time without sustaining permanent damage to the capacitor. Values are listed in the standard product ratings.

Leakage Current

Imperfections in the capacitor dielectric allow a small current to flow. This resultant leakage current is specified as a maximum after 5 minutes application of rated voltage at 20°C. See individual series listings for leakage current equations.

ESR (Equivalent Series Resistance)

Equivalent series resistance causes heat generation within the capacitor when AC ripple current flows through the capacitor. Maximum ESR is normally specified at 120Hz, 20°C.

Ripple Current

Ripple current is the rms value of alternating current flowing through a capacitor. This current causes an internal temperature rise due to power losses within the capacitor.

The standard product tables list allowable ripple current limits at specified maximum operating temperatures.

Ripple current multipliers for other temperatures and frequencies are listed in the introductory page for each series.

Endurance Life Test

Endurance life is the minimum time a capacitor can operate under worst case conditions.

Duration: Specified hours of life

Ambient Temp.: Maximum specified operating temperature

Ripple Current: Maximum specified value

Applied Voltage: Rated DC voltage (the sum of the applied DC voltage plus the peak ripple voltage should not exceed rated working voltage)

Post test requirements at +20°C:

Leakage Current: \leq Initial specified value

Cap. change: $\leq \pm 20\%$ of initial measured value

D. F. / E.S.R.: $\leq 200\%$ of initial specified value

Shelf Life Test

Duration: 1000 hours

Ambient Temp.: Maximum specified operating temperature

Applied Voltage: None

Post test requirements at +20°C:

Same as Endurance Test requirements above.

Measurements are to be performed after applying DC working voltage for 30 minutes.

2 Storage Life

Leakage current will increase during extended storage.

Capacitors should be stored in temperatures not to exceed 40°C and protected from direct exposure to sunlight.

Under normal conditions, storage life can exceed 10 years.

It is recommended that the leakage current be checked for conformance to the specified limit if the capacitor has been stored for four years or more.

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2 Storage Life (continued)

Storage may require reforming of the capacitor to reduce leakage current below the specified limit. This can be accomplished by applying rated voltage in series with a 1000Ω resistor for a time period of 30 ~ 60 minutes.

The capacitor is acceptable for use if the capacitor leakage current is within the original specified limit or the capacitor is reformed to within the original specified limit.

Storage in high humidity conditions could cause oxidation of the terminal plating which could adversely affect solderability.

3 Operation Life Expectancy

Panasonic capacitors have a specified life at a maximum temperature and ripple current. Typical life can be considerably longer based on actual life test results performed by the factory. This data can be provided to help the designer estimate expected life. This information is given with a 60% confidence level.

Capacitor life at lower temperatures follows "The Doubling 10°C Rule" where life is doubled for each 10°C reduction in operating temperature. Voltage derating also improves life expectancy and reliability. The following equations are useful for determining the life of a capacitor in the application;

For WV = 10~100VDC;

$$L_2 = L_1 \times 2^{\frac{T_1 - (T_2 + \Delta T)}{10}}$$

For WV = 160~500VDC;

$$L_2 = L_1 \times 2^{\frac{T_1 - (T_2 + \Delta T)}{10}} \times (V \div WV)^{-6.5}$$

where:

L_1 = Specified life (hours) at maximum operating temperature. Typical life may be substituted (at a 60% confidence level).

L_2 = Expected life (hours) at actual operating temperature.

T_1 = Maximum specified operating temp.

T_2 = Actual ambient temperature ($^{\circ}\text{C}$).

ΔT = Ripple current temperature rise ($^{\circ}\text{C}$).

WV = Rated capacitor voltage (160~500V)

V = Applied voltage

NOTE: WV \geq V \geq 0.9 \times WV

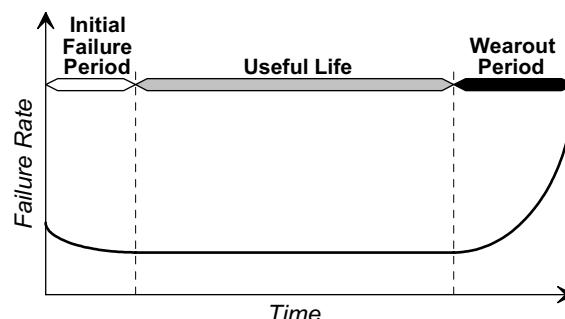
Use of the ripple current temperature multipliers listed for each product series may limit life to the value originally specified for maximum operating temperature.

It is recommended that the ripple current heat rise be limited to 15°C at lower ambient temperatures to accomplish the maximum operating life in the application.

End of life is defined by the occurrence of one of the following;

- ◆ Capacitance change exceeds $\pm 20\%$ of the initial measured value.
- ◆ Dissipation Factor exceeds 200% of the initial specified value.
- ◆ Leakage Current exceeds the initial specified value.

NOTE: Electrical measurements are taken after the capacitor is stabilized at 20°C .



Life Cycle of an Aluminum Electrolytic Capacitor

4 Circuit Design Considerations

Operating Temperature and Frequency

Aluminum electrolytic capacitor electrical characteristics are normally specified at a temperature of 20°C and a frequency of 120Hz.

4 Circuit Design Considerations (continued)

Electrical parameters are temperature and frequency dependent as follows;

(1) Effects of operating temperature

At higher temperatures, capacitance and leakage current increase while ESR decreases.

At lower temperatures, capacitance and leakage current will decrease while ESR increases.

(2) Effects of frequency

Capacitance, impedance, and ESR will decrease as frequency increases.

At lower frequencies, ripple current generated temperature will rise due to increasing ESR.

Reverse Voltage

DC capacitors have polarity which must be verified before insertion.

Avoid use in circuits with changing or uncertain polarity.

Ensure that allowable ripple currents superimposed on DC voltage do not cause reverse voltage conditions.

Charge / Discharge Applications

Standard capacitors are not suitable for use in strobe or photoflash applications.

Contact the factory for low duty cycle applications.

Capacitors Connected in Parallel

Circuit resistance can approximate the series resistance of the capacitor, resulting in ripple current load imbalances. Careful design of wiring methods can minimize excessive ripple currents applied to a capacitor.

Capacitors Connected in Series

Normal DC leakage current variations among capacitors can cause voltage differences. The

use of voltage dividing sharing resistors with consideration to leakage currents can compensate for voltage imbalances.

Electrical Precautions

Transient recovery voltage may be generated in the capacitor due to dielectric absorption. Typical voltage levels are less than 10% of the rated capacitor voltage. If required, this voltage can be discharged with a resistor.

The aluminum case of the capacitor has an indeterminate resistance to the cathode terminal. The vinyl sleeve on the capacitor is for marking and identification purposes and is not meant to electrically isolate the capacitor.

When designing circuits, consider worst case capacitor failure modes such as open or short circuits.

The effects of hot, electrically conductive, combustible, electrolyte liquid or vapor escaping from the safety vent should also be considered.

5 Capacitor Mounting Considerations

Circuit Board Design

Avoid wiring pattern runs which pass between the mounted capacitor and the circuit board. When dipping into a solder bath, excessive solder may collect under the capacitor by capillary action and short circuit the anode and cathode terminals.

The vinyl sleeve of the capacitor can be damaged if solder passes through a lead hole for subsequently processed parts.

Electrically isolate the extra terminal(s) on 4 and 5 pin products from the anode terminal, cathode terminal, and other circuit paths.

Clearance Requirements

Case mounted pressure relief vents require sufficient clearance to operate properly.

The minimum clearance is diameter dependent as follows:

22~35mm diameters: 3mm minimum.

≥40mm diameters: 5mm minimum.

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5 Capacitor Mounting Considerations (continued)

Circuit Board Cleaning

Aluminum electrolytic capacitors can withstand immersion or ultrasonic cleaning with "safe" cleaning solvents for up to 5 minutes and 60°C maximum temperatures.

Most aqueous based cleaning solvents and detergents are acceptable. Some solvent groups could damage capacitors as follows:

- ◆ Halogenated cleaning solvents may permeate the capacitor seal, causing internal corrosion and failure.
- ◆ Alkali solvents may attack and dissolve the aluminum case.
- ◆ Petroleum based solvents may deteriorate the rubber seal.
- ◆ Xylene may deteriorate the rubber seal.
- ◆ Acetone may remove vinyl sleeve ink printing.

A thorough rinsing and drying process will prevent entrapment of residual solvents between the capacitor and the circuit board and the capacitor and the sleeve. Excessive drying temperatures and / or radiant heat drying sources may result in splitting or excessive shrinkage of the vinyl sleeve.

Mounting Adhesives and Coating Agents

When using mounting adhesives or coating agents, avoid materials with halogenated cleaning solvents including chloroprene based polymers.

A thorough adhesive or coating drying process is required to prevent solvent entrapment between the capacitor and the circuit board.

Mounting adhesives or reinforcement clamps are recommended on TS types with case sizes of $\phi 35 \times 45\text{mm}$ or larger. Additional mounting support is also recommended for T types with lengths exceeding 63mm.

6 Safety Precautions

If the pressure relief vent of the capacitor should operate, immediately turn off the equipment and disconnect from the power source. This will minimize additional damage caused by the vaporizing electrolyte.

Avoid contact with the escaping electrolyte which can exceed 100°C temperatures.

If electrolyte or vapors enter the eye, immediately flush the eye with large amounts of water and seek medical attention.

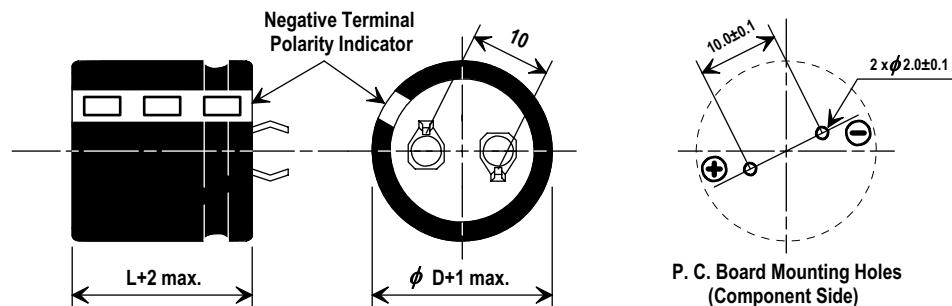
If electrolytes or vapors are ingested by mouth, gargle with water.

If electrolyte contacts the skin, wash with soap and water.

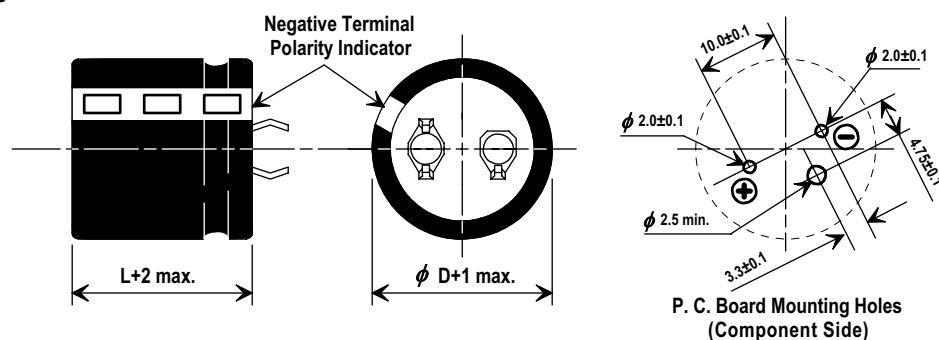
TS Type General Information

Dimensions

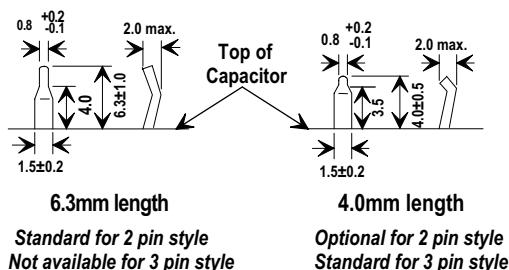
2 Pin Style



3 Pin Style



Terminal Dimensions



Standard Packaging Quantities

| Diameter | Length | Box Quantity |
|----------|---------|--------------|
| 22mm | 20~50mm | 200 |
| 25mm | 20~50mm | 200 |
| 30mm | 20~50mm | 200 |
| 35mm | 20~50mm | 100 |
| 35mm | >50mm | 50 |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-UQ Series 85°C, 2000 hours

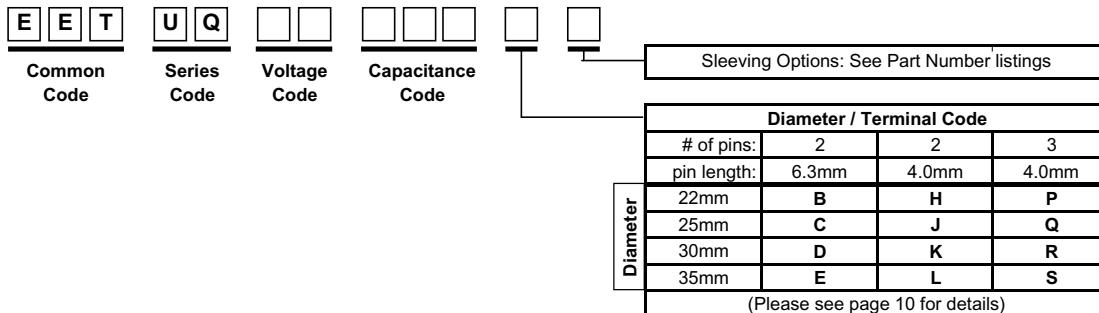
- Highly miniaturized version (30% smaller than UP series)
- 2 and 3 pin versions available
- PET Sleeve Option



| | | | | | | | | | | | | |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------|------|---------|---------------|------|------|---------------------------------------------|------|------|------|-------|
| Rated Working Voltage: | 16 ~ 250 VDC | | | | 350 ~ 450 VDC | | | | | | | |
| Operating Temperature: | -40 ~ +85°C | | | | -25 ~ +85°C | | | | | | | |
| Nominal Capacitance: | 270 ~ 100000µF | | | | 82 ~ 1000µF | | | | | | | |
| Capacitance Tolerance: | ± 20% | | | | | | | | | | | |
| Dissipation Factor: (120 Hz, +20°C) | Working Voltage [V]: | 16 | 25 | 35 | 50 | 63 | 80 | 100 | | | | |
| | Max. D.F. (%): | 50 | 40 | 35 | 30 | 25 | 20 | 15 | | | | |
| For capacitance values > 33000µF, add the value of: $\frac{(\text{rated cap. } [\mu\text{F}] - 33000)}{1000}$ | | | | | | | | | | | | |
| Leakage Current: | 3√CV (µA) max. after 5 minutes; C = Capacitance in µF, V = WV | | | | | | | | | | | |
| Ripple Current Multipliers: | Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k | Ripple Current Ambient Temperature Factors* | | | | |
| | 16~100WV: | 0.93 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 | Temperature (°C): | 85°C | 70°C | 60°C | ≤45°C |
| | 160~450WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | Multiplier: | 1.0 | 1.3 | 1.4 | 1.5 |
| Endurance: | 2000 hours at +85°C with maximum specified ripple current (see page 6) | | | | | | | | | | | |

*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



TS-UQ Standard Ratings (part numbers shown with 2 pins and 6.3mm length terminal)

| Cap. (µF) | Size (mm) D x L | Max 85°C R.C. (A _{rms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
|------------------------------|--------------------|-----------------------------------|--------|--------------------|-------|--------------------------|-----------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | | | |
| 16 VDC Working, 20 VDC Surge | | | | | | | | | |
| 12000 | 22 x 25 | 4.52 | 5.20 | 0.069 | 0.059 | EETUQ1C123B_ | A | (No suffix) | J |
| 15000 | 22 x 30 | 5.26 | 6.05 | 0.055 | 0.047 | EETUQ1C153B_ | A | (No suffix) | J |
| 18000 | 22 x 35 | 5.57 | 6.41 | 0.046 | 0.039 | EETUQ1C183B_ | A | (No suffix) | J |
| | 25 x 25 | 5.57 | 6.41 | 0.046 | 0.039 | EETUQ1C183C_ | A | (No suffix) | J |
| 22000 | 22 x 40 | 6.10 | 7.02 | 0.038 | 0.032 | EETUQ1C223B_ | A | (No suffix) | J |
| | 25 x 30 | 6.10 | 7.02 | 0.038 | 0.032 | EETUQ1C223C_ | A | (No suffix) | J |
| 27000 | 22 x 45 | 6.31 | 7.26 | 0.031 | 0.026 | EETUQ1C273B_ | A | (No suffix) | J |
| | 25 x 35 | 6.31 | 7.26 | 0.031 | 0.026 | EETUQ1C273C_ | A | (No suffix) | J |
| | 30 x 25 | 6.31 | 7.26 | 0.031 | 0.026 | EETUQ1C273D_ | A | (No suffix) | J |
| 33000 | 22 x 50 | 6.84 | 7.87 | 0.025 | 0.021 | EETUQ1C333B_ | A | (No suffix) | J |
| | 25 x 40 | 6.84 | 7.87 | 0.025 | 0.021 | EETUQ1C333C_ | A | (No suffix) | J |
| | 30 x 30 | 6.84 | 7.87 | 0.025 | 0.021 | EETUQ1C333D_ | A | (No suffix) | J |
| | 35 x 25 | 6.84 | 7.87 | 0.025 | 0.021 | EETUQ1C333E_ | A | (No suffix) | J |
| 39000 | 25 x 45 | 6.94 | 7.98 | 0.024 | 0.020 | EETUQ1C393C_ | A | (No suffix) | J |
| | 30 x 35 | 6.94 | 7.98 | 0.024 | 0.020 | EETUQ1C393D_ | A | (No suffix) | J |
| 47000 | 25 x 50 | 7.47 | 8.59 | 0.023 | 0.019 | EETUQ1C473C_ | A | (No suffix) | J |
| | 30 x 40 | 7.47 | 8.59 | 0.023 | 0.019 | EETUQ1C473D_ | A | (No suffix) | J |
| | 35 x 30 | 7.47 | 8.59 | 0.023 | 0.019 | EETUQ1C473E_ | A | (No suffix) | J |
| 56000 | 30 x 45 | 8.73 | 10.04 | 0.022 | 0.019 | EETUQ1C563D_ | A | (No suffix) | J |
| | 35 x 35 | 8.73 | 10.04 | 0.022 | 0.018 | EETUQ1C563E_ | A | (No suffix) | J |
| 68000 | 30 x 50 | 9.05 | 10.41 | 0.021 | 0.018 | EETUQ1C683D_ | A | (No suffix) | J |
| | 35 x 40 | 9.05 | 10.41 | 0.021 | 0.018 | EETUQ1C683E_ | A | (No suffix) | J |
| 82000 | 35 x 45 | 9.49 | 10.91 | 0.020 | 0.018 | EETUQ1C823E_ | A | (No suffix) | J |
| 100000 | 35 x 50 | 10.18 | 11.71 | 0.019 | 0.018 | EETUQ1C104E_ | A | (No suffix) | J |

TS-UQ Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 85°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|-------------------------------------|--------------------|-----------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 25 VDC Working, 32 VDC Surge | | | | | | | | | |
| 8200 | 22 x 25 | 3.57 | 4.11 | 0.081 | 0.065 | EETUQ1E822B_ | A | (No suffix) | J |
| 12000 | 22 x 30 | 4.10 | 4.72 | 0.055 | 0.044 | EETUQ1E123B_ | A | (No suffix) | J |
| | 25 x 25 | 4.10 | 4.72 | 0.055 | 0.044 | EETUQ1E123C_ | A | (No suffix) | J |
| 15000 | 22 x 35 | 4.63 | 5.32 | 0.044 | 0.035 | EETUQ1E153B_ | A | (No suffix) | J |
| | 25 x 30 | 4.63 | 5.32 | 0.044 | 0.035 | EETUQ1E153C_ | A | (No suffix) | J |
| 18000 | 22 x 40 | 5.47 | 6.29 | 0.037 | 0.029 | EETUQ1E183B_ | A | (No suffix) | J |
| | 25 x 35 | 5.47 | 6.29 | 0.037 | 0.029 | EETUQ1E183C_ | A | (No suffix) | J |
| | 30 x 25 | 5.47 | 6.29 | 0.037 | 0.029 | EETUQ1E183D_ | A | (No suffix) | J |
| 22000 | 22 x 45 | 6.10 | 7.02 | 0.030 | 0.024 | EETUQ1E223B_ | A | (No suffix) | J |
| | 25 x 40 | 6.10 | 7.02 | 0.030 | 0.024 | EETUQ1E223C_ | A | (No suffix) | J |
| | 30 x 30 | 6.10 | 7.02 | 0.030 | 0.024 | EETUQ1E223D_ | A | (No suffix) | J |
| | 35 x 25 | 6.10 | 7.02 | 0.030 | 0.024 | EETUQ1E223E_ | A | (No suffix) | J |
| 27000 | 25 x 45 | 6.21 | 7.14 | 0.025 | 0.020 | EETUQ1E273C_ | A | (No suffix) | J |
| | 30 x 35 | 6.21 | 7.14 | 0.025 | 0.020 | EETUQ1E273D_ | A | (No suffix) | J |
| 33000 | 25 x 50 | 6.84 | 7.87 | 0.020 | 0.016 | EETUQ1E333C_ | A | (No suffix) | J |
| | 30 x 40 | 6.84 | 7.87 | 0.020 | 0.016 | EETUQ1E333D_ | A | (No suffix) | J |
| | 35 x 30 | 6.84 | 7.87 | 0.020 | 0.016 | EETUQ1E333E_ | A | (No suffix) | J |
| 39000 | 30 x 45 | 7.36 | 8.46 | 0.020 | 0.016 | EETUQ1E393D_ | A | (No suffix) | J |
| | 35 x 35 | 7.36 | 8.46 | 0.020 | 0.016 | EETUQ1E393E_ | A | (No suffix) | J |
| 47000 | 30 x 50 | 8.00 | 9.20 | 0.019 | 0.016 | EETUQ1E473D_ | A | (No suffix) | J |
| | 35 x 40 | 8.00 | 9.20 | 0.019 | 0.015 | EETUQ1E473E_ | A | (No suffix) | J |
| 56000 | 35 x 45 | 8.91 | 10.25 | 0.019 | 0.016 | EETUQ1E563E_ | A | (No suffix) | J |
| 68000 | 35 x 50 | 9.79 | 11.26 | 0.018 | 0.016 | EETUQ1E683E_ | A | (No suffix) | J |
| 35 VDC Working, 44 VDC Surge | | | | | | | | | |
| 5600 | 22 x 25 | 3.36 | 3.86 | 0.104 | 0.078 | EETUQ1V562B_ | A | (No suffix) | J |
| 8200 | 22 x 30 | 4.00 | 4.60 | 0.071 | 0.053 | EETUQ1V822B_ | A | (No suffix) | J |
| | 25 x 25 | 4.00 | 4.60 | 0.071 | 0.053 | EETUQ1V822C_ | A | (No suffix) | J |
| 10000 | 22 x 35 | 4.42 | 5.08 | 0.058 | 0.044 | EETUQ1V103B_ | A | (No suffix) | J |
| | 25 x 30 | 4.42 | 5.08 | 0.058 | 0.044 | EETUQ1V103C_ | A | (No suffix) | J |
| 12000 | 22 x 40 | 5.05 | 5.81 | 0.048 | 0.036 | EETUQ1V123B_ | A | (No suffix) | J |
| | 25 x 35 | 5.05 | 5.81 | 0.048 | 0.036 | EETUQ1V123C_ | A | (No suffix) | J |
| | 30 x 25 | 5.05 | 5.81 | 0.048 | 0.036 | EETUQ1V123D_ | A | (No suffix) | J |
| 15000 | 22 x 45 | 5.57 | 6.41 | 0.039 | 0.029 | EETUQ1V153B_ | A | (No suffix) | J |
| | 25 x 40 | 5.57 | 6.41 | 0.039 | 0.029 | EETUQ1V153C_ | A | (No suffix) | J |
| 18000 | 25 x 45 | 5.68 | 6.53 | 0.032 | 0.024 | EETUQ1V183C_ | A | (No suffix) | J |
| | 30 x 30 | 5.68 | 6.53 | 0.032 | 0.024 | EETUQ1V183D_ | A | (No suffix) | J |
| | 35 x 25 | 5.68 | 6.53 | 0.032 | 0.024 | EETUQ1V183E_ | A | (No suffix) | J |
| 22000 | 25 x 50 | 6.10 | 7.02 | 0.026 | 0.020 | EETUQ1V223C_ | A | (No suffix) | J |
| | 30 x 35 | 6.10 | 7.02 | 0.026 | 0.020 | EETUQ1V223D_ | A | (No suffix) | J |
| | 35 x 30 | 6.10 | 7.02 | 0.026 | 0.020 | EETUQ1V223E_ | A | (No suffix) | J |
| 27000 | 30 x 45 | 6.84 | 7.87 | 0.021 | 0.016 | EETUQ1V273D_ | A | (No suffix) | J |
| | 35 x 35 | 6.84 | 7.87 | 0.021 | 0.016 | EETUQ1V273E_ | A | (No suffix) | J |
| 33000 | 30 x 50 | 7.15 | 8.22 | 0.018 | 0.013 | EETUQ1V333D_ | A | (No suffix) | J |
| | 35 x 40 | 7.15 | 8.22 | 0.018 | 0.014 | EETUQ1V333E_ | A | (No suffix) | J |
| 39000 | 35 x 45 | 7.91 | 9.10 | 0.017 | 0.014 | EETUQ1V393E_ | A | (No suffix) | J |
| 47000 | 35 x 50 | 8.56 | 9.84 | 0.017 | 0.014 | EETUQ1V473E_ | A | (No suffix) | J |
| 50 VDC Working, 63 VDC Surge | | | | | | | | | |
| 3300 | 22 x 25 | 2.73 | 3.14 | 0.151 | 0.113 | EETUQ1H332B_ | A | (No suffix) | J |
| 4700 | 22 x 30 | 3.03 | 3.48 | 0.106 | 0.079 | EETUQ1H472B_ | A | (No suffix) | J |
| | 25 x 25 | 3.03 | 3.48 | 0.106 | 0.079 | EETUQ1H472C_ | A | (No suffix) | J |
| 5600 | 22 x 35 | 3.42 | 3.93 | 0.089 | 0.067 | EETUQ1H562B_ | A | (No suffix) | J |
| 6800 | 22 x 40 | 3.85 | 4.43 | 0.073 | 0.055 | EETUQ1H682B_ | A | (No suffix) | J |
| | 25 x 30 | 3.85 | 4.43 | 0.073 | 0.055 | EETUQ1H682C_ | A | (No suffix) | J |
| | 30 x 25 | 3.85 | 4.43 | 0.073 | 0.055 | EETUQ1H682D_ | A | (No suffix) | J |
| 8200 | 22 x 45 | 4.41 | 5.07 | 0.061 | 0.045 | EETUQ1H822B_ | A | (No suffix) | J |
| | 25 x 35 | 4.41 | 5.07 | 0.061 | 0.045 | EETUQ1H822C_ | A | (No suffix) | J |
| 10000 | 22 x 50 | 4.97 | 5.72 | 0.050 | 0.037 | EETUQ1H103B_ | A | (No suffix) | J |
| | 25 x 40 | 4.97 | 5.72 | 0.050 | 0.037 | EETUQ1H103C_ | A | (No suffix) | J |
| | 30 x 30 | 4.97 | 5.72 | 0.050 | 0.037 | EETUQ1H103D_ | A | (No suffix) | J |
| | 35 x 25 | 4.97 | 5.72 | 0.050 | 0.037 | EETUQ1H103E_ | A | (No suffix) | J |
| 12000 | 25 x 45 | 5.58 | 6.42 | 0.041 | 0.031 | EETUQ1H123C_ | A | (No suffix) | J |
| | 30 x 35 | 5.58 | 6.42 | 0.041 | 0.031 | EETUQ1H123D_ | A | (No suffix) | J |
| | 35 x 30 | 5.58 | 6.42 | 0.041 | 0.031 | EETUQ1H123E_ | A | (No suffix) | J |

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LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-UQ Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 85°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|-------------------------------------------------|--------------------|-----------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 50 VDC Working, 63 VDC Surge (continued) | | | | | | | | | |
| 15000 | 30 x 40 | 6.44 | 7.41 | 0.033 | 0.025 | EETUQ1H153D_ | A | (No suffix) | J |
| | 35 x 35 | 6.44 | 7.41 | 0.033 | 0.025 | EETUQ1H153E_ | A | (No suffix) | J |
| 18000 | 30 x 45 | 6.94 | 7.98 | 0.028 | 0.021 | EETUQ1H183D_ | A | (No suffix) | J |
| | 35 x 40 | 6.94 | 7.98 | 0.028 | 0.021 | EETUQ1H183E_ | A | (No suffix) | J |
| 22000 | 35 x 45 | 7.57 | 8.71 | 0.023 | 0.018 | EETUQ1H223E_ | A | (No suffix) | J |
| 27000 | 35 x 50 | 8.96 | 10.30 | 0.018 | 0.015 | EETUQ1H273E_ | A | (No suffix) | J |
| 63 VDC Working, 79 VDC Surge | | | | | | | | | |
| 2200 | 22 x 25 | 2.52 | 2.90 | 0.188 | 0.141 | EETUQ1J222B_ | A | (No suffix) | J |
| 3300 | 22 x 30 | 4.10 | 4.72 | 0.126 | 0.094 | EETUQ1J332B_ | A | (No suffix) | J |
| | 25 x 25 | 4.10 | 4.72 | 0.126 | 0.094 | EETUQ1J332C_ | A | (No suffix) | J |
| 3900 | 22 x 35 | 4.44 | 5.11 | 0.106 | 0.080 | EETUQ1J392B_ | A | (No suffix) | J |
| | 25 x 30 | 4.44 | 5.11 | 0.106 | 0.080 | EETUQ1J392C_ | A | (No suffix) | J |
| 4700 | 22 x 40 | 4.86 | 5.59 | 0.088 | 0.066 | EETUQ1J472B_ | A | (No suffix) | J |
| | 25 x 35 | 4.86 | 5.59 | 0.088 | 0.066 | EETUQ1J472C_ | A | (No suffix) | J |
| | 30 x 25 | 4.86 | 5.59 | 0.088 | 0.066 | EETUQ1J472D_ | A | (No suffix) | J |
| 5600 | 22 x 45 | 5.36 | 6.16 | 0.074 | 0.056 | EETUQ1J562B_ | A | (No suffix) | J |
| | 25 x 40 | 5.36 | 6.16 | 0.074 | 0.056 | EETUQ1J562C_ | A | (No suffix) | J |
| 6800 | 25 x 45 | 5.84 | 6.72 | 0.061 | 0.046 | EETUQ1J682C_ | A | (No suffix) | J |
| | 30 x 30 | 5.84 | 6.72 | 0.061 | 0.046 | EETUQ1J682D_ | A | (No suffix) | J |
| | 35 x 25 | 5.84 | 6.72 | 0.061 | 0.046 | EETUQ1J682E_ | A | (No suffix) | J |
| 8200 | 25 x 50 | 6.00 | 6.90 | 0.051 | 0.038 | EETUQ1J822C_ | A | (No suffix) | J |
| | 30 x 35 | 6.00 | 6.90 | 0.051 | 0.038 | EETUQ1J822D_ | A | (No suffix) | J |
| | 35 x 30 | 6.00 | 6.90 | 0.051 | 0.038 | EETUQ1J822E_ | A | (No suffix) | J |
| 10000 | 30 x 40 | 6.52 | 7.50 | 0.041 | 0.031 | EETUQ1J103D_ | A | (No suffix) | J |
| | 35 x 35 | 6.52 | 7.50 | 0.041 | 0.031 | EETUQ1J103E_ | A | (No suffix) | J |
| 12000 | 30 x 45 | 7.15 | 8.22 | 0.035 | 0.026 | EETUQ1J123D_ | A | (No suffix) | J |
| | 35 x 40 | 7.15 | 8.22 | 0.035 | 0.026 | EETUQ1J123E_ | A | (No suffix) | J |
| 15000 | 35 x 45 | 7.91 | 9.10 | 0.028 | 0.021 | EETUQ1J153E_ | A | (No suffix) | J |
| 18000 | 35 x 50 | 8.55 | 9.83 | 0.023 | 0.018 | EETUQ1J183E_ | A | (No suffix) | J |
| 80 VDC Working, 100 VDC Surge | | | | | | | | | |
| 1500 | 22 x 25 | 2.26 | 2.60 | 0.221 | 0.166 | EETUQ1K152B_ | A | (No suffix) | J |
| 1800 | 22 x 30 | 2.52 | 2.90 | 0.184 | 0.138 | EETUQ1K182B_ | A | (No suffix) | J |
| 2200 | 22 x 35 | 2.73 | 3.14 | 0.151 | 0.113 | EETUQ1K222B_ | A | (No suffix) | J |
| | 25 x 25 | 2.73 | 3.14 | 0.151 | 0.113 | EETUQ1K222C_ | A | (No suffix) | J |
| 2700 | 22 x 40 | 2.78 | 3.20 | 0.123 | 0.092 | EETUQ1K272B_ | A | (No suffix) | J |
| | 25 x 30 | 2.78 | 3.20 | 0.123 | 0.092 | EETUQ1K272C_ | A | (No suffix) | J |
| 3300 | 22 x 45 | 3.21 | 3.69 | 0.100 | 0.075 | EETUQ1K332B_ | A | (No suffix) | J |
| | 25 x 35 | 3.21 | 3.69 | 0.100 | 0.075 | EETUQ1K332C_ | A | (No suffix) | J |
| | 30 x 25 | 3.21 | 3.69 | 0.100 | 0.075 | EETUQ1K332D_ | A | (No suffix) | J |
| 3900 | 22 x 50 | 3.59 | 4.13 | 0.085 | 0.064 | EETUQ1K392B_ | A | (No suffix) | J |
| | 25 x 40 | 3.59 | 4.13 | 0.085 | 0.064 | EETUQ1K392C_ | A | (No suffix) | J |
| | 35 x 25 | 3.59 | 4.13 | 0.085 | 0.064 | EETUQ1K392E_ | A | (No suffix) | J |
| 4700 | 25 x 45 | 4.09 | 4.70 | 0.071 | 0.053 | EETUQ1K472C_ | A | (No suffix) | J |
| | 30 x 30 | 4.09 | 4.70 | 0.071 | 0.053 | EETUQ1K472D_ | A | (No suffix) | J |
| 5600 | 25 x 50 | 4.55 | 5.23 | 0.059 | 0.044 | EETUQ1K562C_ | A | (No suffix) | J |
| | 30 x 35 | 4.55 | 5.23 | 0.059 | 0.044 | EETUQ1K562D_ | A | (No suffix) | J |
| | 35 x 30 | 4.55 | 5.23 | 0.059 | 0.044 | EETUQ1K562E_ | A | (No suffix) | J |
| 6800 | 30 x 45 | 5.16 | 5.93 | 0.049 | 0.037 | EETUQ1K682D_ | A | (No suffix) | J |
| | 35 x 35 | 5.16 | 5.93 | 0.049 | 0.037 | EETUQ1K682E_ | A | (No suffix) | J |
| 8200 | 30 x 50 | 5.83 | 6.70 | 0.040 | 0.030 | EETUQ1K822D_ | A | (No suffix) | J |
| | 35 x 40 | 5.83 | 6.70 | 0.040 | 0.030 | EETUQ1K822E_ | A | (No suffix) | J |
| 10000 | 35 x 45 | 6.51 | 7.49 | 0.033 | 0.025 | EETUQ1K103E_ | A | (No suffix) | J |
| 12000 | 35 x 50 | 7.28 | 8.37 | 0.028 | 0.021 | EETUQ1K123E_ | A | (No suffix) | J |
| 100 VDC Working, 125 VDC Surge | | | | | | | | | |
| 1000 | 22 x 25 | 1.96 | 2.25 | 0.332 | 0.216 | EETUQ2A102B_ | A | (No suffix) | J |
| 1200 | 25 x 25 | 2.31 | 2.66 | 0.276 | 0.180 | EETUQ2A122C_ | A | (No suffix) | J |
| 1500 | 22 x 30 | 2.57 | 2.96 | 0.221 | 0.144 | EETUQ2A152B_ | A | (No suffix) | J |
| 1800 | 22 x 35 | 2.84 | 3.27 | 0.184 | 0.120 | EETUQ2A182B_ | A | (No suffix) | J |
| | 25 x 30 | 2.84 | 3.27 | 0.184 | 0.120 | EETUQ2A182C_ | A | (No suffix) | J |
| 2200 | 22 x 45 | 3.14 | 3.61 | 0.151 | 0.098 | EETUQ2A222B_ | A | (No suffix) | J |
| | 25 x 35 | 3.14 | 3.61 | 0.151 | 0.098 | EETUQ2A222C_ | A | (No suffix) | J |
| | 30 x 25 | 3.14 | 3.61 | 0.151 | 0.098 | EETUQ2A222D_ | A | (No suffix) | J |

TS-UQ Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 85°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|---------------------------------------------------|--------------------|-----------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 100 VDC Working, 125 VDC Surge (continued) | | | | | | | | | |
| 2700 | 22 x 50 | 3.71 | 4.27 | 0.123 | 0.080 | EETUQ2A272B_ | A | (No suffix) | J |
| | 25 x 40 | 3.71 | 4.27 | 0.123 | 0.080 | EETUQ2A272C_ | A | (No suffix) | J |
| | 30 x 30 | 3.71 | 4.27 | 0.123 | 0.080 | EETUQ2A272D_ | A | (No suffix) | J |
| | 35 x 25 | 3.71 | 4.27 | 0.123 | 0.080 | EETUQ2A272E_ | A | (No suffix) | J |
| 3300 | 25 x 45 | 4.06 | 4.67 | 0.100 | 0.065 | EETUQ2A332C_ | A | (No suffix) | J |
| | 30 x 35 | 4.06 | 4.67 | 0.100 | 0.065 | EETUQ2A332D_ | A | (No suffix) | J |
| 3900 | 25 x 50 | 4.54 | 5.22 | 0.085 | 0.055 | EETUQ2A392C_ | A | (No suffix) | J |
| | 30 x 40 | 4.54 | 5.22 | 0.085 | 0.055 | EETUQ2A392D_ | A | (No suffix) | J |
| | 35 x 30 | 4.54 | 5.22 | 0.085 | 0.055 | EETUQ2A392E_ | A | (No suffix) | J |
| 4700 | 30 x 45 | 5.13 | 5.90 | 0.071 | 0.046 | EETUQ2A472D_ | A | (No suffix) | J |
| | 35 x 35 | 5.13 | 5.90 | 0.071 | 0.046 | EETUQ2A472E_ | A | (No suffix) | J |
| 5600 | 30 x 50 | 5.75 | 6.61 | 0.059 | 0.041 | EETUQ2A562D_ | A | (No suffix) | J |
| | 35 x 40 | 5.75 | 6.61 | 0.059 | 0.038 | EETUQ2A562E_ | A | (No suffix) | J |
| 6800 | 35 x 45 | 6.60 | 7.59 | 0.049 | 0.034 | EETUQ2A682E_ | A | (No suffix) | J |
| 8200 | 35 x 50 | 7.29 | 8.38 | 0.040 | 0.030 | EETUQ2A822E_ | A | (No suffix) | J |
| 160 VDC Working, 200 VDC Surge | | | | | | | | | |
| 560 | 22 x 25 | 2.25 | 3.15 | 0.355 | 0.160 | EETUQ2C561B_ | A | (No suffix) | J |
| 680 | 22 x 30 | 2.50 | 3.50 | 0.293 | 0.132 | EETUQ2C681B_ | A | (No suffix) | J |
| 820 | 22 x 35 | 2.75 | 3.85 | 0.243 | 0.109 | EETUQ2C821B_ | A | (No suffix) | J |
| 1000 | 22 x 40 | 3.00 | 4.20 | 0.199 | 0.090 | EETUQ2C102B_ | A | (No suffix) | J |
| | 25 x 30 | 3.00 | 4.20 | 0.199 | 0.090 | EETUQ2C102C_ | A | (No suffix) | J |
| 1200 | 22 x 45 | 3.25 | 4.55 | 0.166 | 0.075 | EETUQ2C122B_ | A | (No suffix) | J |
| | 25 x 35 | 3.25 | 4.55 | 0.166 | 0.075 | EETUQ2C122C_ | A | (No suffix) | J |
| | 30 x 25 | 3.25 | 4.55 | 0.166 | 0.075 | EETUQ2C122D_ | A | (No suffix) | J |
| 1500 | 22 x 50 | 3.73 | 5.22 | 0.133 | 0.060 | EETUQ2C152B_ | A | (No suffix) | J |
| | 25 x 40 | 3.73 | 5.22 | 0.133 | 0.060 | EETUQ2C152C_ | A | (No suffix) | J |
| | 30 x 30 | 3.73 | 5.22 | 0.133 | 0.060 | EETUQ2C152D_ | A | (No suffix) | J |
| | 35 x 25 | 3.73 | 5.22 | 0.133 | 0.060 | EETUQ2C152E_ | A | (No suffix) | J |
| 1800 | 25 x 45 | 4.20 | 5.88 | 0.111 | 0.050 | EETUQ2C182C_ | A | (No suffix) | J |
| | 30 x 35 | 4.20 | 5.88 | 0.120 | 0.060 | EETUQ2C182D_ | A | (No suffix) | J |
| | 35 x 30 | 4.20 | 5.88 | 0.111 | 0.050 | EETUQ2C182E_ | A | (No suffix) | J |
| 2200 | 30 x 40 | 4.78 | 6.69 | 0.090 | 0.041 | EETUQ2C222D_ | A | (No suffix) | J |
| | 35 x 35 | 4.78 | 6.69 | 0.098 | 0.049 | EETUQ2C222E_ | A | (No suffix) | J |
| 2700 | 30 x 45 | 5.45 | 7.63 | 0.074 | 0.033 | EETUQ2C272D_ | A | (No suffix) | J |
| | 35 x 40 | 5.45 | 7.63 | 0.080 | 0.040 | EETUQ2C272E_ | A | (No suffix) | J |
| 3300 | 35 x 45 | 5.75 | 8.05 | 0.070 | 0.035 | EETUQ2C332E_ | A | (No suffix) | J |
| 3900 | 35 x 50 | 6.00 | 8.40 | 0.055 | 0.028 | EETUQ2C392E_ | A | (No suffix) | J |
| 200 VDC Working, 250 VDC Surge | | | | | | | | | |
| 390 | 22 x 25 | 1.68 | 2.35 | 0.510 | 0.230 | EETUQ2D391B_ | A | (No suffix) | J |
| 470 | 22 x 30 | 1.85 | 2.59 | 0.423 | 0.190 | EETUQ2D471B_ | A | (No suffix) | J |
| 560 | 22 x 30 | 2.43 | 3.40 | 0.355 | 0.160 | EETUQ2D561B_ | A | (No suffix) | J |
| | 25 x 25 | 2.43 | 3.40 | 0.355 | 0.160 | EETUQ2D561C_ | A | (No suffix) | J |
| 680 | 22 x 35 | 2.68 | 3.75 | 0.293 | 0.132 | EETUQ2D681B_ | A | (No suffix) | J |
| | 25 x 30 | 2.68 | 3.75 | 0.293 | 0.132 | EETUQ2D681C_ | A | (No suffix) | J |
| 820 | 22 x 40 | 2.93 | 4.10 | 0.243 | 0.109 | EETUQ2D821B_ | A | (No suffix) | J |
| | 25 x 30 | 2.93 | 4.10 | 0.243 | 0.109 | EETUQ2D821C_ | A | (No suffix) | J |
| | 30 x 25 | 2.93 | 4.10 | 0.243 | 0.109 | EETUQ2D821D_ | A | (No suffix) | J |
| 1000 | 22 x 45 | 3.25 | 4.55 | 0.199 | 0.090 | EETUQ2D102B_ | A | (No suffix) | J |
| | 25 x 35 | 3.25 | 4.55 | 0.199 | 0.090 | EETUQ2D102C_ | A | (No suffix) | J |
| | 30 x 30 | 3.25 | 4.55 | 0.199 | 0.090 | EETUQ2D102D_ | A | (No suffix) | J |
| | 35 x 25 | 3.25 | 4.55 | 0.232 | 0.116 | EETUQ2D102E_ | A | (No suffix) | J |
| 1200 | 22 x 50 | 3.50 | 4.90 | 0.166 | 0.075 | EETUQ2D122B_ | A | (No suffix) | J |
| | 25 x 40 | 3.50 | 4.90 | 0.166 | 0.075 | EETUQ2D122C_ | A | (No suffix) | J |
| | 30 x 30 | 3.50 | 4.90 | 0.166 | 0.075 | EETUQ2D122D_ | A | (No suffix) | J |
| 1500 | 25 x 50 | 3.87 | 5.42 | 0.133 | 0.060 | EETUQ2D152C_ | A | (No suffix) | J |
| | 30 x 35 | 3.87 | 5.42 | 0.144 | 0.065 | EETUQ2D152D_ | A | (No suffix) | J |
| | 35 x 30 | 3.87 | 5.42 | 0.144 | 0.065 | EETUQ2D152E_ | A | (No suffix) | J |
| 1800 | 30 x 45 | 4.32 | 6.05 | 0.120 | 0.060 | EETUQ2D182D_ | A | (No suffix) | J |
| | 35 x 35 | 4.32 | 6.05 | 0.120 | 0.060 | EETUQ2D182E_ | A | (No suffix) | J |
| 2200 | 30 x 50 | 4.92 | 6.89 | 0.098 | 0.049 | EETUQ2D222D_ | A | (No suffix) | J |
| | 35 x 40 | 4.92 | 6.89 | 0.105 | 0.053 | EETUQ2D222E_ | A | (No suffix) | J |
| 2700 | 35 x 50 | 5.45 | 7.63 | 0.086 | 0.043 | EETUQ2D272E_ | A | (No suffix) | J |

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LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-UQ Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 85°C R.C. (A _{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|---------------------------------------|--------------------|-----------------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 250 VDC Working, 300 VDC Surge | | | | | | | | | |
| 270 | 22 x 25 | 1.31 | 1.83 | 0.737 | 0.332 | EETUQ2E271B_ | A | (No suffix) | J |
| 330 | 22 x 30 | 1.75 | 2.45 | 0.603 | 0.271 | EETUQ2E331B_ | A | (No suffix) | J |
| 390 | 22 x 30 | 1.91 | 2.67 | 0.510 | 0.230 | EETUQ2E391B_ | A | (No suffix) | J |
| | 25 x 25 | 1.91 | 2.67 | 0.510 | 0.230 | EETUQ2E391C_ | A | (No suffix) | J |
| 470 | 22 x 35 | 2.11 | 2.95 | 0.423 | 0.190 | EETUQ2E471B_ | A | (No suffix) | J |
| | 25 x 30 | 2.11 | 2.95 | 0.423 | 0.190 | EETUQ2E471C_ | A | (No suffix) | J |
| 560 | 22 x 40 | 2.25 | 3.15 | 0.355 | 0.160 | EETUQ2E561B_ | A | (No suffix) | J |
| | 25 x 30 | 2.25 | 3.15 | 0.355 | 0.160 | EETUQ2E561C_ | A | (No suffix) | J |
| | 30 x 25 | 2.25 | 3.15 | 0.355 | 0.160 | EETUQ2E561D_ | A | (No suffix) | J |
| 680 | 22 x 45 | 2.50 | 3.50 | 0.293 | 0.132 | EETUQ2E681B_ | A | (No suffix) | J |
| | 25 x 35 | 2.50 | 3.50 | 0.293 | 0.132 | EETUQ2E681C_ | A | (No suffix) | J |
| | 30 x 25 | 2.30 | 3.22 | 0.293 | 0.132 | EETUQ2E681D_ | F | U | C |
| | 30 x 30 | 2.50 | 3.50 | 0.293 | 0.132 | EETUQ2E681D_ | A | (No suffix) | J |
| 820 | 22 x 50 | 2.77 | 3.88 | 0.243 | 0.109 | EETUQ2E821B_ | A | (No suffix) | J |
| | 25 x 40 | 2.77 | 3.88 | 0.243 | 0.109 | EETUQ2E821C_ | A | (No suffix) | J |
| | 30 x 30 | 2.77 | 3.88 | 0.243 | 0.109 | EETUQ2E821D_ | A | (No suffix) | J |
| | 35 x 25 | 2.77 | 3.88 | 0.243 | 0.121 | EETUQ2E821E_ | A | (No suffix) | J |
| 1000 | 25 x 45 | 3.32 | 4.65 | 0.199 | 0.090 | EETUQ2E102C_ | A | (No suffix) | J |
| | 30 x 35 | 3.32 | 4.65 | 0.199 | 0.090 | EETUQ2E102D_ | A | (No suffix) | J |
| | 35 x 30 | 3.32 | 4.65 | 0.199 | 0.090 | EETUQ2E102E_ | A | (No suffix) | J |
| 1200 | 30 x 40 | 3.53 | 4.94 | 0.166 | 0.075 | EETUQ2E122D_ | A | (No suffix) | J |
| | 35 x 35 | 3.53 | 4.94 | 0.166 | 0.083 | EETUQ2E122E_ | A | (No suffix) | J |
| 1500 | 30 x 50 | 4.04 | 5.66 | 0.133 | 0.066 | EETUQ2E152D_ | A | (No suffix) | J |
| | 35 x 40 | 4.04 | 5.66 | 0.133 | 0.066 | EETUQ2E152E_ | A | (No suffix) | J |
| 1800 | 35 x 45 | 4.55 | 6.37 | 0.111 | 0.055 | EETUQ2E182E_ | A | (No suffix) | J |
| 2200 | 35 x 50 | 4.75 | 6.65 | 0.098 | 0.049 | EETUQ2E222E_ | A | (No suffix) | J |
| 350 VDC Working, 400 VDC Surge | | | | | | | | | |
| 150 | 22 x 25 | 1.12 | 1.57 | 1.326 | 0.663 | EETUQ2V151B_ | A | (No suffix) | J |
| 180 | 22 x 30 | 1.22 | 1.71 | 1.105 | 0.553 | EETUQ2V181B_ | A | (No suffix) | J |
| 220 | 22 x 35 | 1.44 | 2.02 | 0.904 | 0.452 | EETUQ2V221B_ | A | (No suffix) | J |
| 270 | 22 x 40 | 1.66 | 2.32 | 0.737 | 0.368 | EETUQ2V271B_ | A | (No suffix) | J |
| | 25 x 30 | 1.66 | 2.32 | 0.737 | 0.368 | EETUQ2V271C_ | A | (No suffix) | J |
| 330 | 22 x 45 | 1.88 | 2.63 | 0.603 | 0.301 | EETUQ2V331B_ | A | (No suffix) | J |
| | 25 x 35 | 1.88 | 2.63 | 0.603 | 0.301 | EETUQ2V331C_ | A | (No suffix) | J |
| 390 | 22 x 50 | 2.06 | 2.88 | 0.510 | 0.255 | EETUQ2V391B_ | A | (No suffix) | J |
| | 25 x 40 | 2.06 | 2.88 | 0.510 | 0.255 | EETUQ2V391C_ | A | (No suffix) | J |
| | 30 x 30 | 2.06 | 2.88 | 0.510 | 0.255 | EETUQ2V391D_ | A | (No suffix) | J |
| | 35 x 25 | 2.06 | 2.88 | 0.510 | 0.255 | EETUQ2V391E_ | A | (No suffix) | J |
| 470 | 25 x 45 | 2.40 | 3.36 | 0.423 | 0.212 | EETUQ2V471C_ | A | (No suffix) | J |
| | 30 x 35 | 2.40 | 3.36 | 0.423 | 0.212 | EETUQ2V471D_ | A | (No suffix) | J |
| | 35 x 30 | 2.40 | 3.36 | 0.423 | 0.233 | EETUQ2V471E_ | A | (No suffix) | J |
| 560 | 25 x 50 | 2.60 | 3.64 | 0.355 | 0.178 | EETUQ2V561C_ | A | (No suffix) | J |
| | 30 x 40 | 2.60 | 3.64 | 0.355 | 0.178 | EETUQ2V561D_ | A | (No suffix) | J |
| | 35 x 30 | 2.60 | 3.64 | 0.355 | 0.195 | EETUQ2V561E_ | A | (No suffix) | J |
| 680 | 30 x 45 | 2.96 | 4.14 | 0.293 | 0.146 | EETUQ2V681D_ | A | (No suffix) | J |
| | 35 x 35 | 2.96 | 4.14 | 0.293 | 0.146 | EETUQ2V681E_ | A | (No suffix) | J |
| 820 | 30 x 50 | 3.25 | 4.55 | 0.243 | 0.121 | EETUQ2V821D_ | A | (No suffix) | J |
| | 35 x 45 | 3.25 | 4.55 | 0.243 | 0.121 | EETUQ2V821E_ | A | (No suffix) | J |
| 1000 | 35 x 50 | 3.54 | 4.96 | 0.199 | 0.109 | EETUQ2V102E_ | A | (No suffix) | J |
| 400 VDC Working, 450 VDC Surge | | | | | | | | | |
| 120 | 22 x 25 | 1.02 | 1.43 | 1.658 | 0.829 | EETUQ2G121B_ | A | (No suffix) | J |
| 150 | 22 x 30 | 1.16 | 1.62 | 1.326 | 0.663 | EETUQ2G151B_ | A | (No suffix) | J |
| 180 | 22 x 30 | 1.30 | 1.82 | 1.105 | 0.553 | EETUQ2G181B_ | F | U | C |
| | 22 x 35 | 1.44 | 2.02 | 1.105 | 0.553 | EETUQ2G181B_ | A | (No suffix) | J |
| 220 | 22 x 35 | 1.40 | 1.96 | 0.904 | 0.452 | EETUQ2G221B_ | F | U | C |
| | 22 x 40 | 1.49 | 2.09 | 0.904 | 0.452 | EETUQ2G221B_ | A | (No suffix) | J |
| | 25 x 30 | 1.49 | 2.09 | 0.904 | 0.452 | EETUQ2G221C_ | A | (No suffix) | J |
| 270 | 22 x 45 | 1.67 | 2.34 | 0.737 | 0.368 | EETUQ2G271B_ | A | (No suffix) | J |
| | 25 x 35 | 1.67 | 2.34 | 0.737 | 0.368 | EETUQ2G271C_ | A | (No suffix) | J |
| | 30 x 30 | 1.67 | 2.34 | 0.737 | 0.368 | EETUQ2G271D_ | A | (No suffix) | J |
| 330 | 22 x 50 | 1.90 | 2.66 | 0.603 | 0.301 | EETUQ2G331B_ | A | (No suffix) | J |
| | 25 x 40 | 1.90 | 2.66 | 0.603 | 0.301 | EETUQ2G331C_ | A | (No suffix) | J |

TS-UQ Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 85°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|---------------------------------------------------|--------------------|-----------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 400 VDC Working, 450 VDC Surge (continued) | | | | | | | | | |
| 330 | 30 x 30 | 1.90 | 2.66 | 0.603 | 0.301 | EETUQ2G331D_ | A | (No suffix) | J |
| | 35 x 25 | 1.90 | 2.66 | 0.603 | 0.301 | EETUQ2G331E_ | A | (No suffix) | J |
| 390 | 25 x 45 | 2.13 | 2.98 | 0.510 | 0.255 | EETUQ2G391C_ | A | (No suffix) | J |
| | 30 x 35 | 2.13 | 2.98 | 0.510 | 0.255 | EETUQ2G391D_ | A | (No suffix) | J |
| | 35 x 30 | 2.13 | 2.98 | 0.510 | 0.255 | EETUQ2G391E_ | A | (No suffix) | J |
| 470 | 25 x 50 | 2.39 | 3.35 | 0.423 | 0.212 | EETUQ2G471C_ | A | (No suffix) | J |
| | 30 x 40 | 2.39 | 3.35 | 0.423 | 0.212 | EETUQ2G471D_ | A | (No suffix) | J |
| | 35 x 30 | 2.39 | 3.35 | 0.423 | 0.212 | EETUQ2G471E_ | A | (No suffix) | J |
| 560 | 30 x 45 | 2.69 | 3.77 | 0.355 | 0.178 | EETUQ2G561D_ | A | (No suffix) | J |
| | 35 x 35 | 2.69 | 3.77 | 0.355 | 0.178 | EETUQ2G561E_ | A | (No suffix) | J |
| 680 | 35 x 40 | 2.70 | 3.78 | 0.293 | 0.146 | EETUQ2G681E_ | F | U | C |
| | 30 x 50 | 2.96 | 4.14 | 0.293 | 0.146 | EETUQ2G681D_ | A | (No suffix) | J |
| | 35 x 45 | 2.96 | 4.14 | 0.293 | 0.146 | EETUQ2G681E_ | A | (No suffix) | J |
| 820 | 35 x 45 | 2.96 | 4.14 | 0.243 | 0.121 | EETUQ2G821E_ | F | U | C |
| | 35 x 50 | 3.25 | 4.55 | 0.243 | 0.121 | EETUQ2G821E_ | A | (No suffix) | J |
| 420 VDC Working, 470 VDC Surge | | | | | | | | | |
| 150 | 22 x 30 | 1.18 | 1.65 | 1.326 | 0.663 | EETUQ2S151B_ | A | (No suffix) | J |
| | 25 x 25 | 1.18 | 1.65 | 1.326 | 0.663 | EETUQ2S151C_ | A | (No suffix) | J |
| 180 | 22 x 35 | 1.40 | 1.96 | 1.105 | 0.553 | EETUQ2S181B_ | A | (No suffix) | J |
| 220 | 22 x 40 | 1.52 | 2.13 | 0.904 | 0.452 | EETUQ2S221B_ | A | (No suffix) | J |
| | 25 x 35 | 1.52 | 2.13 | 0.904 | 0.452 | EETUQ2S221C_ | A | (No suffix) | J |
| | 30 x 25 | 1.52 | 2.13 | 0.904 | 0.452 | EETUQ2S221D_ | A | (No suffix) | J |
| 270 | 22 x 45 | 1.73 | 2.42 | 0.737 | 0.368 | EETUQ2S271B_ | A | (No suffix) | J |
| | 25 x 40 | 1.73 | 2.42 | 0.737 | 0.368 | EETUQ2S271C_ | A | (No suffix) | J |
| 330 | 25 x 45 | 1.95 | 2.73 | 0.603 | 0.301 | EETUQ2S331C_ | A | (No suffix) | J |
| | 30 x 30 | 1.95 | 2.73 | 0.603 | 0.301 | EETUQ2S331D_ | A | (No suffix) | J |
| 390 | 25 x 50 | 2.17 | 3.04 | 0.510 | 0.255 | EETUQ2S391C_ | A | (No suffix) | J |
| | 30 x 35 | 2.17 | 3.04 | 0.510 | 0.255 | EETUQ2S391D_ | A | (No suffix) | J |
| | 35 x 30 | 2.17 | 3.04 | 0.510 | 0.255 | EETUQ2S391E_ | A | (No suffix) | J |
| 470 | 30 x 40 | 2.44 | 3.42 | 0.423 | 0.212 | EETUQ2S471D_ | A | (No suffix) | J |
| | 35 x 35 | 2.44 | 3.42 | 0.423 | 0.212 | EETUQ2S471E_ | A | (No suffix) | J |
| 560 | 30 x 45 | 2.74 | 3.84 | 0.355 | 0.178 | EETUQ2S561D_ | A | (No suffix) | J |
| | 35 x 40 | 2.74 | 3.84 | 0.355 | 0.178 | EETUQ2S561E_ | A | (No suffix) | J |
| 680 | 35 x 45 | 3.11 | 4.35 | 0.293 | 0.146 | EETUQ2S681E_ | A | (No suffix) | J |
| 450 VDC Working, 500 VDC Surge | | | | | | | | | |
| 82 | 22 x 25 | 0.83 | 1.16 | 2.426 | 1.213 | EETUQ2W820B_ | A | (No suffix) | J |
| 100 | 22 x 25 | 0.93 | 1.30 | 1.989 | 0.995 | EETUQ2W101B_ | A | (No suffix) | J |
| 120 | 22 x 30 | 1.04 | 1.46 | 1.658 | 0.829 | EETUQ2W121B_ | A | (No suffix) | J |
| 150 | 22 x 35 | 1.19 | 1.67 | 1.326 | 0.663 | EETUQ2W151B_ | A | (No suffix) | J |
| | 25 x 30 | 1.19 | 1.67 | 1.326 | 0.663 | EETUQ2W151C_ | A | (No suffix) | J |
| 180 | 22 x 40 | 1.35 | 1.89 | 1.105 | 0.553 | EETUQ2W181B_ | A | (No suffix) | J |
| | 25 x 30 | 1.35 | 1.89 | 1.105 | 0.553 | EETUQ2W181C_ | A | (No suffix) | J |
| 220 | 22 x 45 | 1.55 | 2.17 | 0.904 | 0.452 | EETUQ2W221B_ | A | (No suffix) | J |
| | 25 x 35 | 1.45 | 2.03 | 0.904 | 0.452 | EETUQ2W221C_ | F | U | C |
| | 25 x 40 | 1.55 | 2.17 | 0.904 | 0.452 | EETUQ2W221C_ | A | (No suffix) | J |
| | 30 x 30 | 1.55 | 2.17 | 0.904 | 0.452 | EETUQ2W221D_ | A | (No suffix) | J |
| | 35 x 25 | 1.55 | 2.17 | 0.904 | 0.452 | EETUQ2W221E_ | A | (No suffix) | J |
| 270 | 22 x 50 | 1.78 | 2.49 | 0.737 | 0.368 | EETUQ2W271B_ | A | (No suffix) | J |
| | 25 x 40 | 1.78 | 2.49 | 0.737 | 0.368 | EETUQ2W271C_ | A | (No suffix) | J |
| | 30 x 30 | 1.78 | 2.49 | 0.737 | 0.368 | EETUQ2W271D_ | A | (No suffix) | J |
| 330 | 25 x 50 | 2.01 | 2.81 | 0.603 | 0.301 | EETUQ2W331C_ | A | (No suffix) | J |
| | 30 x 35 | 1.88 | 2.63 | 0.603 | 0.301 | EETUQ2W331D_ | F | U | C |
| | 30 x 40 | 2.01 | 2.81 | 0.603 | 0.301 | EETUQ2W331D_ | A | (No suffix) | J |
| | 35 x 30 | 2.01 | 2.81 | 0.603 | 0.301 | EETUQ2W331E_ | A | (No suffix) | J |
| 390 | 30 x 40 | 2.24 | 3.14 | 0.510 | 0.255 | EETUQ2W391D_ | A | (No suffix) | J |
| | 35 x 35 | 2.24 | 3.14 | 0.510 | 0.255 | EETUQ2W391E_ | A | (No suffix) | J |
| 470 | 30 x 45 | 2.53 | 3.54 | 0.423 | 0.212 | EETUQ2W471D_ | A | (No suffix) | J |
| | 35 x 40 | 2.53 | 3.54 | 0.423 | 0.212 | EETUQ2W471E_ | A | (No suffix) | J |
| 560 | 30 x 50 | 2.82 | 3.95 | 0.355 | 0.178 | EETUQ2W561D_ | A | (No suffix) | J |
| | 35 x 45 | 2.82 | 3.95 | 0.355 | 0.178 | EETUQ2W561E_ | A | (No suffix) | J |
| 680 | 35 x 50 | 3.02 | 4.23 | 0.293 | 0.146 | EETUQ2W681E_ | A | (No suffix) | J |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-UP Series 85°C, 3000 hours*

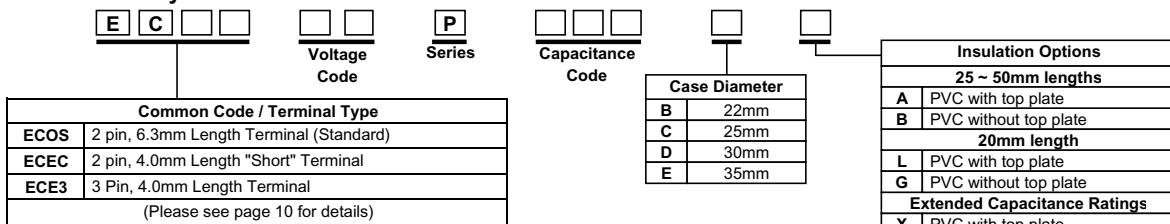
- Compact size for general purpose and industrial applications
- 2 and 3 pin versions available
- 20mm lengths for low profile applications



| | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------|------|------|---------|------|------|------|----------------------------------------------|------------------------------|-----------|------|-------|--|--|--|--|--|--|--|--|--|--|
| Rated Working Voltage: | 16 ~ 250 VDC | | | | | | | | 350 ~ 500 VDC | | | | | | | | | | | | | |
| Operating Temperature: | -40 ~ +85°C | | | | | | | | -25 ~ +85°C | | | | | | | | | | | | | |
| Nominal Capacitance: | 120 ~ 82000µF (±20% tolerance) | | | | | | | | 33 ~ 1000µF (±20% tolerance) | | | | | | | | | | | | | |
| Dissipation Factor: (120 Hz, +20°C) | Working Voltage [V]: | | 16 | 25 | 35 | 50 | 63 | 80 | 100 | 160 ~ 500 | | | | | | | | | | | | |
| | Max. D.F. (%): | | 50 | 40 | 35 | 30 | 25 | 20 | 20 | 15 | | | | | | | | | | | | |
| | For capacitance values > 33000µF, add the value of: $\frac{(\text{rated cap. } [\mu\text{F}] - 33000)}{1000}$ | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current: | 3√CV (µA) max. after 5 minutes; C = Capacitance in µF, V = WV | | | | | | | | | | | | | | | | | | | | | |
| Ripple Current Multipliers: | Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k~ | Ripple Current Ambient Temperature Factors** | | | | | | | | | | | | | | |
| | 16~100WV: | 0.93 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 | Temperature (°C): | 85°C | 70°C | 60°C | ≤45°C | | | | | | | | | | |
| | 160~500WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | Multiplier: | 1.0 | 1.3 | 1.4 | 1.5 | | | | | | | | | | |
| Endurance: | 3000 hours at +85°C with maximum specified ripple current current (see page 6) *2000 hours for 20mm length sizes | | | | | | | | | | | | | | | | | | | | | |

**Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



TS-UP Standard Ratings (part numbers shown with 2 pins, 6.3mm length terminal, and top vinyl plate)

| Cap. (µF) | Size (mm) D x L | Max 85°C R.C. (A _{rms}) | | Panasonic Part Number | |
|-------------------------------------------------|--------------------|-----------------------------------|--------|--------------------------|--------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz |
| 16 VDC Working, 20 VDC Surge | | | | | |
| 4700 | 22 x 20 | 1.60 | 1.84 | 0.159 | ECOS1CP472BL |
| | 22 x 25 | 1.77 | 2.04 | 0.159 | ECOS1CP472BA |
| 6800 | 22 x 25 | 2.57 | 2.96 | 0.110 | ECOS1CP682BA |
| | 25 x 20 | 1.80 | 2.07 | 0.110 | ECOS1CP682CL |
| 8200 | 22 x 25 | 3.10 | 3.57 | 0.091 | ECOS1CP822BA |
| 10000 | 22 x 30 | 3.78 | 4.35 | 0.075 | ECOS1CP103BA |
| | 25 x 25 | 3.78 | 4.35 | 0.075 | ECOS1CP103CA |
| | 30 x 20 | 2.40 | 2.76 | 0.083 | ECOS1CP103DL |
| 12000 | 22 x 30 | 4.52 | 5.20 | 0.062 | ECOS1CP123BA |
| | 25 x 25 | 4.52 | 5.20 | 0.062 | ECOS1CP123CA |
| 15000 | 22 x 35 | 5.26 | 6.05 | 0.053 | ECOS1CP153BA |
| | 25 x 30 | 5.26 | 6.05 | 0.053 | ECOS1CP153CA |
| | 35 x 20 | 3.20 | 3.68 | 0.055 | ECOS1CP153EL |
| 18000 | 22 x 40 | 5.57 | 6.41 | 0.046 | ECOS1CP183BA |
| | 25 x 30 | 5.57 | 6.41 | 0.046 | ECOS1CP183CA |
| 22000 | 22 x 45 | 6.10 | 7.02 | 0.038 | ECOS1CP223BA |
| | 25 x 35 | 6.10 | 7.02 | 0.038 | ECOS1CP223CA |
| | 30 x 30 | 6.10 | 7.02 | 0.038 | ECOS1CP223DA |
| 27000 | 25 x 45 | 6.31 | 7.26 | 0.031 | ECOS1CP273CA |
| | 30 x 35 | 6.31 | 7.26 | 0.031 | ECOS1CP273DA |
| 33000 | 25 x 50 | 6.84 | 7.87 | 0.025 | ECOS1CP333CA |
| | 30 x 40 | 6.84 | 7.87 | 0.025 | ECOS1CP333DA |
| | 35 x 30 | 6.84 | 7.87 | 0.025 | ECOS1CP333EA |
| 39000 | 30 x 45 | 6.94 | 7.98 | 0.021 | ECOS1CP393DA |
| | 35 x 35 | 6.94 | 7.98 | 0.021 | ECOS1CP393EA |
| 47000 | 30 x 50 | 7.47 | 8.59 | 0.019 | ECOS1CP473DA |
| | 35 x 40 | 7.47 | 8.59 | 0.021 | ECOS1CP473EA |
| 56000 | 35 x 45 | 8.73 | 10.04 | 0.019 | ECOS1CP563EA |
| 68000 | 35 x 50 | 9.05 | 10.41 | 0.018 | ECOS1CP683EA |
| 25 VDC Working, 32 VDC Surge (continued) | | | | | |
| 6800 | 22 x 30 | 3.47 | 3.99 | 0.078 | ECOS1EP682BA |
| | 25 x 25 | 3.47 | 3.99 | 0.078 | ECOS1EP682CA |
| | 30 x 20 | 2.30 | 2.65 | 0.078 | ECOS1EP682DL |
| 8200 | 22 x 30 | 3.57 | 4.11 | 0.065 | ECOS1EP822BA |
| | 25 x 25 | 3.57 | 4.11 | 0.065 | ECOS1EP822CA |
| 10000 | 22 x 35 | 3.78 | 4.35 | 0.058 | ECOS1EP103BA |
| | 25 x 30 | 3.78 | 4.35 | 0.058 | ECOS1EP103CA |
| | 30 x 25 | 3.78 | 4.35 | 0.058 | ECOS1EP103DA |
| | 35 x 20 | 2.70 | 3.11 | 0.061 | ECOS1EP103EL |
| 12000 | 22 x 40 | 4.10 | 4.72 | 0.048 | ECOS1EP123BA |
| | 25 x 35 | 4.10 | 4.72 | 0.048 | ECOS1EP123CA |
| | 30 x 30 | 4.10 | 4.72 | 0.048 | ECOS1EP123DA |
| 15000 | 22 x 50 | 4.63 | 5.32 | 0.039 | ECOS1EP153BA |
| | 25 x 40 | 4.63 | 5.32 | 0.039 | ECOS1EP153CA |
| | 30 x 30 | 4.63 | 5.32 | 0.039 | ECOS1EP153DA |
| 18000 | 25 x 45 | 5.47 | 6.29 | 0.035 | ECOS1EP183CA |
| | 30 x 35 | 5.47 | 6.29 | 0.035 | ECOS1EP183DA |
| 22000 | 25 x 50 | 6.10 | 7.02 | 0.029 | ECOS1EP223CA |
| | 30 x 40 | 6.10 | 7.02 | 0.029 | ECOS1EP223DA |
| 27000 | 30 x 45 | 6.21 | 7.14 | 0.023 | ECOS1EP273DA |
| | 35 x 35 | 6.21 | 7.14 | 0.025 | ECOS1EP273EA |
| 33000 | 30 x 50 | 6.84 | 7.87 | 0.020 | ECOS1EP333DA |
| | 35 x 40 | 6.84 | 7.87 | 0.020 | ECOS1EP333EA |
| 39000 | 35 x 45 | 7.36 | 8.46 | 0.019 | ECOS1EP393EA |
| 47000 | 35 x 50 | 8.00 | 9.20 | 0.017 | ECOS1EP473EA |
| 35 VDC Working, 44 VDC Surge | | | | | |
| 2200 | 22 x 20 | 1.40 | 1.61 | 0.181 | ECOS1VP222BL |
| | 22 x 25 | 1.52 | 1.75 | 0.166 | ECOS1VP222BA |
| 3300 | 22 x 25 | 2.29 | 2.63 | 0.111 | ECOS1VP332BA |
| | 25 x 20 | 1.70 | 1.96 | 0.121 | ECOS1VP332CL |
| 3900 | 22 x 25 | 2.71 | 3.12 | 0.094 | ECOS1VP392BA |
| 4700 | 22 x 30 | 3.26 | 3.75 | 0.078 | ECOS1VP472BA |
| | 25 x 25 | 3.26 | 3.75 | 0.078 | ECOS1VP472CA |
| | 30 x 20 | 2.00 | 2.30 | 0.088 | ECOS1VP472DL |
| 5600 | 22 x 30 | 3.36 | 3.86 | 0.080 | ECOS1VP562BA |

TS-UP Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 85°C R.C. (A_{rms}) | | Max. 20°C ESR (Ω) | | Panasonic Part Number |
|-------------------------------------------------|--------------------|-----------------------------|--------|----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 35 VDC Working, 44 VDC Surge (continued) | | | | | | |
| 5600 | 25 x 25 | 3.36 | 3.86 | 0.080 | 0.060 | ECOS1VP562CA |
| 6800 | 22 x 35 | 3.68 | 4.23 | 0.066 | 0.049 | ECOS1VP682BA |
| | 25 x 30 | 3.68 | 4.23 | 0.066 | 0.049 | ECOS1VP682CA |
| | 35 x 20 | 2.40 | 2.76 | 0.071 | 0.053 | ECOS1VP682EL |
| 8200 | 22 x 40 | 4.00 | 4.60 | 0.057 | 0.042 | ECOS1VP822BA |
| | 25 x 35 | 4.00 | 4.60 | 0.057 | 0.042 | ECOS1VP822CA |
| 10000 | 22 x 45 | 4.42 | 5.08 | 0.050 | 0.037 | ECOS1VP103BA |
| | 25 x 40 | 4.42 | 5.08 | 0.050 | 0.037 | ECOS1VP103CA |
| | 30 x 30 | 4.42 | 5.08 | 0.050 | 0.037 | ECOS1VP103DA |
| | 35 x 25 | 4.42 | 5.08 | 0.050 | 0.037 | ECOS1VP103EA |
| 12000 | 25 x 45 | 5.05 | 5.81 | 0.044 | 0.033 | ECOS1VP123CA |
| | 30 x 35 | 5.05 | 5.81 | 0.044 | 0.033 | ECOS1VP123DA |
| | 35 x 30 | 5.05 | 5.81 | 0.044 | 0.033 | ECOS1VP123EA |
| 15000 | 25 x 50 | 5.57 | 6.41 | 0.036 | 0.027 | ECOS1VP153CA |
| | 30 x 40 | 5.57 | 6.41 | 0.036 | 0.027 | ECOS1VP153DA |
| | 35 x 30 | 5.57 | 6.41 | 0.036 | 0.027 | ECOS1VP153EA |
| 18000 | 30 x 45 | 5.68 | 6.53 | 0.030 | 0.023 | ECOS1VP183DA |
| | 35 x 35 | 5.68 | 6.53 | 0.030 | 0.023 | ECOS1VP183EA |
| 22000 | 30 x 50 | 6.10 | 7.02 | 0.026 | 0.020 | ECOS1VP223DA |
| | 35 x 40 | 6.10 | 7.02 | 0.026 | 0.020 | ECOS1VP223EA |
| 27000 | 35 x 45 | 6.84 | 7.87 | 0.021 | 0.017 | ECOS1VP273EA |
| 33000 | 35 x 50 | 7.15 | 8.22 | 0.018 | 0.014 | ECOS1VP333EA |
| 50 VDC Working, 63 VDC Surge | | | | | | |
| 1500 | 22 x 20 | 1.20 | 1.38 | 0.254 | 0.191 | ECOS1HP152BL |
| | 22 x 25 | 1.24 | 1.43 | 0.221 | 0.166 | ECOS1HP152BA |
| 2200 | 22 x 25 | 1.82 | 2.09 | 0.151 | 0.113 | ECOS1HP222BA |
| | 25 x 20 | 1.40 | 1.61 | 0.173 | 0.130 | ECOS1HP222CL |
| 2700 | 22 x 25 | 2.23 | 2.56 | 0.123 | 0.092 | ECOS1HP272BA |
| 3300 | 22 x 30 | 2.73 | 3.14 | 0.100 | 0.075 | ECOS1HP332BA |
| | 25 x 25 | 2.73 | 3.14 | 0.100 | 0.075 | ECOS1HP332CA |
| | 30 x 20 | 1.70 | 1.96 | 0.116 | 0.087 | ECOS1HP332DL |
| 3900 | 22 x 30 | 2.75 | 3.16 | 0.085 | 0.064 | ECOS1HP392BA |
| | 25 x 25 | 2.75 | 3.16 | 0.085 | 0.064 | ECOS1HP392CA |
| 4700 | 22 x 35 | 3.03 | 3.48 | 0.071 | 0.053 | ECOS1HP472BA |
| | 25 x 30 | 3.03 | 3.48 | 0.071 | 0.053 | ECOS1HP472CA |
| | 30 x 25 | 3.03 | 3.48 | 0.071 | 0.053 | ECOS1HP472DA |
| | 35 x 20 | 2.10 | 2.42 | 0.081 | 0.061 | ECOS1HP472EL |
| 5600 | 22 x 40 | 3.42 | 3.93 | 0.059 | 0.044 | ECOS1HP562BA |
| | 25 x 35 | 3.42 | 3.93 | 0.059 | 0.044 | ECOS1HP562CA |
| | 30 x 30 | 3.42 | 3.93 | 0.059 | 0.044 | ECOS1HP562DA |
| 6800 | 22 x 50 | 3.85 | 4.43 | 0.049 | 0.037 | ECOS1HP682BA |
| | 25 x 40 | 3.85 | 4.43 | 0.049 | 0.037 | ECOS1HP682CA |
| | 30 x 30 | 3.85 | 4.43 | 0.049 | 0.037 | ECOS1HP682DA |
| 8200 | 25 x 45 | 4.41 | 5.07 | 0.040 | 0.030 | ECOS1HP822CA |
| | 30 x 35 | 4.41 | 5.07 | 0.040 | 0.030 | ECOS1HP822DA |
| 10000 | 25 x 50 | 4.97 | 5.72 | 0.036 | 0.027 | ECOS1HP103BA |
| | 30 x 40 | 4.97 | 5.72 | 0.036 | 0.027 | ECOS1HP103DA |
| | 35 x 30 | 4.97 | 5.72 | 0.036 | 0.027 | ECOS1HP103EA |
| 12000 | 30 x 45 | 5.58 | 6.42 | 0.032 | 0.024 | ECOS1HP123DA |
| | 35 x 35 | 5.58 | 6.42 | 0.032 | 0.024 | ECOS1HP123EA |
| 15000 | 30 x 50 | 6.44 | 7.41 | 0.028 | 0.021 | ECOS1HP153DA |
| | 35 x 40 | 6.44 | 7.41 | 0.028 | 0.021 | ECOS1HP153EA |
| 18000 | 35 x 45 | 6.94 | 7.98 | 0.023 | 0.018 | ECOS1HP183EA |
| 22000 | 35 x 50 | 7.57 | 8.71 | 0.021 | 0.017 | ECOS1HP223EA |
| 63 VDC Working, 79 VDC Surge | | | | | | |
| 1000 | 22 x 20 | 1.20 | 1.38 | 0.381 | 0.286 | ECOS1JP102BL |
| | 22 x 25 | 1.20 | 1.38 | 0.332 | 0.249 | ECOS1JP102BA |
| 1500 | 22 x 25 | 1.72 | 1.98 | 0.221 | 0.166 | ECOS1JP152BA |
| | 25 x 20 | 1.30 | 1.50 | 0.254 | 0.191 | ECOS1JP152CL |
| 1800 | 22 x 25 | 2.06 | 2.37 | 0.184 | 0.138 | ECOS1JP182BA |
| 2200 | 22 x 30 | 2.52 | 2.90 | 0.151 | 0.113 | ECOS1JP222BA |
| | 25 x 25 | 2.52 | 2.90 | 0.151 | 0.113 | ECOS1JP222CA |
| | 30 x 20 | 1.50 | 1.73 | 0.173 | 0.130 | ECOS1JP222DL |
| 2700 | 22 x 35 | 3.73 | 4.29 | 0.123 | 0.092 | ECOS1JP272BA |
| | 25 x 30 | 3.73 | 4.29 | 0.123 | 0.092 | ECOS1JP272CA |
| 3300 | 22 x 40 | 4.10 | 4.72 | 0.105 | 0.079 | ECOS1JP332BA |
| | 25 x 30 | 4.10 | 4.72 | 0.105 | 0.079 | ECOS1JP332CA |
| | 30 x 25 | 4.10 | 4.72 | 0.105 | 0.079 | ECOS1JP332DA |
| | 35 x 20 | 1.70 | 1.96 | 0.126 | 0.094 | ECOS1JP332EL |
| 3900 | 22 x 45 | 4.44 | 5.11 | 0.098 | 0.073 | ECOS1JP392BA |
| | 25 x 35 | 4.44 | 5.11 | 0.098 | 0.073 | ECOS1JP392CA |
| | 30 x 30 | 4.44 | 5.11 | 0.098 | 0.073 | ECOS1JP392DA |
| 4700 | 22 x 50 | 4.86 | 5.59 | 0.081 | 0.061 | ECOS1JP472BA |
| | 25 x 40 | 4.86 | 5.59 | 0.081 | 0.061 | ECOS1JP472CA |
| | 30 x 30 | 4.86 | 5.59 | 0.081 | 0.061 | ECOS1JP472DA |

| Cap. (μ F) | Size (mm) D x L | Max 85°C R.C. (A_{rms}) | | Max. 20°C ESR (Ω) | | Panasonic Part Number |
|-------------------------------------------------|--------------------|-----------------------------|--------|----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 63 VDC Working, 79 VDC Surge (continued) | | | | | | |
| 4700 | 35 x 25 | 4.86 | 5.59 | 0.081 | 0.061 | ECOS1JP472EA |
| 5600 | 25 x 45 | 5.36 | 6.16 | 0.068 | 0.051 | ECOS1JP562CA |
| | 30 x 35 | 5.36 | 6.16 | 0.068 | 0.051 | ECOS1JP562DA |
| | 35 x 30 | 5.36 | 6.16 | 0.068 | 0.051 | ECOS1JP562EA |
| 6800 | 25 x 50 | 5.84 | 6.72 | 0.061 | 0.046 | ECOS1JP682CA |
| | 30 x 40 | 5.84 | 6.72 | 0.061 | 0.046 | ECOS1JP682DA |
| | 35 x 30 | 5.84 | 6.72 | 0.061 | 0.046 | ECOS1JP682EA |
| 8200 | 30 x 45 | 6.00 | 6.90 | 0.051 | 0.038 | ECOS1JP822DA |
| | 35 x 35 | 6.00 | 6.90 | 0.051 | 0.038 | ECOS1JP822EA |
| 10000 | 35 x 40 | 6.52 | 7.50 | 0.041 | 0.033 | ECOS1JP103EA |
| 12000 | 35 x 50 | 7.15 | 8.22 | 0.035 | 0.028 | ECOS1JP123EA |
| 80 VDC Working, 100 VDC Surge | | | | | | |
| 680 | 22 x 20 | 1.00 | 1.15 | 0.439 | 0.329 | ECOS1KP681BL |
| | 22 x 25 | 1.02 | 1.17 | 0.390 | 0.293 | ECOS1KP681BA |
| 1000 | 22 x 25 | 1.51 | 1.74 | 0.265 | 0.199 | ECOS1KP102BA |
| | 25 x 20 | 1.20 | 1.38 | 0.298 | 0.224 | ECOS1KP102CL |
| 1200 | 22 x 25 | 1.81 | 2.08 | 0.221 | 0.166 | ECOS1KP122BA |
| 1500 | 22 x 30 | 2.26 | 2.60 | 0.177 | 0.133 | ECOS1KP152BA |
| | 25 x 25 | 2.26 | 2.60 | 0.177 | 0.133 | ECOS1KP152CA |
| | 30 x 20 | 1.40 | 1.61 | 0.199 | 0.149 | ECOS1KP152DL |
| 1800 | 22 x 35 | 2.52 | 2.90 | 0.147 | 0.111 | ECOS1KP182BA |
| | 25 x 30 | 2.52 | 2.90 | 0.147 | 0.111 | ECOS1KP182CA |
| 2200 | 22 x 40 | 2.73 | 3.14 | 0.121 | 0.090 | ECOS1KP222BA |
| | 25 x 30 | 2.73 | 3.14 | 0.121 | 0.090 | ECOS1KP222CA |
| | 30 x 25 | 2.73 | 3.14 | 0.121 | 0.090 | ECOS1KP222DA |
| | 35 x 20 | 1.70 | 1.96 | 0.136 | 0.102 | ECOS1KP222EL |
| 2700 | 22 x 45 | 2.78 | 3.20 | 0.098 | 0.074 | ECOS1KP272BA |
| | 25 x 35 | 2.78 | 3.20 | 0.098 | 0.074 | ECOS1KP272CA |
| | 30 x 30 | 2.78 | 3.20 | 0.098 | 0.074 | ECOS1KP272DA |
| 3300 | 22 x 50 | 3.21 | 3.69 | 0.085 | 0.064 | ECOS1KP332BA |
| | 25 x 40 | 3.21 | 3.69 | 0.085 | 0.064 | ECOS1KP332CA |
| | 30 x 30 | 3.21 | 3.69 | 0.085 | 0.064 | ECOS1KP332DA |
| 3900 | 25 x 45 | 3.59 | 4.13 | 0.077 | 0.057 | ECOS1KP392CA |
| | 30 x 35 | 3.59 | 4.13 | 0.077 | 0.057 | ECOS1KP392DA |
| 4700 | 25 x 50 | 4.09 | 4.70 | 0.063 | 0.048 | ECOS1KP472CA |
| | 30 x 40 | 4.09 | 4.70 | 0.063 | 0.048 | ECOS1KP472DA |
| 5600 | 30 x 45 | 4.55 | 5.23 | 0.056 | 0.042 | ECOS1KP562DA |
| | 35 x 35 | 4.55 | 5.23 | 0.056 | 0.042 | ECOS1KP562EA |
| 6800 | 30 x 50 | 5.16 | 5.93 | 0.046 | 0.035 | ECOS1KP682DA |
| | 35 x 40 | 5.16 | 5.93 | 0.046 | 0.035 | ECOS1KP682EA |
| 8200 | 35 x 50 | 5.83 | 6.70 | 0.038 | 0.029 | ECOS1KP822EA |
| 100 VDC Working, 125 VDC Surge | | | | | | |
| 470 | 22 x 20 | 1.00 | 1.15 | 0.459 | 0.298 | ECOS2AP471BL |
| | 22 x 25 | 1.11 | 1.28 | 0.459 | 0.298 | ECOS2AP471BA |
| 560 | 22 x 25 | 1.32 | 1.52 | 0.385 | 0.250 | ECOS2AP561BA |
| 680 | 22 x 25 | 1.61 | 1.85 | 0.317 | 0.206 | ECOS2AP681BA |
| | 25 x 20 | 1.10 | 1.27 | 0.366 | 0.238 | ECOS2AP681CL |
| 1000 | 22 x 30 | 1.96 | 2.25 | 0.216 | 0.140 | ECOS2AP102BA |
| | 25 x 25 | 1.96 | 2.25 | 0.216 | 0.140 | ECOS2AP102CA |
| | 30 x 20 | 1.20 | 1.38 | 0.249 | 0.162 | ECOS2AP102DL |
| 1200 | 22 x 35 | 2.31 | 2.66 | 0.193 | 0.126 | ECOS2AP122BA |
| | 25 x 30 | 2.31 | 2.66 | 0.190 | 0.117 | ECOS2AP122CA |
| 1500 | 22 x 40 | 2.57 | 2.96 | 0.155 | 0.101 | ECOS2AP152BA |
| | 25 x 30 | 2.57 | 2.96 | 0.155 | 0.101 | ECOS2AP152CA |
| | 30 x 25 | 2.57 | 2.96 | 0.155 | 0.101 | ECOS2AP152DA |
| | 35 x 20 | 1.50 | 1.73 | 0.177 | 0.115 | ECOS2AP152EL |
| 1800 | 22 x 45 | 2.84 | 3.27 | 0.129 | 0.084 | ECOS2AP182BA |
| | 25 x 35 | 2.84 | 3.27 | 0.138 | 0.090 | ECOS2AP182CA |
| | 30 x 30 | 2.84 | 3.27 | 0.138 | 0.090 | ECOS2AP182DA |
| 2200 | 22 x 50 | 3.14 | 3.61 | 0.121 | 0.078 | ECOS2AP222BA |
| | 25 x 40 | 3.14 | 3.61 | 0.121 | 0.078 | ECOS2AP222CA |
| | 30 x 30 | 3.14 | 3.61 | 0.121 | 0.078 | ECOS2AP222DA |
| | 35 x 25 | 3.14 | 3 | | | |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-UP Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 85°C R.C. (A_{rms}) | | Max. 20°C ESR (Ω) | | Panasonic Part Number |
|--------------------|--------------------|-----------------------------|--------|----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |

160 VDC Working, 200 VDC Surge

| | | | | | | |
|------|---------|------|------|-------|-------|--------------|
| 220 | 22 x 20 | 0.75 | 1.05 | 0.980 | 0.490 | ECOS2CP221BL |
| | 22 x 25 | 0.91 | 1.27 | 0.829 | 0.414 | ECOS2CP221BA |
| 270 | 22 x 25 | 1.19 | 1.67 | 0.675 | 0.338 | ECOS2CP271BA |
| | 25 x 20 | 0.87 | 1.22 | 0.798 | 0.399 | ECOS2CP271CL |
| 330 | 22 x 25 | 1.45 | 2.03 | 0.553 | 0.276 | ECOS2CP331BA |
| 390 | 22 x 25 | 1.62 | 2.27 | 0.468 | 0.234 | ECOS2CP391BX |
| | 25 x 25 | 1.62 | 2.27 | 0.468 | 0.234 | ECOS2CP391CA |
| | 30 x 20 | 1.10 | 1.54 | 0.595 | 0.298 | ECOS2CP391DL |
| 470 | 22 x 30 | 2.11 | 2.95 | 0.423 | 0.212 | ECOS2CP471BA |
| | 25 x 25 | 2.11 | 2.95 | 0.423 | 0.212 | ECOS2CP471CA |
| 560 | 22 x 30 | 2.25 | 3.15 | 0.355 | 0.178 | ECOS2CP561BX |
| | 22 x 35 | 2.25 | 3.15 | 0.355 | 0.178 | ECOS2CP561BA |
| | 25 x 25 | 2.25 | 3.15 | 0.355 | 0.178 | ECOS2CP561CX |
| | 25 x 30 | 2.25 | 3.15 | 0.355 | 0.178 | ECOS2CP561CA |
| | 35 x 20 | 1.30 | 1.82 | 0.414 | 0.207 | ECOS2CP561EL |
| 680 | 22 x 35 | 2.50 | 3.50 | 0.293 | 0.146 | ECOS2CP681BX |
| | 22 x 40 | 2.50 | 3.50 | 0.293 | 0.146 | ECOS2CP681BA |
| | 25 x 30 | 2.50 | 3.50 | 0.293 | 0.146 | ECOS2CP681CX |
| | 30 x 25 | 2.50 | 3.50 | 0.293 | 0.146 | ECOS2CP681DA |
| 820 | 22 x 40 | 2.50 | 3.50 | 0.243 | 0.121 | ECOS2CP821BX |
| | 22 x 45 | 2.75 | 3.85 | 0.263 | 0.131 | ECOS2CP821BA |
| | 25 x 35 | 2.75 | 3.85 | 0.263 | 0.131 | ECOS2CP821CA |
| | 30 x 25 | 2.75 | 3.85 | 0.263 | 0.131 | ECOS2CP821DX |
| | 30 x 30 | 2.75 | 3.85 | 0.263 | 0.131 | ECOS2CP821DA |
| 1000 | 22 x 45 | 3.00 | 4.20 | 0.216 | 0.108 | ECOS2CP102BX |
| | 25 x 40 | 3.00 | 4.20 | 0.216 | 0.108 | ECOS2CP102CX |
| | 25 x 45 | 3.00 | 4.20 | 0.232 | 0.128 | ECOS2CP102CA |
| | 30 x 30 | 3.00 | 4.20 | 0.232 | 0.128 | ECOS2CP102DX |
| | 30 x 35 | 3.00 | 4.20 | 0.232 | 0.128 | ECOS2CP102DA |
| | 35 x 30 | 3.00 | 4.20 | 0.232 | 0.128 | ECOS2CP102EA |
| 1200 | 25 x 50 | 3.25 | 4.55 | 0.207 | 0.114 | ECOS2CP122CA |
| | 30 x 35 | 3.25 | 4.55 | 0.207 | 0.114 | ECOS2CP122DA |
| | 35 x 30 | 3.25 | 4.55 | 0.207 | 0.114 | ECOS2CP122EA |
| 1500 | 25 x 50 | 3.73 | 5.22 | 0.166 | 0.091 | ECOS2CP152CX |
| | 30 x 45 | 3.73 | 5.22 | 0.166 | 0.091 | ECOS2CP152DA |
| | 35 x 30 | 3.73 | 5.22 | 0.166 | 0.091 | ECOS2CP152EX |
| | 35 x 35 | 3.73 | 5.22 | 0.166 | 0.091 | ECOS2CP152EA |
| 1800 | 30 x 50 | 4.20 | 5.88 | 0.138 | 0.083 | ECOS2CP182DA |
| | 35 x 35 | 4.20 | 5.88 | 0.138 | 0.083 | ECOS2CP182EX |
| 2200 | 30 x 50 | 4.78 | 6.69 | 0.105 | 0.053 | ECOS2CP222DX |
| | 35 x 40 | 4.78 | 6.69 | 0.113 | 0.073 | ECOS2CP222EX |
| | 35 x 45 | 4.78 | 6.69 | 0.113 | 0.073 | ECOS2CP222EA |
| 2700 | 35 x 50 | 5.45 | 7.63 | 0.092 | 0.060 | ECOS2CP272EA |

200 VDC Working, 250 VDC Surge

| | | | | | | |
|------|---------|------|------|-------|-------|--------------|
| 150 | 22 x 20 | 0.65 | 0.91 | 1.326 | 0.597 | ECOS2DP151BL |
| | 22 x 25 | 0.71 | 0.99 | 1.216 | 0.547 | ECOS2DP151BA |
| 220 | 22 x 25 | 1.04 | 1.46 | 0.829 | 0.373 | ECOS2DP221BA |
| | 25 x 20 | 0.87 | 1.22 | 0.904 | 0.407 | ECOS2DP221CL |
| 270 | 22 x 25 | 1.41 | 1.97 | 0.614 | 0.276 | ECOS2DP271BA |
| 330 | 22 x 25 | 1.56 | 2.18 | 0.553 | 0.249 | ECOS2DP331BX |
| | 30 x 20 | 1.00 | 1.40 | 0.603 | 0.271 | ECOS2DP331DL |
| 390 | 22 x 30 | 1.68 | 2.35 | 0.468 | 0.210 | ECOS2DP391BA |
| | 25 x 25 | 1.68 | 2.35 | 0.468 | 0.210 | ECOS2DP391CA |
| 470 | 22 x 35 | 1.85 | 2.59 | 0.388 | 0.175 | ECOS2DP471BA |
| | 25 x 30 | 1.85 | 2.59 | 0.388 | 0.175 | ECOS2DP471CA |
| | 35 x 20 | 1.30 | 1.82 | 0.459 | 0.206 | ECOS2DP471EL |
| 560 | 22 x 40 | 2.43 | 3.40 | 0.326 | 0.147 | ECOS2DP561BA |
| | 25 x 30 | 2.43 | 3.40 | 0.326 | 0.147 | ECOS2DP561CX |
| | 30 x 25 | 2.43 | 3.40 | 0.326 | 0.147 | ECOS2DP561DA |
| 680 | 22 x 45 | 2.68 | 3.75 | 0.268 | 0.121 | ECOS2DP681BA |
| | 25 x 35 | 2.68 | 3.75 | 0.268 | 0.121 | ECOS2DP681CA |
| | 30 x 30 | 2.68 | 3.75 | 0.268 | 0.121 | ECOS2DP681DA |
| 820 | 25 x 45 | 2.93 | 4.10 | 0.222 | 0.100 | ECOS2DP821CA |
| | 30 x 30 | 2.93 | 4.10 | 0.222 | 0.100 | ECOS2DP821DX |
| | 30 x 35 | 2.93 | 4.10 | 0.222 | 0.100 | ECOS2DP821DA |
| | 35 x 25 | 2.93 | 4.10 | 0.222 | 0.100 | ECOS2DP821EA |
| 1000 | 25 x 45 | 3.25 | 4.55 | 0.199 | 0.090 | ECOS2DP102CX |
| | 25 x 50 | 3.25 | 4.55 | 0.199 | 0.090 | ECOS2DP102CA |
| | 30 x 35 | 3.25 | 4.55 | 0.199 | 0.090 | ECOS2DP102DX |
| | 30 x 40 | 3.25 | 4.55 | 0.199 | 0.090 | ECOS2DP102DA |
| | 35 x 30 | 3.25 | 4.55 | 0.199 | 0.090 | ECOS2DP102EA |
| 1200 | 30 x 40 | 3.50 | 4.90 | 0.166 | 0.075 | ECOS2DP122DX |
| | 30 x 45 | 3.50 | 4.90 | 0.166 | 0.075 | ECOS2DP122DA |
| | 35 x 30 | 3.50 | 4.90 | 0.166 | 0.075 | ECOS2DP122EX |
| | 35 x 35 | 3.50 | 4.90 | 0.166 | 0.075 | ECOS2DP122EA |

| Cap. (μ F) | Size (mm) D x L | Max 85°C R.C. (A_{rms}) | | Max. 20°C ESR (Ω) | | Panasonic Part Number |
|--------------------|--------------------|-----------------------------|--------|----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |

200 VDC Working, 250 VDC Surge (continued)

| | | | | | | |
|---------------------------------------|---------|------|------|-------|-------|--------------|
| 1500 | 30 x 45 | 3.87 | 5.42 | 0.144 | 0.072 | ECOS2DP152DX |
| | 30 x 50 | 3.87 | 5.42 | 0.144 | 0.072 | ECOS2DP152DA |
| | 35 x 35 | 3.87 | 5.42 | 0.144 | 0.072 | ECOS2DP152EX |
| | 35 x 40 | 3.87 | 5.42 | 0.144 | 0.072 | ECOS2DP152EA |
| 1800 | 30 x 50 | 4.32 | 6.05 | 0.120 | 0.060 | ECOS2DP182DX |
| | 35 x 40 | 4.32 | 6.05 | 0.120 | 0.060 | ECOS2DP182EX |
| | 35 x 45 | 4.32 | 6.05 | 0.120 | 0.060 | ECOS2DP182EA |
| 2200 | 35 x 45 | 4.92 | 6.89 | 0.098 | 0.054 | ECOS2DP222EX |
| | 35 x 50 | 4.92 | 6.89 | 0.098 | 0.054 | ECOS2DP222EA |
| 250 VDC Working, 300 VDC Surge | | | | | | |
| 120 | 22 x 20 | 0.45 | 0.63 | 1.658 | 0.663 | ECOS2EP121BL |
| | 22 x 25 | 0.71 | 0.99 | 1.520 | 0.608 | ECOS2EP121BA |
| 150 | 22 x 25 | 0.89 | 1.25 | 1.216 | 0.486 | ECOS2EP151BA |
| | 25 x 20 | 0.65 | 0.91 | 1.326 | 0.531 | ECOS2EP151CL |
| 180 | 22 x 25 | 1.07 | 1.50 | 0.921 | 0.368 | ECOS2EP181BA |
| 220 | 22 x 25 | 1.17 | 1.64 | 0.754 | 0.301 | ECOS2EP221BX |
| | 30 x 20 | 0.87 | 1.22 | 0.829 | 0.332 | ECOS2EP221DL |
| 270 | 22 x 30 | 1.31 | 1.83 | 0.614 | 0.246 | ECOS2EP271BA |
| | 25 x 25 | 1.31 | 1.83 | 0.614 | 0.246 | ECOS2EP271CA |
| 330 | 22 x 35 | 1.75 | 2.45 | 0.553 | 0.221 | ECOS2EP331BA |
| | 25 x 30 | 1.75 | 2.45 | 0.502 | 0.201 | ECOS2EP331CA |
| | 35 x 20 | 1.10 | 1.54 | 0.553 | 0.221 | ECOS2EP331EL |
| 390 | 22 x 40 | 1.91 | 2.67 | 0.468 | 0.187 | ECOS2EP391BX |
| | 25 x 30 | 1.91 | 2.67 | 0.468 | 0.187 | ECOS2EP391CA |
| | 25 x 35 | 1.91 | 2.67 | 0.468 | 0.187 | ECOS2EP391CX |
| | 30 x 25 | 1.91 | 2.67 | 0.425 | 0.170 | ECOS2EP391DA |
| 470 | 22 x 45 | 2.11 | 2.95 | 0.388 | 0.155 | ECOS2EP471BA |
| | 25 x 35 | 2.11 | 2.95 | 0.388 | 0.155 | ECOS2EP471CX |
| | 25 x 40 | 2.11 | 2.95 | 0.388 | 0.155 | ECOS2EP471CA |
| | 30 x 25 | 2.11 | 2.95 | 0.353 | 0.141 | ECOS2EP471DX |
| | 30 x 30 | 2.11 | 2.95 | 0.388 | 0.155 | ECOS2EP471DA |
| 560 | 25 x 40 | 2.25 | 3.15 | 0.326 | 0.130 | ECOS2EP561CX |
| | 25 x 45 | 2.25 | 3.15 | 0.326 | 0.130 | ECOS2EP561CA |
| | 30 x 30 | 2.25 | 3.15 | 0.326 | 0.130 | ECOS2EP561DX |
| | 30 x 35 | 2.25 | 3.15 | 0.326 | 0.130 | ECOS2EP561DA |
| | 35 x 25 | 2.25 | 3.15 | 0.326 | 0.130 | ECOS2EP561EA |
| 680 | 25 x 45 | 2.50 | 3.50 | 0.268 | 0.107 | ECOS2EP681CX |
| | 25 x 50 | 2.50 | 3.50 | 0.268 | 0.107 | ECOS2EP681CA |
| | 30 x 35 | 2.50 | 3.50 | 0.268 | 0.107 | ECOS2EP681DX |
| | 30 x 40 | 2.50 | 3.50 | 0.268 | 0.107 | ECOS2EP681DA |
| | 35 x 30 | 2.50 | 3.50 | 0.268 | 0.107 | ECOS2EP681EA |
| 820 | 30 x 40 | 2.50 | 3.50 | 0.222 | 0.089 | ECOS2EP821DX |
| | 30 x 45 | 2.77 | 3.88 | 0.222 | 0.089 | ECOS2EP821DA |
| | 35 x 30 | 2.77 | 3.88 | 0.222 | 0.089 | ECOS2EP821EX |
| | 35 x 35 | 2.77 | 3.88 | 0.243 | 0.109 | ECOS2EP821EA |
| 1000 | 30 x 45 | 3.32 | 4.65 | 0.182 | 0.073 | ECOS2EP102DX |
| | 30 x 50 | 3.32 | 4.65 | 0.199 | 0.090 | ECOS2EP102DA |
| | 35 x 35 | 3.32 | 4.65 | 0.199 | 0.090 | ECOS2EP102EX |
| | 35 x 40 | 3.32 | 4.65 | 0.199 | 0.090 | ECOS2EP102EA |
| 1200 | 35 x 40 | 3.53 | 4.94 | 0.166 | 0.083 | ECOS2EP122EX |
| | 35 x 45 | 3.53 | 4.94 | 0.166 | 0.083 | ECOS2EP122EA |
| 1500 | 35 x 50 | 4.04 | 5.66 | 0.133 | 0.066 | ECOS2EP152EA |
| 350 VDC Working, 400 VDC Surge | | | | | | |
| 82 | 22 x 25 | 0.83 | 1.16 | 2.022 | 0.708 | ECOS2VP820BA |
| 100 | 22 x 30 | 0.91 | 1.27 | 1.658 | 0.580 | ECOS2VP101BA |
| 120 | 22 x 30 | 1.00 | | | | |

TS-UP Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max. 85°C R.C. (A_{rms}) | | Max. 20°C ESR (Ω) | | Panasonic Part Number |
|---------------------------------------------------|--------------------|------------------------------|--------|----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 350 VDC Working, 400 VDC Surge (continued) | | | | | | |
| 330 | 35 x 30 | 1.66 | 2.32 | 0.614 | 0.215 | ECOS2VP271EA |
| | 25 x 50 | 1.88 | 2.63 | 0.502 | 0.176 | ECOS2VP331CA |
| | 30 x 35 | 1.88 | 2.63 | 0.502 | 0.176 | ECOS2VP331DX |
| | 30 x 40 | 1.88 | 2.63 | 0.502 | 0.176 | ECOS2VP331DA |
| 390 | 35 x 30 | 1.88 | 2.63 | 0.502 | 0.176 | ECOS2VP331EA |
| | 25 x 50 | 2.06 | 2.88 | 0.425 | 0.149 | ECOS2VP391CX |
| | 30 x 40 | 2.06 | 2.88 | 0.425 | 0.149 | ECOS2VP391DX |
| | 30 x 45 | 2.06 | 2.88 | 0.468 | 0.164 | ECOS2VP391DA |
| 470 | 35 x 30 | 2.06 | 2.88 | 0.425 | 0.149 | ECOS2VP391EX |
| | 35 x 35 | 2.06 | 2.88 | 0.425 | 0.149 | ECOS2VP391EA |
| | 35 x 40 | 2.40 | 3.36 | 0.353 | 0.123 | ECOS2VP471EA |
| | 35 x 45 | 2.40 | 3.36 | 0.353 | 0.123 | ECOS2VP471EA |
| 560 | 30 x 50 | 2.60 | 3.64 | 0.326 | 0.114 | ECOS2VP561DX |
| | 35 x 40 | 2.60 | 3.64 | 0.296 | 0.104 | ECOS2VP561EX |
| | 35 x 45 | 2.60 | 3.64 | 0.296 | 0.104 | ECOS2VP561EA |
| 680 | 35 x 45 | 2.96 | 4.14 | 0.293 | 0.117 | ECOS2VP681EX |
| | 35 x 50 | 2.96 | 4.14 | 0.293 | 0.117 | ECOS2VP681EA |
| 820 | 35 x 50 | 3.55 | 4.97 | 0.243 | 0.097 | ECOS2VP821EX |
| 385 VDC Working, 435 VDC Surge | | | | | | |
| 47 | 22 x 20 | 0.25 | 0.35 | 4.233 | 1.481 | ECOS2TP470BL |
| 68 | 22 x 25 | 0.76 | 1.06 | 2.438 | 0.853 | ECOS2TP680BA |
| | 25 x 20 | 0.35 | 0.49 | 2.926 | 1.024 | ECOS2TP680CL |
| 82 | 22 x 25 | 0.83 | 1.16 | 2.022 | 0.708 | ECOS2TP820BA |
| 100 | 22 x 30 | 0.92 | 1.29 | 1.658 | 0.580 | ECOS2TP101BA |
| | 25 x 25 | 0.92 | 1.29 | 1.658 | 0.580 | ECOS2TP101CA |
| | 30 x 20 | 0.47 | 0.66 | 1.989 | 0.696 | ECOS2TP101DL |
| 120 | 22 x 35 | 1.02 | 1.43 | 1.382 | 0.553 | ECOS2TP121BA |
| | 25 x 25 | 1.02 | 1.43 | 1.382 | 0.553 | ECOS2TP121CX |
| | 25 x 30 | 1.02 | 1.43 | 1.382 | 0.553 | ECOS2TP121CA |
| 150 | 22 x 35 | 1.16 | 1.62 | 1.105 | 0.442 | ECOS2TP151BX |
| | 22 x 40 | 1.16 | 1.62 | 1.105 | 0.442 | ECOS2TP151BA |
| | 25 x 30 | 1.16 | 1.62 | 1.105 | 0.442 | ECOS2TP151CA |
| | 30 x 25 | 1.16 | 1.62 | 1.105 | 0.442 | ECOS2TP151DA |
| | 35 x 20 | 0.60 | 0.84 | 1.326 | 0.531 | ECOS2TP151EL |
| 180 | 22 x 40 | 1.44 | 2.02 | 0.921 | 0.368 | ECOS2TP181BX |
| | 22 x 45 | 1.44 | 2.02 | 0.921 | 0.368 | ECOS2TP181BA |
| | 25 x 30 | 1.44 | 2.02 | 0.921 | 0.368 | ECOS2TP181CX |
| | 25 x 35 | 1.44 | 2.02 | 0.921 | 0.368 | ECOS2TP181CA |
| | 30 x 25 | 1.44 | 2.02 | 0.921 | 0.368 | ECOS2TP181DX |
| | 30 x 30 | 1.44 | 2.02 | 0.921 | 0.368 | ECOS2TP181DA |
| 220 | 22 x 45 | 1.49 | 2.09 | 0.829 | 0.373 | ECOS2TP221BX |
| | 22 x 50 | 1.49 | 2.09 | 0.829 | 0.373 | ECOS2TP221BA |
| | 25 x 40 | 1.49 | 2.09 | 0.829 | 0.373 | ECOS2TP221CA |
| | 30 x 30 | 1.49 | 2.09 | 0.829 | 0.373 | ECOS2TP221DA |
| 270 | 25 x 45 | 1.67 | 2.34 | 0.675 | 0.304 | ECOS2TP271CA |
| | 30 x 35 | 1.67 | 2.34 | 0.675 | 0.304 | ECOS2TP271DA |
| | 35 x 25 | 1.67 | 2.34 | 0.675 | 0.304 | ECOS2TP271EX |
| | 35 x 30 | 1.67 | 2.34 | 0.675 | 0.304 | ECOS2TP271EA |
| 330 | 25 x 50 | 1.90 | 2.66 | 0.553 | 0.249 | ECOS2TP331CX |
| | 30 x 40 | 1.90 | 2.66 | 0.553 | 0.249 | ECOS2TP331DA |
| | 35 x 30 | 1.90 | 2.66 | 0.553 | 0.249 | ECOS2TP331EX |
| | 35 x 35 | 1.90 | 2.66 | 0.553 | 0.249 | ECOS2TP331EA |
| 390 | 30 x 45 | 2.13 | 2.98 | 0.468 | 0.210 | ECOS2TP391DA |
| | 35 x 35 | 2.13 | 2.98 | 0.468 | 0.210 | ECOS2TP391EX |
| | 35 x 40 | 2.13 | 2.98 | 0.468 | 0.210 | ECOS2TP391EA |
| 470 | 30 x 50 | 2.39 | 3.35 | 0.388 | 0.175 | ECOS2TP471DA |
| | 35 x 40 | 2.39 | 3.35 | 0.388 | 0.175 | ECOS2TP471EX |
| | 35 x 45 | 2.39 | 3.35 | 0.388 | 0.175 | ECOS2TP471EA |
| 560 | 35 x 45 | 2.69 | 3.77 | 0.326 | 0.147 | ECOS2TP561EX |
| | 35 x 50 | 2.69 | 3.77 | 0.326 | 0.147 | ECOS2TP561EA |
| 680 | 35 x 50 | 3.00 | 4.20 | 0.268 | 0.121 | ECOS2TP681EX |
| 400 VDC Working, 450 VDC Surge | | | | | | |
| 47 | 22 x 20 | 0.25 | 0.35 | 3.527 | 1.235 | ECOS2GP470BL |
| | 22 x 25 | 0.47 | 0.66 | 3.527 | 1.235 | ECOS2GP470BA |
| 68 | 22 x 25 | 0.69 | 0.97 | 2.438 | 0.853 | ECOS2GP680BA |
| | 25 x 20 | 0.35 | 0.49 | 2.926 | 1.024 | ECOS2GP680CL |
| 82 | 22 x 25 | 0.83 | 1.16 | 2.022 | 0.708 | ECOS2GP820BA |
| 100 | 22 x 30 | 0.92 | 1.29 | 1.658 | 0.580 | ECOS2GP101BA |
| | 25 x 25 | 0.92 | 1.29 | 1.658 | 0.580 | ECOS2GP101CA |
| | 30 x 20 | 0.47 | 0.66 | 1.989 | 0.696 | ECOS2GP101DL |
| 120 | 22 x 35 | 1.02 | 1.43 | 1.382 | 0.484 | ECOS2GP121BA |
| | 25 x 25 | 1.02 | 1.43 | 1.382 | 0.484 | ECOS2GP121CX |
| 150 | 22 x 40 | 1.16 | 1.62 | 1.105 | 0.387 | ECOS2GP151BA |
| | 25 x 30 | 1.16 | 1.62 | 1.105 | 0.387 | ECOS2GP151CA |

| Cap. (μ F) | Size (mm) D x L | Max. 85°C R.C. (A_{rms}) | | Max. 20°C ESR (Ω) | | Panasonic Part Number |
|---------------------------------------------------|--------------------|------------------------------|--------|----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 400 VDC Working, 450 VDC Surge (continued) | | | | | | |
| 150 | 30 x 25 | 1.16 | 1.62 | 1.105 | 0.387 | ECOS2GP151DA |
| | 35 x 20 | 0.60 | 0.84 | 1.326 | 0.464 | ECOS2GP151EL |
| | 22 x 45 | 1.44 | 2.09 | 0.921 | 0.322 | ECOS2GP181BA |
| | 25 x 30 | 1.44 | 2.09 | 0.921 | 0.322 | ECOS2GP181CX |
| 180 | 22 x 50 | 1.49 | 2.09 | 0.921 | 0.322 | ECOS2GP181CA |
| | 30 x 30 | 1.49 | 2.09 | 0.921 | 0.322 | ECOS2GP181EA |
| | 25 x 45 | 1.49 | 2.09 | 0.921 | 0.322 | ECOS2GP221DA |
| | 30 x 35 | 1.49 | 2.09 | 0.921 | 0.322 | ECOS2GP221DX |
| 220 | 25 x 45 | 1.49 | 2.09 | 0.921 | 0.326 | ECOS2GP271DA |
| | 30 x 30 | 1.49 | 2.09 | 0.921 | 0.326 | ECOS2GP271EA |
| | 35 x 30 | 1.49 | 2.09 | 0.921 | 0.326 | ECOS2GP271EX |
| | 35 x 35 | 1.49 | 2.09 | 0.921 | 0.326 | ECOS2GP311EX |
| 270 | 30 x 45 | 2.13 | 2.98 | 0.553 | 0.193 | ECOS2GP391DA |
| | 35 x 35 | 2.13 | 2.98 | 0.553 | 0.193 | ECOS2GP391EX |
| | 35 x 40 | 2.13 | 2.98 | 0.553 | 0.193 | ECOS2GP391EA |
| | 35 x 45 | 2.13 | 2.98 | 0.553 | 0.193 | ECOS2GP471EX |
| 420 VDC Working, 470 VDC Surge | | | | | | |
| 82 | 22 x 30 | 0.83 | 1.16 | 2.426 | 0.849 | ECOS2SP820BA |
| 100 | 22 x 30 | 0.92 | 1.29 | 1.989 | 0.696 | ECOS2SP101BA |
| | 25 x 25 | 0.92 | 1.29 | 1.989 | 0.696 | ECOS2SP101CA |
| 120 | 22 x 35 | 1.02 | 1.43 | 1.658 | 0.580 | ECOS2SP121BA |
| | 25 x 30 | 1.02 | 1.43 | 1.658 | 0.580 | ECOS2SP121CA |
| 150 | 22 x 40 | 1.16 | 1.62 | 1.326 | 0.464 | ECOS2SP151BA |
| | 25 x 30 | 1.16 | 1.62 | 1.326 | 0.464 | ECOS2SP151CA |
| | 30 x 25 | 1.16 | 1.62 | 1.326 | 0.464 | ECOS2SP151DA |
| | 30 x 30 | 1.16 | 1.62 | 1.326 | 0.464 | ECOS2SP151EX |
| 180 | 22 x 45 | 1.44 | 2.09 | 1.105 | 0.387 | ECOS2SP181BA |
| | 25 x 35 | 1.44 | 2.09 | 1.105 | 0.387 | ECOS2SP181CA |
| | 30 x 30 | 1.44 | 2.09 | 1.105 | 0.387 | ECOS2SP181DX |
| | 30 x 35 | 1.44 | 2.09 | 1.105 | 0.387 | ECOS2SP181DA |
| 220 | 25 x 45 | 1.49 | 2.09 | 1.105 | 0.387 | ECOS2SP221DA |
| | 30 x 35 | 1.49 | 2.09 | 1.105 | 0.387 | ECOS2SP221DX |
| | 35 x 30 | 1.49 | 2.09 | 1.105 | 0.387 | ECOS2SP221EX |
| | 35 x 35 | 1.49 | 2.09 | 1.105 | 0.387 | ECOS2SP311EX |
| 270 | 30 x 45 | 1.78 | 2.49 | 0.675 | 0.270 | ECOS2SP271DA |
| | 35 x 30 | 1.78 | 2.49 | 0.675 | 0.270 | ECOS2SP271EX |
| 450 VDC Working, 500 VDC Surge | | | | | | |
| 33 | 22 x 20 | 0.20 | 0.28 | 6.028 | 2.411 | ECOS2WP330BL |
| | 22 x 25 | 0.41 | 0.57 | 6.028 | 2.411 | ECOS2WP330BA |
| 47 | 22 x 25 | 0.59 | 0.83 | 4.233 | 1.693 | ECOS2WP470BA |
| | 25 x 20 | 0.29 | 0.41 | 4.233 | 1.693 | ECOS2WP470CL |
| 56 | 22 x 25 | 0.70 | 0.98 | 2.960 | 1.184 | ECOS2WP560BA |
| | 30 x 20 | 0.38 | 0.53 | 2.926 | 1.170 | ECOS2WP680DL |
| 68 | 22 x 30 | 0.83 | 1.16 | 2.022 | 0.809 | ECOS2WP820BA |
| | 25 x 25 | 0.83 | 1.16 | 2.022 | 0.809 | ECOS2WP820CA |
| 100 | 22 x 35 | 0.93 | 1.30 | 1.658 | 0.663 | ECOS2WP101BA |
| | 35 x 20 | 0.52 | 0.73 | 1.989 | 0.796 | ECOS2WP101EL |
| 120 | 22 x 40 | 1.04 | 1.46 | 1.382 | 0.553 | ECOS2WP121BA |
| | 25 x 30 | 1.04 | 1.46 | 1.382 | 0.553 | ECOS2WP121CA |
| 150 | 22 x 50 | 1.19 | 1.67 | 1.105 | 0.442 | ECOS2WP151BA |
| | 25 x 40 | 1.19 | 1.67 | 1.105 | 0.442 | ECOS2WP151CA |
| | 30 x 30 | 1.19 | 1.67 | 1.105 | 0.442 | ECOS2WP151DA |
| 180 | 25 x 40 | 1.35 | 1.89 | 0.921 | 0.368 | ECOS2WP181CX |
| | 25 x 45 | 1.35 | 1.89 | 0.921 | 0.368 | ECOS2WP181CA |
| | 30 x 30 | 1.35 | 1.89 | 0.921 | 0.368 | ECOS2WP181DX |
| | | | | | | |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-UP Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max. 85°C R.C. (A_{ms}) | | Max. 20°C ESR (Ω) | | Panasonic Part Number |
|---------------------------------------------------|--------------------|-----------------------------|--------|----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 450 VDC Working, 500 VDC Surge (continued) | | | | | | |
| 270 | 35 x 35 | 1.78 | 2.49 | 0.675 | 0.270 | ECOS2WP271EA |
| 330 | 30 x 50 | 2.01 | 2.81 | 0.553 | 0.249 | ECOS2WP331DA |
| | 35 x 35 | 2.01 | 2.81 | 0.553 | 0.221 | ECOS2WP331EX |
| | 35 x 40 | 2.01 | 2.81 | 0.553 | 0.249 | ECOS2WP331EA |
| 390 | 35 x 45 | 2.24 | 3.14 | 0.510 | 0.255 | ECOS2WP391EA |
| 470 | 35 x 45 | 2.53 | 3.54 | 0.423 | 0.233 | ECOS2WP471EX |
| | 35 x 50 | 2.53 | 3.54 | 0.423 | 0.233 | ECOS2WP471EA |
| 500 VDC Working, 550 VDC Surge (continued) | | | | | | |
| 47 | 22 x 25 | 0.63 | 0.88 | 3.527 | 1.411 | ECOS2HP470BA |
| 56 | 22 x 30 | 0.70 | 0.98 | 2.960 | 1.184 | ECOS2HP560BA |
| 68 | 22 x 35 | 0.78 | 1.09 | 2.438 | 0.975 | ECOS2HP680BA |
| | 25 x 25 | 0.78 | 1.09 | 2.438 | 0.975 | ECOS2HP680CA |
| 82 | 22 x 40 | 0.88 | 1.23 | 2.022 | 0.809 | ECOS2HP820BA |
| | 25 x 30 | 0.88 | 1.23 | 2.022 | 0.809 | ECOS2HP820CA |
| 100 | 22 x 45 | 0.99 | 1.39 | 1.658 | 0.663 | ECOS2HP101BA |
| | 25 x 35 | 0.99 | 1.39 | 1.658 | 0.663 | ECOS2HP101CA |
| 120 | 22 x 50 | 1.13 | 1.58 | 1.382 | 0.553 | ECOS2HP121BA |
| | 25 x 40 | 1.13 | 1.58 | 1.382 | 0.553 | ECOS2HP121CA |
| | 30 x 30 | 1.13 | 1.58 | 1.382 | 0.553 | ECOS2HP121DA |
| 150 | 25 x 45 | 1.29 | 1.80 | 1.105 | 0.442 | ECOS2HP151CA |
| | 30 x 35 | 1.29 | 1.80 | 1.105 | 0.442 | ECOS2HP151DA |
| | 35 x 25 | 1.20 | 1.68 | 1.105 | 0.442 | ECOS2HP151EA |
| 180 | 25 x 50 | 1.38 | 1.93 | 0.921 | 0.368 | ECOS2HP181CA |
| | 30 x 40 | 1.38 | 1.93 | 0.921 | 0.368 | ECOS2HP181DA |
| | 35 x 30 | 1.36 | 1.90 | 0.921 | 0.368 | ECOS2HP181EA |
| 220 | 30 x 45 | 1.50 | 2.10 | 0.754 | 0.339 | ECOS2HP221DA |
| | 35 x 35 | 1.54 | 2.16 | 0.754 | 0.301 | ECOS2HP221EA |
| 270 | 35 x 40 | 1.76 | 2.46 | 0.614 | 0.276 | ECOS2HP271EA |
| 330 | 35 x 45 | 1.99 | 2.79 | 0.502 | 0.251 | ECOS2WP331EA |
| 390 | 35 x 50 | 2.22 | 3.11 | 0.425 | 0.234 | ECOS2HP391EA |

TS-HC Series 105°C, 2000 hours

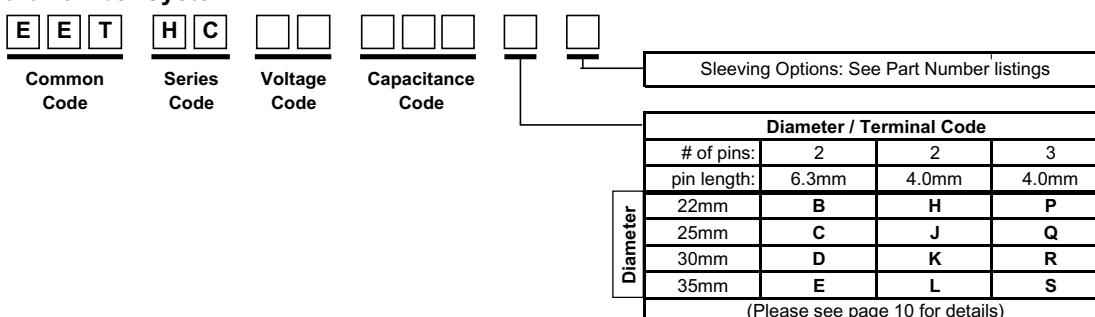
- Highly miniaturized version (30% smaller than HB series)
- 2 and 3 pin versions available
- PET Sleeve Option



| | | | | | | | | | |
|---------------------------------------|-------------------------------------------------------------------------------|------|------|---------|---------------|------|------|---------------------------------------------|----------------------------|
| Rated Working Voltage: | 16 ~ 250 VDC | | | | 350 ~ 450 VDC | | | | |
| Operating Temperature: | -40 ~ +105°C | | | | -25 ~ +105°C | | | | |
| Nominal Capacitance: | 270 ~ 100000μF | | | | 100 ~ 820μF | | | | |
| Capacitance Tolerance: | ± 20% | | | | | | | | |
| Dissipation Factor (120 Hz, +20°C) | Working Voltage [V]: | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 ~ 450 |
| | Max. D.F. (%): | 55 | 45 | 35 | 30 | 25 | 20 | 17 | 15 |
| | For capacitance values > 33000μF, add the value of: (rated cap. [μF] - 33000) | | | | | | | | 1000 |
| Leakage Current: | 3√CV (μA) max. after 5 minutes; C = Capacitance in μF, V = WV | | | | | | | | |
| Ripple Current Multipliers: | Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k | Ripple Current Ambient Temperature Factors* | |
| | 10~100WV: | 0.93 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 | Temperature (°C): | 105°C 85°C 70°C 60°C ≤45°C |
| | 160~450WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | Multiplier: | 1.0 1.7 2.0 2.2 2.35 |
| Endurance: | 2000 hours at +105°C with maximum specified ripple current (see page 6) | | | | | | | | |

*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



TS-HC Standard Ratings

(part numbers shown with 2 pins and 6.3mm length terminal)

| Cap. (μF) | Size (mm) D x L | Max 105°C R.C. (A _{rms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
|------------------------------|--------------------|------------------------------------|--------|--------------------|-------|--------------------------|-----------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | | | |
| 10 VDC Working, 13 VDC Surge | | | | | | | | | |
| 12000 | 22 x 25 | 2.20 | 2.53 | 0.076 | 0.065 | EETHC1A123B_ | A | (No suffix) | J |
| 18000 | 22 x 30 | 2.40 | 2.76 | 0.051 | 0.043 | EETHC1A183B_ | A | (No suffix) | J |
| | 25 x 25 | 2.40 | 2.76 | 0.051 | 0.043 | EETHC1A183C_ | A | (No suffix) | J |
| 22000 | 22 x 35 | 2.60 | 2.99 | 0.041 | 0.035 | EETHC1A223B_ | A | (No suffix) | J |
| | 25 x 30 | 2.60 | 2.99 | 0.041 | 0.035 | EETHC1A223C_ | A | (No suffix) | J |
| 27000 | 22 x 40 | 3.10 | 3.57 | 0.034 | 0.029 | EETHC1A273B_ | A | (No suffix) | J |
| | 25 x 35 | 3.10 | 3.57 | 0.034 | 0.029 | EETHC1A273C_ | A | (No suffix) | J |
| | 30 x 25 | 3.10 | 3.57 | 0.034 | 0.029 | EETHC1A273D_ | A | (No suffix) | J |
| 33000 | 22 x 45 | 3.40 | 3.91 | 0.028 | 0.023 | EETHC1A333B_ | A | (No suffix) | J |
| | 25 x 40 | 3.40 | 3.91 | 0.028 | 0.023 | EETHC1A333C_ | A | (No suffix) | J |
| 39000 | 25 x 45 | 3.70 | 4.26 | 0.026 | 0.022 | EETHC1A393C_ | A | (No suffix) | J |
| | 30 x 30 | 3.70 | 4.26 | 0.026 | 0.023 | EETHC1A393D_ | A | (No suffix) | J |
| | 35 x 25 | 3.70 | 4.26 | 0.026 | 0.022 | EETHC1A393E_ | A | (No suffix) | J |
| 47000 | 25 x 50 | 4.20 | 4.83 | 0.024 | 0.021 | EETHC1A473C_ | A | (No suffix) | J |
| | 30 x 35 | 4.20 | 4.83 | 0.024 | 0.022 | EETHC1A473D_ | A | (No suffix) | J |
| | 35 x 30 | 4.20 | 4.83 | 0.024 | 0.021 | EETHC1A473E_ | A | (No suffix) | J |
| 56000 | 30 x 40 | 5.00 | 5.75 | 0.023 | 0.021 | EETHC1A563D_ | A | (No suffix) | J |
| | 35 x 35 | 5.00 | 5.75 | 0.023 | 0.020 | EETHC1A563E_ | A | (No suffix) | J |
| 68000 | 30 x 45 | 5.40 | 6.21 | 0.022 | 0.020 | EETHC1A683D_ | A | (No suffix) | J |
| | 35 x 40 | 5.40 | 6.21 | 0.022 | 0.019 | EETHC1A683E_ | A | (No suffix) | J |
| 82000 | 35 x 45 | 6.10 | 7.02 | 0.021 | 0.019 | EETHC1A823E_ | A | (No suffix) | J |
| 100000 | 35 x 50 | 6.90 | 7.94 | 0.020 | 0.019 | EETHC1A104E_ | A | (No suffix) | J |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-HC Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 16 VDC Working, 20 VDC Surge | | | | | | | | | |
| 10000 | 22 x 25 | 2.60 | 2.99 | 0.075 | 0.063 | EETHC1C103B_ | A | (No suffix) | J |
| 12000 | 22 x 30 | 2.90 | 3.34 | 0.062 | 0.053 | EETHC1C123B_ | A | (No suffix) | J |
| | 25 x 25 | 2.90 | 3.34 | 0.062 | 0.053 | EETHC1C123C_ | A | (No suffix) | J |
| 15000 | 22 x 35 | 3.20 | 3.68 | 0.050 | 0.042 | EETHC1C153B_ | A | (No suffix) | J |
| 18000 | 22 x 40 | 3.50 | 4.03 | 0.041 | 0.035 | EETHC1C183B_ | A | (No suffix) | J |
| | 25 x 30 | 3.50 | 4.03 | 0.041 | 0.035 | EETHC1C183C_ | A | (No suffix) | J |
| 22000 | 22 x 45 | 3.80 | 4.37 | 0.034 | 0.029 | EETHC1C223B_ | A | (No suffix) | J |
| | 25 x 35 | 3.80 | 4.37 | 0.034 | 0.029 | EETHC1C223C_ | A | (No suffix) | J |
| | 30 x 25 | 3.80 | 4.37 | 0.034 | 0.029 | EETHC1C223D_ | A | (No suffix) | J |
| 27000 | 22 x 50 | 4.20 | 4.83 | 0.028 | 0.023 | EETHC1C273B_ | A | (No suffix) | J |
| | 25 x 40 | 4.20 | 4.83 | 0.028 | 0.023 | EETHC1C273C_ | A | (No suffix) | J |
| | 30 x 30 | 4.20 | 4.83 | 0.028 | 0.023 | EETHC1C273D_ | A | (No suffix) | J |
| | 35 x 25 | 4.20 | 4.83 | 0.028 | 0.023 | EETHC1C273E_ | A | (No suffix) | J |
| 33000 | 25 x 45 | 4.70 | 5.41 | 0.023 | 0.019 | EETHC1C333C_ | A | (No suffix) | J |
| | 30 x 35 | 4.70 | 5.41 | 0.023 | 0.019 | EETHC1C333D_ | A | (No suffix) | J |
| | 35 x 30 | 4.70 | 5.41 | 0.023 | 0.020 | EETHC1C333E_ | A | (No suffix) | J |
| 39000 | 30 x 40 | 5.10 | 5.87 | 0.022 | 0.018 | EETHC1C393D_ | A | (No suffix) | J |
| | 35 x 35 | 5.10 | 5.87 | 0.022 | 0.020 | EETHC1C393E_ | A | (No suffix) | J |
| 47000 | 30 x 45 | 5.50 | 6.33 | 0.016 | 0.014 | EETHC1C473D_ | A | (No suffix) | J |
| | 35 x 40 | 5.50 | 6.33 | 0.021 | 0.019 | EETHC1C473E_ | A | (No suffix) | J |
| 56000 | 30 x 50 | 6.00 | 6.90 | 0.020 | 0.018 | EETHC1C563D_ | A | (No suffix) | J |
| | 35 x 45 | 6.00 | 6.90 | 0.020 | 0.018 | EETHC1C563E_ | A | (No suffix) | J |
| 25 VDC Working, 32 VDC Surge | | | | | | | | | |
| 6800 | 22 x 25 | 2.40 | 2.76 | 0.085 | 0.064 | EETHC1E682B_ | A | (No suffix) | J |
| 8200 | 22 x 30 | 2.70 | 3.11 | 0.071 | 0.053 | EETHC1E822B_ | A | (No suffix) | J |
| | 25 x 25 | 2.70 | 3.11 | 0.071 | 0.053 | EETHC1E822C_ | A | (No suffix) | J |
| 10000 | 22 x 35 | 3.00 | 3.45 | 0.058 | 0.044 | EETHC1E103B_ | A | (No suffix) | J |
| 12000 | 22 x 40 | 3.20 | 3.68 | 0.048 | 0.036 | EETHC1E123B_ | A | (No suffix) | J |
| | 25 x 30 | 3.20 | 3.68 | 0.048 | 0.036 | EETHC1E123C_ | A | (No suffix) | J |
| 15000 | 22 x 45 | 3.60 | 4.14 | 0.039 | 0.029 | EETHC1E153B_ | A | (No suffix) | J |
| | 25 x 35 | 3.60 | 4.14 | 0.039 | 0.029 | EETHC1E153C_ | A | (No suffix) | J |
| | 30 x 25 | 3.60 | 4.14 | 0.039 | 0.029 | EETHC1E153D_ | A | (No suffix) | J |
| 18000 | 22 x 50 | 3.90 | 4.49 | 0.032 | 0.024 | EETHC1E183B_ | A | (No suffix) | J |
| | 25 x 40 | 3.90 | 4.49 | 0.032 | 0.024 | EETHC1E183C_ | A | (No suffix) | J |
| | 30 x 30 | 3.90 | 4.49 | 0.032 | 0.024 | EETHC1E183D_ | A | (No suffix) | J |
| | 35 x 25 | 3.90 | 4.49 | 0.032 | 0.024 | EETHC1E183E_ | A | (No suffix) | J |
| 22000 | 25 x 45 | 4.30 | 4.95 | 0.026 | 0.020 | EETHC1E223C_ | A | (No suffix) | J |
| | 30 x 35 | 4.30 | 4.95 | 0.026 | 0.020 | EETHC1E223D_ | A | (No suffix) | J |
| | 35 x 30 | 4.30 | 4.95 | 0.026 | 0.020 | EETHC1E223E_ | A | (No suffix) | J |
| 27000 | 30 x 40 | 4.80 | 5.52 | 0.021 | 0.016 | EETHC1E273D_ | A | (No suffix) | J |
| | 35 x 35 | 4.80 | 5.52 | 0.021 | 0.016 | EETHC1E273E_ | A | (No suffix) | J |
| 33000 | 30 x 45 | 5.50 | 6.33 | 0.018 | 0.013 | EETHC1E333D_ | A | (No suffix) | J |
| 39000 | 35 x 40 | 5.50 | 6.33 | 0.018 | 0.014 | EETHC1E333E_ | A | (No suffix) | J |
| 47000 | 30 x 50 | 5.80 | 6.67 | 0.017 | 0.013 | EETHC1E393D_ | A | (No suffix) | J |
| 47000 | 35 x 45 | 5.80 | 6.67 | 0.017 | 0.014 | EETHC1E393E_ | A | (No suffix) | J |
| 47000 | 35 x 50 | 6.30 | 7.25 | 0.017 | 0.014 | EETHC1E473E_ | A | (No suffix) | J |
| 35 VDC Working, 44 VDC Surge | | | | | | | | | |
| 4700 | 22 x 25 | 2.20 | 2.53 | 0.106 | 0.079 | EETHC1V472B_ | A | (No suffix) | J |
| 5600 | 22 x 30 | 2.40 | 2.76 | 0.089 | 0.067 | EETHC1V562B_ | A | (No suffix) | J |
| | 25 x 25 | 2.40 | 2.76 | 0.089 | 0.067 | EETHC1V562C_ | A | (No suffix) | J |
| 6800 | 22 x 35 | 2.60 | 2.99 | 0.073 | 0.055 | EETHC1V682B_ | A | (No suffix) | J |
| 8200 | 22 x 40 | 2.90 | 3.34 | 0.061 | 0.045 | EETHC1V822B_ | A | (No suffix) | J |
| | 25 x 30 | 2.90 | 3.34 | 0.061 | 0.045 | EETHC1V822C_ | A | (No suffix) | J |
| 10000 | 22 x 45 | 3.20 | 3.68 | 0.050 | 0.037 | EETHC1V103B_ | A | (No suffix) | J |
| | 25 x 35 | 3.20 | 3.68 | 0.050 | 0.037 | EETHC1V103C_ | A | (No suffix) | J |
| | 30 x 25 | 3.20 | 3.68 | 0.050 | 0.037 | EETHC1V103D_ | A | (No suffix) | J |
| 12000 | 25 x 40 | 3.50 | 4.03 | 0.041 | 0.031 | EETHC1V123C_ | A | (No suffix) | J |
| | 30 x 30 | 3.50 | 4.03 | 0.041 | 0.031 | EETHC1V123D_ | A | (No suffix) | J |
| | 35 x 25 | 3.50 | 4.03 | 0.041 | 0.031 | EETHC1V123E_ | A | (No suffix) | J |
| 15000 | 25 x 45 | 3.90 | 4.49 | 0.033 | 0.025 | EETHC1V153C_ | A | (No suffix) | J |
| | 30 x 35 | 3.90 | 4.49 | 0.033 | 0.025 | EETHC1V153D_ | A | (No suffix) | J |
| | 35 x 30 | 3.90 | 4.49 | 0.033 | 0.025 | EETHC1V153E_ | A | (No suffix) | J |

TS-HC Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|-------------------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 35 VDC Working, 44 VDC Surge (continued) | | | | | | | | | |
| 18000 | 30 x 40 | 4.30 | 4.95 | 0.028 | 0.021 | EETHC1V183D_ | A | (No suffix) | J |
| | 35 x 35 | 4.30 | 4.95 | 0.028 | 0.021 | EETHC1V183E_ | A | (No suffix) | J |
| 22000 | 30 x 45 | 5.00 | 5.75 | 0.023 | 0.017 | EETHC1V223D_ | A | (No suffix) | J |
| | 35 x 40 | 5.00 | 5.75 | 0.023 | 0.017 | EETHC1V223E_ | A | (No suffix) | J |
| 27000 | 30 x 50 | 5.30 | 6.10 | 0.018 | 0.014 | EETHC1V273D_ | A | (No suffix) | J |
| | 35 x 45 | 5.30 | 6.10 | 0.018 | 0.014 | EETHC1V273E_ | A | (No suffix) | J |
| 33000 | 35 x 50 | 5.90 | 6.79 | 0.015 | 0.012 | EETHC1V333E_ | A | (No suffix) | J |
| 50 VDC Working, 63 VDC Surge | | | | | | | | | |
| 2700 | 22 x 25 | 1.80 | 2.07 | 0.154 | 0.115 | EETHC1H272B_ | A | (No suffix) | J |
| 3300 | 22 x 30 | 2.00 | 2.30 | 0.126 | 0.094 | EETHC1H332B_ | A | (No suffix) | J |
| 3900 | 22 x 35 | 2.20 | 2.53 | 0.106 | 0.080 | EETHC1H392B_ | A | (No suffix) | J |
| | 25 x 25 | 2.20 | 2.53 | 0.106 | 0.080 | EETHC1H392C_ | A | (No suffix) | J |
| 4700 | 22 x 40 | 2.50 | 2.88 | 0.088 | 0.066 | EETHC1H472B_ | A | (No suffix) | J |
| | 25 x 30 | 2.50 | 2.88 | 0.088 | 0.066 | EETHC1H472C_ | A | (No suffix) | J |
| 5600 | 22 x 45 | 2.80 | 3.22 | 0.074 | 0.056 | EETHC1H562B_ | A | (No suffix) | J |
| | 25 x 35 | 2.80 | 3.22 | 0.074 | 0.056 | EETHC1H562C_ | A | (No suffix) | J |
| | 30 x 25 | 2.80 | 3.22 | 0.074 | 0.056 | EETHC1H562D_ | A | (No suffix) | J |
| 6800 | 22 x 50 | 3.30 | 3.80 | 0.061 | 0.046 | EETHC1H682B_ | A | (No suffix) | J |
| | 25 x 40 | 3.30 | 3.80 | 0.061 | 0.046 | EETHC1H682C_ | A | (No suffix) | J |
| | 30 x 30 | 3.30 | 3.80 | 0.061 | 0.046 | EETHC1H682D_ | A | (No suffix) | J |
| | 35 x 25 | 3.30 | 3.80 | 0.061 | 0.046 | EETHC1H682E_ | A | (No suffix) | J |
| 8200 | 25 x 45 | 3.60 | 4.14 | 0.051 | 0.038 | EETHC1H822C_ | A | (No suffix) | J |
| | 30 x 35 | 3.60 | 4.14 | 0.051 | 0.038 | EETHC1H822D_ | A | (No suffix) | J |
| 10000 | 25 x 50 | 4.00 | 4.60 | 0.041 | 0.031 | EETHC1H103C_ | A | (No suffix) | J |
| | 30 x 40 | 4.00 | 4.60 | 0.041 | 0.031 | EETHC1H103D_ | A | (No suffix) | J |
| | 35 x 30 | 4.00 | 4.60 | 0.041 | 0.031 | EETHC1H103E_ | A | (No suffix) | J |
| 12000 | 30 x 45 | 4.50 | 5.18 | 0.035 | 0.026 | EETHC1H123D_ | A | (No suffix) | J |
| | 35 x 35 | 4.50 | 5.18 | 0.035 | 0.028 | EETHC1H123E_ | A | (No suffix) | J |
| 15000 | 30 x 50 | 4.80 | 5.52 | 0.028 | 0.021 | EETHC1H153D_ | A | (No suffix) | J |
| | 35 x 40 | 4.80 | 5.52 | 0.028 | 0.022 | EETHC1H153E_ | A | (No suffix) | J |
| 18000 | 35 x 45 | 5.60 | 6.44 | 0.023 | 0.018 | EETHC1H183E_ | A | (No suffix) | J |
| 63 VDC Working, 79 VDC Surge | | | | | | | | | |
| 2200 | 22 x 25 | 2.00 | 2.30 | 0.151 | 0.113 | EETHC1J222B_ | A | (No suffix) | J |
| 2700 | 22 x 30 | 2.20 | 2.53 | 0.123 | 0.092 | EETHC1J272B_ | A | (No suffix) | J |
| | 25 x 25 | 2.20 | 2.53 | 0.123 | 0.092 | EETHC1J272C_ | A | (No suffix) | J |
| 3300 | 22 x 35 | 2.50 | 2.88 | 0.100 | 0.075 | EETHC1J332B_ | A | (No suffix) | J |
| 3900 | 22 x 40 | 2.70 | 3.11 | 0.085 | 0.064 | EETHC1J392B_ | A | (No suffix) | J |
| | 25 x 30 | 2.70 | 3.11 | 0.085 | 0.064 | EETHC1J392C_ | A | (No suffix) | J |
| | 30 x 25 | 2.70 | 3.11 | 0.085 | 0.064 | EETHC1J392D_ | A | (No suffix) | J |
| 4700 | 22 x 45 | 3.00 | 3.45 | 0.071 | 0.053 | EETHC1J472B_ | A | (No suffix) | J |
| | 25 x 35 | 3.00 | 3.45 | 0.071 | 0.053 | EETHC1J472C_ | A | (No suffix) | J |
| 5600 | 22 x 50 | 3.30 | 3.80 | 0.059 | 0.044 | EETHC1J562B_ | A | (No suffix) | J |
| | 25 x 40 | 3.30 | 3.80 | 0.059 | 0.044 | EETHC1J562C_ | A | (No suffix) | J |
| | 30 x 30 | 3.30 | 3.80 | 0.059 | 0.044 | EETHC1J562D_ | A | (No suffix) | J |
| | 35 x 25 | 3.30 | 3.80 | 0.059 | 0.044 | EETHC1J562E_ | A | (No suffix) | J |
| 6800 | 25 x 45 | 3.60 | 4.14 | 0.049 | 0.037 | EETHC1J682C_ | A | (No suffix) | J |
| | 30 x 35 | 3.60 | 4.14 | 0.049 | 0.037 | EETHC1J682D_ | A | (No suffix) | J |
| | 35 x 30 | 3.60 | 4.14 | 0.049 | 0.037 | EETHC1J682E_ | A | (No suffix) | J |
| 8200 | 30 x 40 | 3.90 | 4.49 | 0.040 | 0.030 | EETHC1J822D_ | A | (No suffix) | J |
| | 35 x 35 | 3.90 | 4.49 | 0.040 | 0.030 | EETHC1J822E_ | A | (No suffix) | J |
| 10000 | 30 x 45 | 4.40 | 5.06 | 0.033 | 0.025 | EETHC1J103D_ | A | (No suffix) | J |
| | 35 x 40 | 4.40 | 5.06 | 0.033 | 0.025 | EETHC1J103E_ | A | (No suffix) | J |
| 12000 | 30 x 50 | 4.80 | 5.52 | 0.028 | 0.021 | EETHC1J123D_ | A | (No suffix) | J |
| | 35 x 45 | 4.80 | 5.52 | 0.028 | 0.022 | EETHC1J123E_ | A | (No suffix) | J |
| 15000 | 35 x 50 | 5.40 | 6.21 | 0.022 | 0.018 | EETHC1J153E_ | A | (No suffix) | J |
| 80 VDC Working, 100 VDC Surge | | | | | | | | | |
| 1200 | 22 x 25 | 1.50 | 1.73 | 0.235 | 0.176 | EETHC1K122B_ | A | (No suffix) | J |
| 1500 | 22 x 30 | 1.70 | 1.96 | 0.188 | 0.141 | EETHC1K152B_ | A | (No suffix) | J |
| | 25 x 25 | 1.70 | 1.96 | 0.188 | 0.141 | EETHC1K152C_ | A | (No suffix) | J |
| 1800 | 22 x 35 | 1.80 | 2.07 | 0.157 | 0.117 | EETHC1K182B_ | A | (No suffix) | J |
| 2200 | 22 x 40 | 2.10 | 2.42 | 0.128 | 0.096 | EETHC1K222B_ | A | (No suffix) | J |
| | 25 x 30 | 2.10 | 2.42 | 0.128 | 0.096 | EETHC1K222C_ | A | (No suffix) | J |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-HC Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|--------------------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 80 VDC Working, 100 VDC Surge (continued) | | | | | | | | | |
| 2700 | 22 x 45 | 2.40 | 2.76 | 0.104 | 0.078 | EETHC1K272B_ | A | (No suffix) | J |
| | 25 x 35 | 2.40 | 2.76 | 0.104 | 0.078 | EETHC1K272C_ | A | (No suffix) | J |
| | 30 x 25 | 2.40 | 2.76 | 0.104 | 0.078 | EETHC1K272D_ | A | (No suffix) | J |
| 3300 | 22 x 50 | 2.60 | 2.99 | 0.085 | 0.064 | EETHC1K332B_ | A | (No suffix) | J |
| | 25 x 40 | 2.60 | 2.99 | 0.085 | 0.064 | EETHC1K332C_ | A | (No suffix) | J |
| | 30 x 30 | 2.60 | 2.99 | 0.085 | 0.064 | EETHC1K332D_ | A | (No suffix) | J |
| | 35 x 25 | 2.60 | 2.99 | 0.085 | 0.064 | EETHC1K332E_ | A | (No suffix) | J |
| 3900 | 25 x 45 | 3.00 | 3.45 | 0.072 | 0.054 | EETHC1K392C_ | A | (No suffix) | J |
| | 30 x 35 | 3.00 | 3.45 | 0.072 | 0.054 | EETHC1K392D_ | A | (No suffix) | J |
| 4700 | 25 x 50 | 3.30 | 3.80 | 0.060 | 0.045 | EETHC1K472C_ | A | (No suffix) | J |
| | 30 x 40 | 3.30 | 3.80 | 0.060 | 0.045 | EETHC1K472D_ | A | (No suffix) | J |
| | 35 x 30 | 3.30 | 3.80 | 0.060 | 0.045 | EETHC1K472E_ | A | (No suffix) | J |
| 5600 | 30 x 45 | 3.70 | 4.26 | 0.050 | 0.038 | EETHC1K562D_ | A | (No suffix) | J |
| | 35 x 35 | 3.70 | 4.26 | 0.050 | 0.038 | EETHC1K562E_ | A | (No suffix) | J |
| 6800 | 30 x 50 | 3.90 | 4.49 | 0.041 | 0.031 | EETHC1K682D_ | A | (No suffix) | J |
| | 35 x 40 | 3.90 | 4.49 | 0.041 | 0.032 | EETHC1K682E_ | A | (No suffix) | J |
| 8200 | 35 x 45 | 4.50 | 5.18 | 0.034 | 0.027 | EETHC1K822E_ | A | (No suffix) | J |
| 100 VDC Working, 125 VDC Surge | | | | | | | | | |
| 820 | 22 x 25 | 1.40 | 1.61 | 0.303 | 0.197 | EETHC2A821B_ | A | (No suffix) | J |
| 1200 | 22 x 30 | 1.80 | 2.07 | 0.207 | 0.135 | EETHC2A122B_ | A | (No suffix) | J |
| | 25 x 25 | 1.80 | 2.07 | 0.207 | 0.135 | EETHC2A122C_ | A | (No suffix) | J |
| 1500 | 22 x 35 | 2.10 | 2.42 | 0.166 | 0.108 | EETHC2A152B_ | A | (No suffix) | J |
| | 25 x 30 | 2.10 | 2.42 | 0.166 | 0.108 | EETHC2A152C_ | A | (No suffix) | J |
| 1800 | 22 x 40 | 2.30 | 2.65 | 0.138 | 0.090 | EETHC2A182B_ | A | (No suffix) | J |
| | 25 x 35 | 2.30 | 2.65 | 0.138 | 0.090 | EETHC2A182C_ | A | (No suffix) | J |
| | 30 x 25 | 2.30 | 2.65 | 0.138 | 0.090 | EETHC2A182D_ | A | (No suffix) | J |
| 2200 | 22 x 45 | 2.60 | 2.99 | 0.113 | 0.073 | EETHC2A222B_ | A | (No suffix) | J |
| | 25 x 40 | 2.60 | 2.99 | 0.113 | 0.073 | EETHC2A222C_ | A | (No suffix) | J |
| | 30 x 30 | 2.60 | 2.99 | 0.113 | 0.073 | EETHC2A222D_ | A | (No suffix) | J |
| | 35 x 25 | 2.60 | 2.99 | 0.113 | 0.073 | EETHC2A222E_ | A | (No suffix) | J |
| 2700 | 25 x 45 | 2.90 | 3.34 | 0.092 | 0.060 | EETHC2A272C_ | A | (No suffix) | J |
| | 30 x 35 | 2.90 | 3.34 | 0.092 | 0.060 | EETHC2A272D_ | A | (No suffix) | J |
| 3300 | 25 x 50 | 3.20 | 3.68 | 0.075 | 0.049 | EETHC2A332C_ | A | (No suffix) | J |
| | 30 x 40 | 3.20 | 3.68 | 0.075 | 0.049 | EETHC2A332D_ | A | (No suffix) | J |
| | 35 x 30 | 3.20 | 3.68 | 0.075 | 0.049 | EETHC2A332E_ | A | (No suffix) | J |
| 3900 | 30 x 45 | 3.60 | 4.14 | 0.064 | 0.043 | EETHC2A392D_ | A | (No suffix) | J |
| | 35 x 35 | 3.60 | 4.14 | 0.064 | 0.043 | EETHC2A392E_ | A | (No suffix) | J |
| 4700 | 30 x 50 | 3.80 | 4.37 | 0.053 | 0.038 | EETHC2A472D_ | A | (No suffix) | J |
| | 35 x 40 | 3.80 | 4.37 | 0.053 | 0.037 | EETHC2A472E_ | A | (No suffix) | J |
| 5600 | 35 x 45 | 4.20 | 4.83 | 0.044 | 0.031 | EETHC2A562E_ | A | (No suffix) | J |
| 6800 | 35 x 50 | 4.70 | 5.41 | 0.037 | 0.027 | EETHC2A682E_ | A | (No suffix) | J |
| 160 VDC Working, 200 VDC Surge | | | | | | | | | |
| 470 | 22 x 25 | 1.40 | 1.96 | 0.423 | 0.190 | EETHC2C471B_ | A | (No suffix) | J |
| 560 | 22 x 30 | 1.50 | 2.10 | 0.355 | 0.160 | EETHC2C561B_ | A | (No suffix) | J |
| 680 | 22 x 30 | 1.70 | 2.38 | 0.293 | 0.132 | EETHC2C681B_ | A | (No suffix) | J |
| | 25 x 25 | 1.70 | 2.38 | 0.293 | 0.132 | EETHC2C681C_ | A | (No suffix) | J |
| 820 | 22 x 35 | 2.00 | 2.80 | 0.243 | 0.109 | EETHC2C821B_ | A | (No suffix) | J |
| | 25 x 30 | 2.00 | 2.80 | 0.243 | 0.109 | EETHC2C821C_ | A | (No suffix) | J |
| 1000 | 22 x 40 | 2.20 | 3.08 | 0.199 | 0.090 | EETHC2C102B_ | A | (No suffix) | J |
| | 25 x 35 | 2.20 | 3.08 | 0.199 | 0.090 | EETHC2C102C_ | A | (No suffix) | J |
| | 30 x 25 | 2.20 | 3.08 | 0.216 | 0.108 | EETHC2C102D_ | A | (No suffix) | J |
| 1200 | 22 x 45 | 2.30 | 3.22 | 0.166 | 0.075 | EETHC2C122B_ | A | (No suffix) | J |
| | 25 x 40 | 2.30 | 3.22 | 0.166 | 0.075 | EETHC2C122C_ | A | (No suffix) | J |
| | 30 x 30 | 2.30 | 3.22 | 0.166 | 0.075 | EETHC2C122D_ | A | (No suffix) | J |
| | 35 x 25 | 2.30 | 3.22 | 0.180 | 0.090 | EETHC2C122E_ | A | (No suffix) | J |
| 1500 | 25 x 45 | 2.50 | 3.50 | 0.133 | 0.060 | EETHC2C152C_ | A | (No suffix) | J |
| | 30 x 35 | 2.50 | 3.50 | 0.133 | 0.060 | EETHC2C152D_ | A | (No suffix) | J |
| | 35 x 30 | 2.50 | 3.50 | 0.155 | 0.077 | EETHC2C152E_ | A | (No suffix) | J |
| 1800 | 25 x 50 | 2.70 | 3.78 | 0.111 | 0.050 | EETHC2C182C_ | A | (No suffix) | J |
| | 30 x 40 | 2.70 | 3.78 | 0.111 | 0.050 | EETHC2C182D_ | A | (No suffix) | J |
| | 35 x 30 | 2.70 | 3.78 | 0.120 | 0.060 | EETHC2C182E_ | A | (No suffix) | J |

TS-HC Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|---------------------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 160 VDC Working, 200 VDC Surge (continued) | | | | | | | | | |
| 2200 | 30 x 45 | 2.90 | 4.06 | 0.090 | 0.041 | EETHC2C222D_ | A | (No suffix) | J |
| | 35 x 35 | 2.90 | 4.06 | 0.098 | 0.049 | EETHC2C222E_ | A | (No suffix) | J |
| 2700 | 30 x 50 | 3.10 | 4.34 | 0.080 | 0.040 | EETHC2C272D_ | A | (No suffix) | J |
| | 35 x 40 | 3.10 | 4.34 | 0.086 | 0.043 | EETHC2C272E_ | A | (No suffix) | J |
| 3300 | 35 x 50 | 3.30 | 4.62 | 0.070 | 0.042 | EETHC2C332E_ | A | (No suffix) | J |
| 200 VDC Working, 250 VDC Surge | | | | | | | | | |
| 390 | 22 x 25 | 1.31 | 1.83 | 0.510 | 0.230 | EETHC2D391B_ | A | (No suffix) | J |
| 470 | 22 x 30 | 1.45 | 2.03 | 0.423 | 0.190 | EETHC2D471B_ | A | (No suffix) | J |
| 560 | 22 x 30 | 1.67 | 2.34 | 0.355 | 0.160 | EETHC2D561B_ | A | (No suffix) | J |
| 680 | 22 x 40 | 1.75 | 2.45 | 0.293 | 0.132 | EETHC2D681B_ | A | (No suffix) | J |
| | 25 x 30 | 1.75 | 2.45 | 0.293 | 0.132 | EETHC2D681C_ | A | (No suffix) | J |
| 820 | 22 x 45 | 2.04 | 2.86 | 0.243 | 0.109 | EETHC2D821B_ | A | (No suffix) | J |
| | 25 x 35 | 2.04 | 2.86 | 0.243 | 0.109 | EETHC2D821C_ | A | (No suffix) | J |
| | 30 x 25 | 2.04 | 2.86 | 0.243 | 0.109 | EETHC2D821D_ | A | (No suffix) | J |
| 1000 | 22 x 50 | 2.30 | 3.22 | 0.199 | 0.090 | EETHC2D102B_ | A | (No suffix) | J |
| | 25 x 40 | 2.07 | 2.90 | 0.199 | 0.090 | EETHC2D102C_ | F | U | C |
| | 25 x 45 | 2.30 | 3.22 | 0.199 | 0.090 | EETHC2D102C_ | A | (No suffix) | J |
| | 30 x 30 | 2.30 | 3.22 | 0.199 | 0.090 | EETHC2D102D_ | A | (No suffix) | J |
| | 35 x 25 | 2.30 | 3.22 | 0.216 | 0.097 | EETHC2D102E_ | A | (No suffix) | J |
| 1200 | 25 x 45 | 2.38 | 3.33 | 0.166 | 0.075 | EETHC2D122C_ | F | U | C |
| | 25 x 50 | 2.65 | 3.71 | 0.166 | 0.075 | EETHC2D122C_ | A | (No suffix) | J |
| | 30 x 35 | 2.65 | 3.71 | 0.166 | 0.075 | EETHC2D122D_ | A | (No suffix) | J |
| | 35 x 30 | 2.65 | 3.71 | 0.180 | 0.090 | EETHC2D122E_ | A | (No suffix) | J |
| 1500 | 30 x 40 | 2.80 | 3.92 | 0.133 | 0.060 | EETHC2D152D_ | A | (No suffix) | J |
| | 35 x 30 | 2.80 | 3.92 | 0.144 | 0.072 | EETHC2D152E_ | A | (No suffix) | J |
| 1800 | 30 x 45 | 3.08 | 4.31 | 0.111 | 0.050 | EETHC2D182D_ | A | (No suffix) | J |
| | 35 x 40 | 3.08 | 4.31 | 0.129 | 0.064 | EETHC2D182E_ | A | (No suffix) | J |
| 2200 | 30 x 50 | 3.48 | 4.87 | 0.090 | 0.041 | EETHC2D222D_ | A | (No suffix) | J |
| | 35 x 45 | 3.48 | 4.87 | 0.098 | 0.044 | EETHC2D222E_ | A | (No suffix) | J |
| 250 VDC Working, 300 VDC Surge | | | | | | | | | |
| 270 | 22 x 25 | 1.10 | 1.54 | 0.614 | 0.276 | EETHC2E271B_ | A | (No suffix) | J |
| 330 | 22 x 30 | 1.20 | 1.68 | 0.502 | 0.226 | EETHC2E331B_ | A | (No suffix) | J |
| | 25 x 25 | 1.20 | 1.68 | 0.502 | 0.226 | EETHC2E331C_ | A | (No suffix) | J |
| 390 | 22 x 30 | 1.20 | 1.68 | 0.425 | 0.191 | EETHC2E391B_ | F | U | C |
| | 22 x 35 | 1.30 | 1.82 | 0.425 | 0.191 | EETHC2E391B_ | A | (No suffix) | J |
| | 25 x 25 | 1.30 | 1.82 | 0.425 | 0.191 | EETHC2E391C_ | A | (No suffix) | J |
| 470 | 22 x 35 | 1.20 | 1.68 | 0.353 | 0.159 | EETHC2E471B_ | F | U | C |
| | 22 x 40 | 1.40 | 1.96 | 0.353 | 0.159 | EETHC2E471B_ | A | (No suffix) | J |
| | 25 x 30 | 1.40 | 1.96 | 0.353 | 0.159 | EETHC2E471C_ | A | (No suffix) | J |
| | 30 x 25 | 1.40 | 1.96 | 0.353 | 0.159 | EETHC2E471D_ | A | (No suffix) | J |
| 560 | 22 x 40 | 1.40 | 1.96 | 0.296 | 0.133 | EETHC2E561B_ | F | U | C |
| | 22 x 45 | 1.50 | 2.10 | 0.296 | 0.133 | EETHC2E561B_ | A | (No suffix) | J |
| | 25 x 35 | 1.50 | 2.10 | 0.296 | 0.133 | EETHC2E561C_ | A | (No suffix) | J |
| | 30 x 25 | 1.50 | 2.10 | 0.296 | 0.133 | EETHC2E561D_ | A | (No suffix) | J |
| 680 | 22 x 45 | 1.50 | 2.10 | 0.244 | 0.110 | EETHC2E681B_ | F | U | C |
| | 22 x 50 | 1.70 | 2.38 | 0.244 | 0.110 | EETHC2E681B_ | A | (No suffix) | J |
| | 25 x 40 | 1.70 | 2.38 | 0.244 | 0.110 | EETHC2E681C_ | A | (No suffix) | J |
| | 30 x 30 | 1.70 | 2.38 | 0.244 | 0.110 | EETHC2E681D_ | A | (No suffix) | J |
| | 35 x 25 | 1.70 | 2.38 | 0.244 | 0.110 | EETHC2E681E_ | A | (No suffix) | J |
| 820 | 25 x 45 | 2.00 | 2.80 | 0.202 | 0.091 | EETHC2E821C_ | A | (No suffix) | J |
| | 30 x 35 | 2.00 | 2.80 | 0.202 | 0.091 | EETHC2E821D_ | A | (No suffix) | J |
| | 35 x 30 | 2.00 | 2.80 | 0.202 | 0.091 | EETHC2E821E_ | A | (No suffix) | J |
| 1000 | 25 x 50 | 2.20 | 3.08 | 0.166 | 0.075 | EETHC2E102C_ | F | U | C |
| | 30 x 40 | 2.20 | 3.08 | 0.166 | 0.075 | EETHC2E102D_ | A | (No suffix) | J |
| | 35 x 30 | 2.20 | 3.08 | 0.166 | 0.075 | EETHC2E102E_ | A | (No suffix) | J |
| 1200 | 30 x 45 | 2.30 | 3.22 | 0.138 | 0.062 | EETHC2E122D_ | A | (No suffix) | J |
| | 35 x 35 | 2.30 | 3.22 | 0.138 | 0.062 | EETHC2E122E_ | A | (No suffix) | J |
| 1500 | 35 x 45 | 2.50 | 3.50 | 0.111 | 0.050 | EETHC2E152E_ | A | (No suffix) | J |
| 1800 | 35 x 45 | 2.50 | 3.50 | 0.092 | 0.041 | EETHC2E182E_ | F | U | C |
| | 35 x 50 | 2.70 | 3.78 | 0.092 | 0.041 | EETHC2E182E_ | A | (No suffix) | J |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-HC Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|---------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 350 VDC Working, 400 VDC Surge | | | | | | | | | |
| 120 | 22 x 25 | 0.75 | 1.05 | 1.382 | 0.622 | EETHC2V121B_ | A | (No suffix) | J |
| 150 | 22 x 30 | 0.82 | 1.15 | 1.105 | 0.497 | EETHC2V151B_ | A | (No suffix) | J |
| 180 | 22 x 30 | 0.90 | 1.26 | 0.921 | 0.414 | EETHC2V181B_ | A | (No suffix) | J |
| | 25 x 25 | 0.90 | 1.26 | 0.921 | 0.414 | EETHC2V181C_ | A | (No suffix) | J |
| 220 | 22 x 35 | 1.00 | 1.40 | 0.754 | 0.339 | EETHC2V221B_ | A | (No suffix) | J |
| | 25 x 30 | 1.00 | 1.40 | 0.754 | 0.339 | EETHC2V221C_ | A | (No suffix) | J |
| 270 | 25 x 35 | 1.10 | 1.54 | 0.614 | 0.276 | EETHC2V271C_ | A | (No suffix) | J |
| | 30 x 25 | 1.10 | 1.54 | 0.614 | 0.276 | EETHC2V271D_ | A | (No suffix) | J |
| 330 | 25 x 40 | 1.20 | 1.68 | 0.502 | 0.226 | EETHC2V331C_ | A | (No suffix) | J |
| | 30 x 30 | 1.20 | 1.68 | 0.502 | 0.226 | EETHC2V331D_ | A | (No suffix) | J |
| 390 | 25 x 45 | 1.30 | 1.82 | 0.425 | 0.191 | EETHC2V391C_ | A | (No suffix) | J |
| | 30 x 35 | 1.30 | 1.82 | 0.425 | 0.191 | EETHC2V391D_ | A | (No suffix) | J |
| 470 | 25 x 50 | 1.40 | 1.96 | 0.353 | 0.159 | EETHC2V471C_ | A | (No suffix) | J |
| | 35 x 30 | 1.40 | 1.96 | 0.353 | 0.159 | EETHC2V471E_ | A | (No suffix) | J |
| 560 | 30 x 45 | 1.50 | 2.10 | 0.296 | 0.133 | EETHC2V561D_ | A | (No suffix) | J |
| | 35 x 35 | 1.50 | 2.10 | 0.296 | 0.133 | EETHC2V561E_ | A | (No suffix) | J |
| 680 | 30 x 50 | 1.70 | 2.38 | 0.244 | 0.110 | EETHC2V681D_ | A | (No suffix) | J |
| | 35 x 40 | 1.70 | 2.38 | 0.244 | 0.110 | EETHC2V681E_ | A | (No suffix) | J |
| 820 | 35 x 45 | 1.90 | 2.66 | 0.202 | 0.091 | EETHC2V821E_ | A | (No suffix) | J |
| 400 VDC Working, 450 VDC Surge | | | | | | | | | |
| 100 | 22 x 25 | 0.70 | 0.98 | 1.824 | 0.821 | EETHC2G101B_ | A | (No suffix) | J |
| 120 | 22 x 30 | 0.75 | 1.05 | 1.520 | 0.684 | EETHC2G121B_ | A | (No suffix) | J |
| 150 | 22 x 30 | 0.88 | 1.23 | 1.216 | 0.547 | EETHC2G151B_ | A | (No suffix) | J |
| 180 | 22 x 35 | 0.95 | 1.33 | 1.013 | 0.456 | EETHC2G181B_ | A | (No suffix) | J |
| | 25 x 30 | 0.95 | 1.33 | 1.013 | 0.456 | EETHC2G181C_ | A | (No suffix) | J |
| 220 | 22 x 40 | 1.00 | 1.40 | 0.829 | 0.373 | EETHC2G221B_ | F | U | C |
| | 22 x 45 | 1.10 | 1.54 | 0.829 | 0.373 | EETHC2G221B_ | A | (No suffix) | J |
| | 25 x 35 | 1.10 | 1.54 | 0.829 | 0.373 | EETHC2G221C_ | A | (No suffix) | J |
| | 30 x 25 | 1.10 | 1.54 | 0.829 | 0.373 | EETHC2G221D_ | A | (No suffix) | J |
| 270 | 22 x 45 | 1.10 | 1.54 | 0.675 | 0.304 | EETHC2G271B_ | F | U | C |
| | 22 x 50 | 1.22 | 1.71 | 0.675 | 0.304 | EETHC2G271B_ | A | (No suffix) | J |
| | 25 x 40 | 1.22 | 1.71 | 0.675 | 0.304 | EETHC2G271C_ | A | (No suffix) | J |
| | 30 x 30 | 1.22 | 1.71 | 0.675 | 0.304 | EETHC2G271D_ | A | (No suffix) | J |
| | 35 x 25 | 1.22 | 1.71 | 0.675 | 0.304 | EETHC2G271E_ | A | (No suffix) | J |
| 330 | 25 x 45 | 1.44 | 2.02 | 0.553 | 0.249 | EETHC2G331C_ | A | (No suffix) | J |
| | 30 x 35 | 1.44 | 2.02 | 0.553 | 0.249 | EETHC2G331D_ | A | (No suffix) | J |
| | 35 x 30 | 1.44 | 2.02 | 0.553 | 0.249 | EETHC2G331E_ | A | (No suffix) | J |
| 390 | 25 x 50 | 1.55 | 2.17 | 0.468 | 0.210 | EETHC2G391C_ | A | (No suffix) | J |
| | 30 x 35 | 1.40 | 1.96 | 0.468 | 0.210 | EETHC2G391D_ | F | U | C |
| | 30 x 40 | 1.55 | 2.17 | 0.468 | 0.210 | EETHC2G391D_ | A | (No suffix) | J |
| | 35 x 30 | 1.55 | 2.17 | 0.468 | 0.210 | EETHC2G391E_ | A | (No suffix) | J |
| 470 | 30 x 45 | 1.68 | 2.35 | 0.388 | 0.175 | EETHC2G471D_ | A | (No suffix) | J |
| | 35 x 35 | 1.68 | 2.35 | 0.388 | 0.175 | EETHC2G471E_ | A | (No suffix) | J |
| 560 | 30 x 50 | 1.90 | 2.66 | 0.326 | 0.147 | EETHC2G561D_ | A | (No suffix) | J |
| | 35 x 40 | 1.90 | 2.66 | 0.326 | 0.147 | EETHC2G561E_ | A | (No suffix) | J |
| 680 | 35 x 45 | 2.12 | 2.97 | 0.268 | 0.121 | EETHC2G681E_ | A | (No suffix) | J |
| 820 | 35 x 50 | 2.30 | 3.22 | 0.202 | 0.091 | EETHC2G821E_ | A | (No suffix) | J |
| 420 VDC Working, 470 VDC Surge | | | | | | | | | |
| 120 | 22 x 30 | 0.74 | 1.04 | 1.520 | 0.684 | EETHC2S121B_ | A | (No suffix) | J |
| | 25 x 25 | 0.74 | 1.04 | 1.520 | 0.684 | EETHC2S121C_ | A | (No suffix) | J |
| 150 | 22 x 35 | 0.84 | 1.18 | 1.216 | 0.547 | EETHC2S151B_ | A | (No suffix) | J |
| 180 | 22 x 40 | 0.91 | 1.27 | 1.103 | 0.456 | EETHC2S181B_ | A | (No suffix) | J |
| | 25 x 30 | 0.91 | 1.27 | 1.103 | 0.456 | EETHC2S181C_ | A | (No suffix) | J |
| 220 | 22 x 45 | 1.05 | 1.47 | 0.829 | 0.373 | EETHC2S221B_ | A | (No suffix) | J |
| | 25 x 35 | 1.05 | 1.47 | 0.829 | 0.373 | EETHC2S221C_ | A | (No suffix) | J |
| | 30 x 25 | 1.05 | 1.47 | 0.829 | 0.373 | EETHC2S221D_ | A | (No suffix) | J |
| 270 | 22 x 50 | 1.20 | 1.68 | 0.675 | 0.304 | EETHC2S271B_ | A | (No suffix) | J |
| | 25 x 40 | 1.20 | 1.68 | 0.675 | 0.304 | EETHC2S271C_ | A | (No suffix) | J |
| | 30 x 30 | 1.20 | 1.68 | 0.675 | 0.304 | EETHC2S271D_ | A | (No suffix) | J |
| | 35 x 25 | 1.20 | 1.68 | 0.675 | 0.304 | EETHC2S271E_ | A | (No suffix) | J |
| 330 | 25 x 50 | 1.42 | 1.99 | 0.553 | 0.249 | EETHC2S331C_ | A | (No suffix) | J |

TS-HC Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Part Number Suffix Sleeving Options | | |
|---------------------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
| 420 VDC Working, 470 VDC Surge (continued) | | | | | | | | | |
| 330 | 30 x 35 | 1.42 | 1.99 | 0.553 | 0.249 | EETHC2S331D_ | A | (No suffix) | J |
| | 35 x 35 | 1.42 | 1.99 | 0.553 | 0.249 | EETHC2S331E_ | A | (No suffix) | J |
| 390 | 30 x 40 | 1.55 | 2.17 | 0.468 | 0.210 | EETHC2S391D_ | A | (No suffix) | J |
| | 35 x 35 | 1.55 | 2.17 | 0.468 | 0.210 | EETHC2S391E_ | A | (No suffix) | J |
| 470 | 30 x 45 | 1.71 | 2.39 | 0.388 | 0.175 | EETHC2S471D_ | A | (No suffix) | J |
| | 35 x 35 | 1.71 | 2.39 | 0.388 | 0.175 | EETHC2S471E_ | A | (No suffix) | J |
| 560 | 30 x 50 | 1.90 | 2.66 | 0.326 | 0.147 | EETHC2S561D_ | A | (No suffix) | J |
| | 35 x 45 | 1.90 | 2.66 | 0.326 | 0.147 | EETHC2S561E_ | A | (No suffix) | J |
| 680 | 35 x 50 | 2.10 | 2.94 | 0.268 | 0.121 | EETHC2S681E_ | A | (No suffix) | J |
| 450 VDC Working, 500 VDC Surge | | | | | | | | | |
| 100 | 22 x 30 | 0.64 | 0.90 | 1.824 | 0.821 | EETHC2W101B_ | A | (No suffix) | J |
| | 25 x 25 | 0.64 | 0.90 | 1.824 | 0.821 | EETHC2W101C_ | A | (No suffix) | J |
| 120 | 22 x 35 | 0.72 | 1.01 | 1.520 | 0.684 | EETHC2W121B_ | A | (No suffix) | J |
| | 25 x 30 | 0.72 | 1.01 | 1.520 | 0.684 | EETHC2W121C_ | A | (No suffix) | J |
| 150 | 22 x 40 | 0.79 | 1.11 | 1.216 | 0.547 | EETHC2W151B_ | A | (No suffix) | J |
| | 25 x 30 | 0.79 | 1.11 | 1.216 | 0.547 | EETHC2W151C_ | A | (No suffix) | J |
| | 30 x 25 | 0.79 | 1.11 | 1.216 | 0.547 | EETHC2W151D_ | A | (No suffix) | J |
| 180 | 22 x 45 | 0.87 | 1.22 | 1.013 | 0.456 | EETHC2W181B_ | A | (No suffix) | J |
| | 25 x 35 | 0.79 | 1.11 | 1.013 | 0.456 | EETHC2W181C_ | F | U | C |
| | 25 x 40 | 0.87 | 1.22 | 1.013 | 0.456 | EETHC2W181C_ | A | (No suffix) | J |
| | 30 x 30 | 0.87 | 1.22 | 1.013 | 0.456 | EETHC2W181D_ | A | (No suffix) | J |
| 220 | 22 x 50 | 0.90 | 1.26 | 0.829 | 0.373 | EETHC2W221B_ | A | (No suffix) | J |
| | 25 x 45 | 1.00 | 1.40 | 0.829 | 0.373 | EETHC2W221C_ | A | (No suffix) | J |
| | 30 x 30 | 1.00 | 1.40 | 0.829 | 0.373 | EETHC2W221D_ | A | (No suffix) | J |
| | 35 x 25 | 1.00 | 1.40 | 0.829 | 0.373 | EETHC2W221E_ | A | (No suffix) | J |
| 270 | 25 x 50 | 1.19 | 1.67 | 0.675 | 0.304 | EETHC2W271C_ | A | (No suffix) | J |
| | 30 x 35 | 1.07 | 1.50 | 0.675 | 0.304 | EETHC2W271D_ | F | U | C |
| | 30 x 40 | 1.19 | 1.67 | 0.675 | 0.304 | EETHC2W271D_ | A | (No suffix) | J |
| | 35 x 30 | 1.19 | 1.67 | 0.675 | 0.304 | EETHC2W271E_ | A | (No suffix) | J |
| 330 | 30 x 40 | 1.24 | 1.74 | 0.553 | 0.249 | EETHC2W331D_ | F | U | C |
| | 30 x 45 | 1.38 | 1.93 | 0.553 | 0.249 | EETHC2W331D_ | A | (No suffix) | J |
| | 35 x 35 | 1.38 | 1.93 | 0.553 | 0.249 | EETHC2W331E_ | A | (No suffix) | J |
| 390 | 30 x 45 | 1.39 | 1.95 | 0.468 | 0.210 | EETHC2W391D_ | F | U | C |
| | 30 x 50 | 1.55 | 2.17 | 0.468 | 0.210 | EETHC2W391D_ | A | (No suffix) | J |
| | 35 x 40 | 1.55 | 2.17 | 0.468 | 0.210 | EETHC2W391E_ | A | (No suffix) | J |
| 470 | 35 x 45 | 1.74 | 2.44 | 0.388 | 0.175 | EETHC2W471E_ | A | (No suffix) | J |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-HB Series *105°C, 3000 hours*

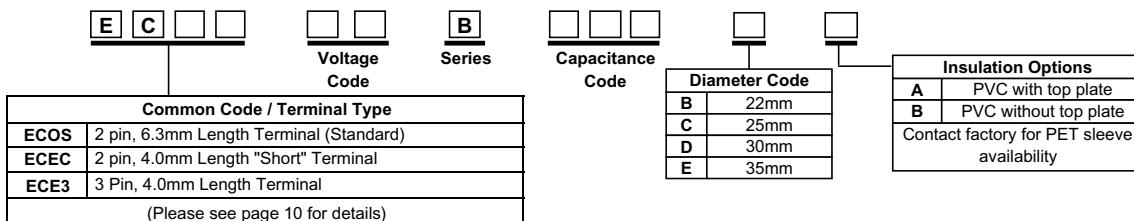
- Compact size (20 ~ 25% smaller than TS-HA series)
 - 2 and 3 pin versions available
 - Long 3000 hour life at 105°C with high ripple current capability
 - Can vent construction



| Rated Working Voltage: | 160 ~ 250 VDC | 385 ~ 450 VDC | | | | | | | | | | | | | | | | | | | | |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------------|-----|------|------|--|--|----------------|----|----|---------|-----|----|------|-------------|------|-----|-----|-----|------|-----|
| Operating Temperature: | -40 ~ +105°C | -25 ~ +105°C | | | | | | | | | | | | | | | | | | | | |
| Nominal Capacitance: | 330 ~ 2700µF (±20%) | 82 ~ 560µF (±20%) | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor: (120 Hz, +20°C) | Working Voltage [V]: Max. D.F. (%): | 160 ~ 450 15 | | | | | | | | | | | | | | | | | | | | |
| Leakage Current: | 3√CV (µA) max. after 5 minutes; C = Capacitance in µF, V = WV | | | | | | | | | | | | | | | | | | | | | |
| Ripple Current Multipliers: | <table border="1"> <thead> <tr> <th colspan="6">Ripple Current Frequency Factors</th> </tr> <tr> <th>Frequency(Hz):</th><th>50</th><th>60</th><th>100~120</th><th>500</th><th>1k</th><th>10k~</th></tr> </thead> <tbody> <tr> <td>Multiplier:</td><td>0.75</td><td>0.8</td><td>1.0</td><td>1.2</td><td>1.25</td><td>1.4</td></tr> </tbody> </table> | | Ripple Current Frequency Factors | | | | | | Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k~ | Multiplier: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 |
| Ripple Current Frequency Factors | | | | | | | | | | | | | | | | | | | | | | |
| Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k~ | | | | | | | | | | | | | | | | |
| Multiplier: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | | | | | | | | | | | | | | | | |
| Endurance: | 3000 hours at +105°C with maximum specified ripple current (see page 6) | | | | | | | | | | | | | | | | | | | | | |

*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



(Please see page 10 for details)

TS-HB Standard Ratings (part numbers shown with 2 pins, 6.3mm length terminal, and top vinyl plate)

| ESR & Standard Ratings | | | | | | |
|---------------------------------------|--------------------|--------------------------------------|--------|--------------------|-------|--------------------------|
| Cap. (μF) | Size (mm) D x L | Max 105°C R.C. (A _{ms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number |
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 160 VDC Working, 200 VDC Surge | | | | | | |
| 470 | 22 x 30 | 1.40 | 1.96 | 0.423 | 0.190 | ECOS2CB471BA |
| 560 | 22 x 35 | 1.50 | 2.10 | 0.355 | 0.160 | ECOS2CB561BA |
| 680 | 22 x 40 | 1.70 | 2.38 | 0.293 | 0.132 | ECOS2CB681BA |
| | 25 x 30 | 1.70 | 2.38 | 0.293 | 0.132 | ECOS2CB681CA |
| 820 | 22 x 45 | 2.00 | 2.80 | 0.243 | 0.109 | ECOS2CB821BA |
| | 25 x 35 | 2.00 | 2.80 | 0.243 | 0.109 | ECOS2CB821CA |
| 1000 | 22 x 50 | 2.20 | 3.08 | 0.199 | 0.090 | ECOS2CB102BA |
| | 25 x 40 | 2.20 | 3.08 | 0.199 | 0.090 | ECOS2CB102CA |
| | 30 x 30 | 2.20 | 3.08 | 0.199 | 0.090 | ECOS2CB102DA |
| | 35 x 25 | 2.20 | 3.08 | 0.199 | 0.090 | ECOS2CB102EA |
| 1200 | 25 x 45 | 2.30 | 3.22 | 0.180 | 0.090 | ECOS2CB122CA |
| | 30 x 35 | 2.30 | 3.22 | 0.180 | 0.090 | ECOS2CB122DA |
| | 35 x 30 | 2.30 | 3.22 | 0.180 | 0.090 | ECOS2CB122EA |
| 1500 | 30 x 40 | 2.50 | 3.50 | 0.144 | 0.072 | ECOS2CB152DA |
| | 35 x 30 | 2.50 | 3.50 | 0.144 | 0.072 | ECOS2CB152EA |
| 1800 | 30 x 45 | 2.70 | 3.78 | 0.129 | 0.064 | ECOS2CB182DA |
| | 35 x 35 | 2.70 | 3.78 | 0.129 | 0.064 | ECOS2CB182EA |
| 2200 | 35 x 45 | 2.90 | 4.06 | 0.105 | 0.063 | ECOS2CB222EA |
| 2700 | 35 x 50 | 3.10 | 4.34 | 0.086 | 0.052 | ECOS2CB272EA |
| 200 VDC Working, 250 VDC Surge | | | | | | |
| 390 | 22 x 30 | 1.30 | 1.82 | 0.510 | 0.230 | ECOS2DB391BA |
| | 25 x 25 | 1.30 | 1.82 | 0.510 | 0.230 | ECOS2DB391CA |
| 470 | 22 x 35 | 1.40 | 1.96 | 0.423 | 0.190 | ECOS2DB471BA |
| | 25 x 30 | 1.40 | 1.96 | 0.423 | 0.190 | ECOS2DB471CA |
| 560 | 22 x 40 | 1.50 | 2.10 | 0.355 | 0.160 | ECOS2DB561BA |
| | 25 x 30 | 1.50 | 2.10 | 0.355 | 0.160 | ECOS2DB561CA |
| | 30 x 25 | 1.50 | 2.10 | 0.355 | 0.160 | ECOS2DB561DA |
| 680 | 22 x 45 | 1.70 | 2.38 | 0.293 | 0.132 | ECOS2DB681BA |
| | 25 x 35 | 1.70 | 2.38 | 0.293 | 0.132 | ECOS2DB681CA |
| 820 | 25 x 45 | 2.00 | 2.80 | 0.263 | 0.118 | ECOS2DB821CA |
| | 30 x 30 | 2.00 | 2.80 | 0.263 | 0.118 | ECOS2DB821DA |
| 820 | 35 x 25 | 2.00 | 2.80 | 0.263 | 0.118 | ECOS2DB821EA |

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 200 VDC Working, 250 VDC Surge (continued) | | | | | | |
| 1000 | 25 x 50 | 2.20 | 3.08 | 0.216 | 0.108 | ECOS2DB102CA |
| | 30 x 35 | 2.20 | 3.08 | 0.216 | 0.108 | ECOS2DB102DA |
| | 35 x 30 | 2.20 | 3.08 | 0.216 | 0.108 | ECOS2DB102EA |
| 1200 | 30 x 40 | 2.30 | 3.22 | 0.193 | 0.097 | ECOS2DB122DA |
| | 35 x 35 | 2.30 | 3.22 | 0.193 | 0.097 | ECOS2DB122EA |
| 1500 | 30 x 50 | 2.50 | 3.50 | 0.155 | 0.077 | ECOS2DB152DA |
| | 35 x 40 | 2.50 | 3.50 | 0.155 | 0.077 | ECOS2DB152EA |
| 1800 | 35 x 45 | 2.70 | 3.78 | 0.129 | 0.077 | ECOS2DB182EA |
| 2200 | 35 x 50 | 2.90 | 4.06 | 0.105 | 0.063 | ECOS2DB222EA |
| 250 VDC Working, 300 VDC Surge | | | | | | |
| 180 | 22 x 25 | 0.90 | 1.26 | 0.921 | 0.461 | ECOS2EB181BA |
| 220 | 22 x 30 | 1.00 | 1.40 | 0.754 | 0.377 | ECOS2EB221BA |
| 270 | 22 x 35 | 1.10 | 1.54 | 0.614 | 0.307 | ECOS2EB271BA |
| 330 | 22 x 40 | 1.20 | 1.68 | 0.502 | 0.251 | ECOS2EB331BA |
| | 25 x 30 | 1.20 | 1.68 | 0.502 | 0.251 | ECOS2EB331CA |
| 390 | 22 x 45 | 1.30 | 1.82 | 0.425 | 0.213 | ECOS2EB391BA |
| | 30 x 25 | 1.30 | 1.82 | 0.425 | 0.213 | ECOS2EB391DA |
| 470 | 22 x 50 | 1.40 | 1.96 | 0.353 | 0.176 | ECOS2EB471BA |
| | 25 x 40 | 1.40 | 1.96 | 0.353 | 0.176 | ECOS2EB471CA |
| | 30 x 30 | 1.40 | 1.96 | 0.353 | 0.176 | ECOS2EB471DA |
| 560 | 25 x 45 | 1.50 | 2.10 | 0.296 | 0.148 | ECOS2EB561CA |
| | 35 x 25 | 1.50 | 2.10 | 0.296 | 0.148 | ECOS2EB561EA |
| 680 | 25 x 50 | 1.70 | 2.38 | 0.244 | 0.134 | ECOS2EB681CA |
| | 30 x 40 | 1.70 | 2.38 | 0.244 | 0.134 | ECOS2EB681DA |
| | 35 x 30 | 1.70 | 2.38 | 0.244 | 0.134 | ECOS2EB681EA |
| 820 | 30 x 45 | 2.00 | 2.80 | 0.202 | 0.111 | ECOS2EB821DA |
| | 35 x 35 | 2.00 | 2.80 | 0.202 | 0.111 | ECOS2EB821EA |
| 1000 | 30 x 50 | 2.20 | 3.08 | 0.199 | 0.109 | ECOS2EB102DA |
| | 35 x 40 | 2.20 | 3.08 | 0.199 | 0.109 | ECOS2EB102EA |
| 1200 | 35 x 45 | 2.30 | 3.22 | 0.166 | 0.099 | ECOS2EB122EA |
| 1500 | 35 x 50 | 2.50 | 3.50 | 0.144 | 0.093 | ECOS2EB152EA |

TS-HB Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|--------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |

385 VDC Working, 435 VDC Surge

| | | | | | | |
|-----|---------|------|------|-------|-------|--------------|
| 82 | 22 x 30 | 0.64 | 0.90 | 2.022 | 0.809 | ECOS2TB820BA |
| 100 | 22 x 30 | 0.69 | 0.97 | 1.658 | 0.663 | ECOS2TB101BA |
| | 25 x 25 | 0.69 | 0.97 | 1.658 | 0.663 | ECOS2TB101CA |
| 120 | 22 x 35 | 0.75 | 1.05 | 1.382 | 0.553 | ECOS2TB121BA |
| | 25 x 30 | 0.75 | 1.05 | 1.382 | 0.553 | ECOS2TB121CA |
| 150 | 22 x 40 | 0.82 | 1.15 | 1.105 | 0.442 | ECOS2TB151BA |
| | 25 x 30 | 0.82 | 1.15 | 1.105 | 0.442 | ECOS2TB151CA |
| | 30 x 25 | 0.82 | 1.15 | 1.105 | 0.442 | ECOS2TB151DA |
| 180 | 22 x 45 | 0.95 | 1.33 | 0.921 | 0.368 | ECOS2TB181BA |
| | 25 x 35 | 0.95 | 1.33 | 0.921 | 0.368 | ECOS2TB181CA |
| | 30 x 30 | 0.95 | 1.33 | 0.921 | 0.368 | ECOS2TB181DA |
| 220 | 25 x 45 | 1.10 | 1.54 | 0.754 | 0.301 | ECOS2TB221CA |
| | 30 x 30 | 1.10 | 1.54 | 0.829 | 0.332 | ECOS2TB221DA |
| | 35 x 25 | 1.10 | 1.54 | 0.829 | 0.332 | ECOS2TB221EA |
| 270 | 25 x 50 | 1.20 | 1.68 | 0.675 | 0.270 | ECOS2TB271CA |
| | 35 x 30 | 1.20 | 1.68 | 0.675 | 0.270 | ECOS2TB271EA |
| 330 | 30 x 45 | 1.35 | 1.89 | 0.553 | 0.221 | ECOS2TB331DA |
| | 35 x 35 | 1.35 | 1.89 | 0.553 | 0.221 | ECOS2TB331EA |
| 390 | 30 x 50 | 1.55 | 2.17 | 0.510 | 0.204 | ECOS2TB391DA |
| 470 | 35 x 45 | 1.75 | 2.45 | 0.423 | 0.212 | ECOS2TB471EA |
| 560 | 35 x 50 | 1.80 | 2.52 | 0.355 | 0.178 | ECOS2TB561EA |

400 VDC Working, 450 VDC Surge

| | | | | | | |
|-----|---------|------|------|-------|-------|--------------|
| 82 | 22 x 30 | 0.64 | 0.90 | 2.022 | 0.708 | ECOS2GB820BA |
| 100 | 22 x 30 | 0.69 | 0.97 | 1.658 | 0.580 | ECOS2GB101BA |
| | 25 x 25 | 0.69 | 0.97 | 1.658 | 0.580 | ECOS2GB101CA |
| 120 | 22 x 35 | 0.75 | 1.05 | 1.382 | 0.484 | ECOS2GB121BA |
| | 25 x 30 | 0.75 | 1.05 | 1.382 | 0.484 | ECOS2GB121CA |
| 150 | 22 x 40 | 0.82 | 1.15 | 1.105 | 0.387 | ECOS2GB151BA |
| | 25 x 30 | 0.82 | 1.15 | 1.105 | 0.387 | ECOS2GB151CA |
| | 30 x 25 | 0.82 | 1.15 | 1.105 | 0.387 | ECOS2GB151DA |
| 180 | 22 x 45 | 0.95 | 1.33 | 0.921 | 0.322 | ECOS2GB181BA |
| | 25 x 35 | 0.95 | 1.33 | 0.921 | 0.322 | ECOS2GB181CA |
| | 30 x 30 | 0.95 | 1.33 | 0.921 | 0.322 | ECOS2GB181DA |
| 220 | 25 x 45 | 1.10 | 1.54 | 0.754 | 0.264 | ECOS2GB221CA |
| | 30 x 30 | 1.10 | 1.54 | 0.754 | 0.264 | ECOS2GB221DA |
| | 35 x 25 | 1.10 | 1.54 | 0.754 | 0.264 | ECOS2GB221EA |
| 270 | 25 x 50 | 1.20 | 1.68 | 0.614 | 0.215 | ECOS2GB271CA |
| | 30 x 35 | 1.20 | 1.68 | 0.614 | 0.215 | ECOS2GB271DA |
| | 35 x 30 | 1.20 | 1.68 | 0.614 | 0.215 | ECOS2GB271EA |
| 330 | 30 x 45 | 1.35 | 1.89 | 0.502 | 0.201 | ECOS2GB331DA |
| | 35 x 35 | 1.35 | 1.89 | 0.502 | 0.201 | ECOS2GB331EA |
| 390 | 30 x 50 | 1.55 | 2.17 | 0.425 | 0.170 | ECOS2GB391DA |
| | 35 x 40 | 1.55 | 2.17 | 0.425 | 0.170 | ECOS2GB391EA |
| 470 | 35 x 45 | 1.75 | 2.45 | 0.353 | 0.141 | ECOS2GB471EA |
| 560 | 35 x 50 | 1.80 | 2.52 | 0.296 | 0.118 | ECOS2GB561EA |

420 VDC Working, 470 VDC Surge

| | | | | | | |
|-----|---------|------|------|-------|-------|--------------|
| 100 | 22 x 30 | 0.64 | 0.90 | 1.824 | 0.821 | ECOS2SB101BA |
| | 25 x 25 | 0.64 | 0.90 | 1.824 | 0.821 | ECOS2SB101CA |
| 120 | 22 x 35 | 0.72 | 1.01 | 1.520 | 0.684 | ECOS2SB121BA |
| | 25 x 30 | 0.72 | 1.01 | 1.520 | 0.684 | ECOS2SB121CA |
| 150 | 22 x 40 | 0.79 | 1.11 | 1.216 | 0.547 | ECOS2SB151BA |
| | 25 x 30 | 0.79 | 1.11 | 1.216 | 0.547 | ECOS2SB151CA |
| | 30 x 25 | 0.79 | 1.11 | 1.216 | 0.547 | ECOS2SB151DA |
| 180 | 22 x 45 | 0.87 | 1.22 | 1.013 | 0.456 | ECOS2SB181BA |
| | 25 x 40 | 0.87 | 1.22 | 1.013 | 0.456 | ECOS2SB181CA |
| | 30 x 30 | 0.87 | 1.22 | 1.013 | 0.456 | ECOS2SB181DA |
| 220 | 25 x 45 | 1.00 | 1.40 | 0.829 | 0.373 | ECOS2SB221CA |
| | 30 x 30 | 1.00 | 1.40 | 0.829 | 0.373 | ECOS2SB221DA |
| | 35 x 25 | 1.00 | 1.40 | 0.829 | 0.373 | ECOS2SB221EA |
| 270 | 25 x 50 | 1.19 | 1.67 | 0.675 | 0.304 | ECOS2SB271CA |
| | 30 x 40 | 1.19 | 1.67 | 0.675 | 0.304 | ECOS2SB271DA |
| | 35 x 30 | 1.19 | 1.67 | 0.675 | 0.304 | ECOS2SB271EA |
| 330 | 30 x 45 | 1.38 | 1.93 | 0.553 | 0.249 | ECOS2SB331DA |
| | 35 x 35 | 1.38 | 1.93 | 0.553 | 0.249 | ECOS2SB331EA |
| 390 | 30 x 50 | 1.55 | 2.17 | 0.468 | 0.210 | ECOS2SB391DA |
| | 35 x 40 | 1.55 | 2.17 | 0.468 | 0.210 | ECOS2SB391EA |
| 470 | 35 x 45 | 1.74 | 2.44 | 0.388 | 0.175 | ECOS2SB471EA |
| 560 | 35 x 50 | 1.90 | 2.66 | 0.326 | 0.147 | ECOS2SB561EA |

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|--------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |

450 VDC Working, 500 VDC Surge (continued)

| | | | | | | |
|-----|---------|------|------|-------|-------|--------------|
| 82 | 22 x 30 | 0.56 | 0.78 | 2.022 | 0.708 | ECOS2WB820BA |
| | 25 x 25 | 0.56 | 0.78 | 2.022 | 0.708 | ECOS2WB820CA |
| 100 | 22 x 35 | 0.64 | 0.90 | 1.658 | 0.580 | ECOS2WB101BA |
| | 25 x 30 | 0.64 | 0.90 | 1.658 | 0.580 | ECOS2WB101CA |
| 120 | 22 x 40 | 0.72 | 1.01 | 1.382 | 0.484 | ECOS2WB121BA |
| | 25 x 35 | 0.72 | 1.01 | 1.382 | 0.484 | ECOS2WB121CA |
| | 30 x 25 | 0.72 | 1.01 | 1.382 | 0.484 | ECOS2WB121DA |
| 150 | 22 x 50 | 0.79 | 1.11 | 1.105 | 0.387 | ECOS2WB151BA |
| | 25 x 40 | 0.79 | 1.11 | 1.105 | 0.387 | ECOS2WB151CA |
| | 30 x 30 | 0.79 | 1.11 | 1.105 | 0.387 | ECOS2WB151DA |
| | 35 x 25 | 0.79 | 1.11 | 1.105 | 0.387 | ECOS2WB151EA |
| 180 | 25 x 45 | 0.87 | 1.22 | 1.013 | 0.456 | ECOS2WB181BA |
| | 30 x 40 | 0.87 | 1.22 | 1.013 | 0.456 | ECOS2WB181CA |
| | 35 x 30 | 0.87 | 1.22 | 1.013 | 0.456 | ECOS2WB181DA |
| 220 | 25 x 50 | 1.00 | 1.40 | 0.829 | 0.373 | ECOS2WB221CA |
| | 30 x 40 | 1.00 | 1.40 | 0.829 | 0.373 | ECOS2WB221DA |
| | 35 x 25 | 1.00 | 1.40 | 0.829 | 0.373 | ECOS2WB221EA |
| 270 | 25 x 50 | 1.19 | 1.67 | 0.675 | 0.304 | ECOS2WB271CA |
| | 30 x 40 | 1.19 | 1.67 | 0.675 | 0.304 | ECOS2WB271DA |
| | 35 x 30 | 1.19 | 1.67 | 0.675 | 0.304 | ECOS2WB271EA |
| 330 | 30 x 45 | 1.38 | 1.93 | 0.553 | 0.249 | ECOS2WB331DA |
| | 35 x 35 | 1.38 | 1.93 | 0.553 | 0.249 | ECOS2WB331EA |
| 390 | 30 x 50 | 1.55 | 2.17 | 0.468 | 0.210 | ECOS2WB391DA |
| | 35 x 40 | 1.55 | 2.17 | 0.468 | 0.210 | ECOS2WB391EA |
| 470 | 35 x 45 | 1.74 | 2.44 | 0.388 | 0.175 | ECOS2WB471EA |
| 560 | 35 x 50 | 1.90 | 2.66 | 0.326 | 0.147 | ECOS2WB561EA |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-HA Series 105°C, 3000 hours*

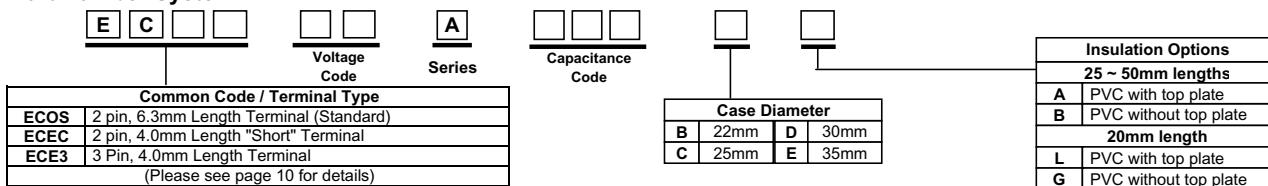
- **High ripple current capability**
- **20mm lengths for low profile applications**
- **2 and 3 pin versions available**



| Rated Working Voltage: | 10 ~ 250 VDC | | | | | | | | 385 ~ 450 VDC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|------|------|------|----|-----------|------------------------------------|----|----|---------|-----|----|------|----|-----------|----------------|------|-----|------|------|------|----|------------|------|-----------------------------------------------------------------------------------------------------------|-----|-----|------|-----|--|----------------------------------------------|--|--|--|--|--|--|--|
| Operating Temperature: | -40 ~ +105°C | | | | | | | | -25 ~ +105°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal Capacitance: | 68 ~ 82000µF ($\pm 20\%$ tolerance) | | | | | | | | 33 ~ 470µF ($\pm 20\%$ tolerance) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor: (120 Hz, +20°C) | <table border="1"> <thead> <tr> <th>Working Voltage [V]:</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100 - 450</th> </tr> </thead> <tbody> <tr> <td>Max. D.F. (%):</td> <td>55</td> <td>45</td> <td>35</td> <td>30</td> <td>25</td> <td>20</td> <td>17</td> <td>15</td> </tr> </tbody> </table> | | | | | | | | Working Voltage [V]: | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 - 450 | Max. D.F. (%): | 55 | 45 | 35 | 30 | 25 | 20 | 17 | 15 | For capacitance values > 33000µF, add the value of: $\frac{\text{rated cap. } \mu\text{F} - 33000}{1000}$ | | | | | | | | | | | | | |
| Working Voltage [V]: | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 - 450 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. D.F. (%): | 55 | 45 | 35 | 30 | 25 | 20 | 17 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current: | 3 \sqrt{CV} (μA) max. after 5 minutes; C = Capacitance in μF , V = WV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple Current Multipliers: | <table border="1"> <thead> <tr> <th>Frequency(Hz):</th> <th>50</th> <th>60</th> <th>100~120</th> <th>500</th> <th>1k</th> <th>10k+</th> <th></th> </tr> </thead> <tbody> <tr> <td>10~100WV:</td> <td>0.93</td> <td>0.95</td> <td>1.0</td> <td>1.05</td> <td>1.08</td> <td>1.15</td> <td></td> </tr> <tr> <td>160~450WV:</td> <td>0.75</td> <td>0.8</td> <td>1.0</td> <td>1.2</td> <td>1.25</td> <td>1.4</td> <td></td> </tr> </tbody> </table> | | | | | | | | Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k+ | | 10~100WV: | 0.93 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 | | 160~450WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | | Ripple Current Ambient Temperature Factors** | | | | | | | |
| Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k+ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10~100WV: | 0.93 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 160~450WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endurance: | 3000 hours at +105°C with maximum specified ripple current (see page 6) *2000 hours for 20mm length sizes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



TS-HA Standard Ratings

 (part numbers shown with 2 pins, 6.3mm length terminal, and top vinyl plate)

| Cap. (μF) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Cap. (μF) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | | | | | |
|-------------------------------------------------|--------------------|--------------------------------------------|--------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------|--------------------------------------------|--------|-----------------------------|-------|--------------------------|--|--|--|--|--|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | | | 120Hz | 10kHz~ | 120Hz | 20kHz | | | | | | |
| 10 VDC Working, 13 VDC Surge | | | | | | | | | | | | | | | | | | |
| 4700 | 22 x 25 | 0.85 | 0.98 | 0.159 | 0.135 | ECOS1AA472BA | 10000 | 35 x 20 | 2.40 | 2.76 | 0.071 | 0.057 | ECOS1CA103EL | | | | | |
| 6800 | 22 x 25 | 1.30 | 1.50 | 0.110 | 0.093 | ECOS1AA682BA | 12000 | 22 x 35 | 2.90 | 3.34 | 0.055 | 0.044 | ECOS1CA123BA | | | | | |
| 10000 | 22 x 25 | 1.80 | 2.07 | 0.075 | 0.063 | ECOS1AA103BA | | 25 x 30 | 2.90 | 3.34 | 0.055 | 0.044 | ECOS1CA123DA | | | | | |
| 12000 | 22 x 30 | 2.20 | 2.53 | 0.062 | 0.053 | ECOS1AA123BA | | 30 x 25 | 2.90 | 3.34 | 0.055 | 0.044 | | | | | | |
| 15000 | 22 x 35 | 2.30 | 2.65 | 0.053 | 0.045 | ECOS1AA153BA | 15000 | 22 x 40 | 3.20 | 3.68 | 0.046 | 0.037 | ECOS1CA153BA | | | | | |
| | 25 x 25 | 2.30 | 2.65 | 0.053 | 0.045 | ECOS1AA153CA | | 25 x 35 | 3.20 | 3.68 | 0.046 | 0.037 | ECOS1CA153CA | | | | | |
| 18000 | 22 x 40 | 2.40 | 2.76 | 0.044 | 0.038 | ECOS1AA183BA | 18000 | 30 x 30 | 3.20 | 3.68 | 0.046 | 0.037 | ECOS1CA183BA | | | | | |
| | 25 x 30 | 2.40 | 2.76 | 0.044 | 0.038 | ECOS1AA183CA | | 35 x 25 | 3.50 | 4.03 | 0.040 | 0.034 | ECOS1CA183DA | | | | | |
| 22000 | 22 x 45 | 2.60 | 2.99 | 0.038 | 0.032 | ECOS1AA223BA | 22000 | 25 x 40 | 3.50 | 4.03 | 0.040 | 0.034 | ECOS1CA223CA | | | | | |
| | 25 x 35 | 2.60 | 2.99 | 0.038 | 0.032 | ECOS1AA223CA | | 30 x 40 | 3.50 | 4.03 | 0.040 | 0.034 | ECOS1CA223DA | | | | | |
| | 30 x 25 | 2.60 | 2.99 | 0.038 | 0.032 | ECOS1AA223DA | | 35 x 30 | 3.50 | 4.03 | 0.040 | 0.034 | ECOS1CA223EA | | | | | |
| 27000 | 22 x 50 | 3.10 | 3.57 | 0.033 | 0.028 | ECOS1AA273BA | | 35 x 35 | 3.80 | 4.37 | 0.033 | 0.028 | ECOS1CA223CA | | | | | |
| | 25 x 40 | 3.10 | 3.57 | 0.033 | 0.028 | ECOS1AA273CA | | 35 x 40 | 3.80 | 4.37 | 0.033 | 0.028 | ECOS1CA223DA | | | | | |
| | 30 x 30 | 3.10 | 3.57 | 0.033 | 0.028 | ECOS1AA273DA | | 35 x 30 | 3.80 | 4.37 | 0.033 | 0.028 | ECOS1CA223EA | | | | | |
| | 35 x 25 | 3.10 | 3.57 | 0.033 | 0.028 | ECOS1AA273EA | 27000 | 25 x 50 | 4.20 | 4.83 | 0.028 | 0.025 | ECOS1CA273CA | | | | | |
| 33000 | 25 x 45 | 3.40 | 3.91 | 0.027 | 0.023 | ECOS1AA333CA | | 30 x 40 | 4.20 | 4.83 | 0.028 | 0.025 | ECOS1CA273DA | | | | | |
| | 30 x 35 | 3.40 | 3.91 | 0.027 | 0.023 | ECOS1AA333DA | | 35 x 30 | 4.20 | 4.83 | 0.028 | 0.025 | ECOS1CA273EA | | | | | |
| | 35 x 30 | 3.40 | 3.91 | 0.027 | 0.023 | ECOS1AA333EA | 33000 | 30 x 45 | 4.70 | 5.41 | 0.023 | 0.020 | ECOS1CA333DA | | | | | |
| 39000 | 25 x 50 | 3.70 | 4.26 | 0.025 | 0.021 | ECOS1AA393CA | | 35 x 35 | 4.70 | 5.41 | 0.023 | 0.020 | ECOS1CA333EA | | | | | |
| | 30 x 40 | 3.70 | 4.26 | 0.025 | 0.021 | ECOS1AA393DA | 39000 | 30 x 50 | 5.10 | 5.87 | 0.022 | 0.020 | ECOS1CA393DA | | | | | |
| | 35 x 30 | 3.70 | 4.26 | 0.025 | 0.021 | ECOS1AA393EA | 47000 | 35 x 45 | 5.50 | 6.33 | 0.020 | 0.018 | ECOS1CA473DA | | | | | |
| 47000 | 30 x 45 | 4.20 | 4.83 | 0.023 | 0.020 | ECOS1AA473DA | 56000 | 35 x 50 | 6.00 | 6.90 | 0.019 | 0.017 | ECOS1CA563EA | | | | | |
| | 35 x 35 | 4.20 | 4.83 | 0.023 | 0.020 | ECOS1AA473EA | 25 VDC Working, 32 VDC Surge | | | | | | | | | | | |
| 56000 | 30 x 50 | 5.00 | 5.75 | 0.022 | 0.019 | ECOS1AA563DA | 2200 | 22 x 20 | 1.30 | 1.50 | 0.241 | 0.181 | ECOS1EA222BL | | | | | |
| | 35 x 40 | 5.00 | 5.75 | 0.022 | 0.021 | ECOS1AA563EA | | 22 x 25 | 1.30 | 1.50 | 0.241 | 0.181 | ECOS1EA222BA | | | | | |
| 68000 | 35 x 50 | 5.50 | 6.33 | 0.021 | 0.020 | ECOS1AA683EA | 3300 | 22 x 25 | 1.62 | 1.86 | 0.161 | 0.121 | ECOS1EA332BL | | | | | |
| 16 VDC Working, 20 VDC Surge (continued) | | | | | | | | | | | | | | | | | | |
| 3300 | 22 x 20 | 1.30 | 1.50 | 0.216 | 0.173 | ECOS1CA332BL | 4700 | 22 x 25 | 2.00 | 2.30 | 0.106 | 0.079 | ECOS1EA472BA | | | | | |
| | 22 x 25 | 1.30 | 1.50 | 0.176 | 0.141 | ECOS1CA332BA | | 30 x 20 | 1.80 | 2.07 | 0.113 | 0.085 | ECOS1EA472DL | | | | | |
| 4700 | 22 x 25 | 1.52 | 1.75 | 0.123 | 0.099 | ECOS1CA472BA | 5600 | 22 x 30 | 2.20 | 2.53 | 0.089 | 0.067 | ECOS1EA562BA | | | | | |
| | 25 x 20 | 1.60 | 1.84 | 0.152 | 0.121 | ECOS1CA472CL | 6800 | 22 x 30 | 2.40 | 2.76 | 0.073 | 0.055 | ECOS1EA682BA | | | | | |
| 6800 | 22 x 25 | 2.20 | 2.53 | 0.085 | 0.068 | ECOS1CA682BA | | 25 x 25 | 2.40 | 2.76 | 0.073 | 0.055 | ECOS1EA682CA | | | | | |
| | 30 x 20 | 1.80 | 2.07 | 0.105 | 0.084 | ECOS1CA682DL | | 35 x 20 | 2.30 | 2.65 | 0.080 | 0.060 | ECOS1EA682EL | | | | | |
| 8200 | 22 x 30 | 2.40 | 2.76 | 0.071 | 0.057 | ECOS1CA822BA | 8200 | 22 x 35 | 2.70 | 3.11 | 0.061 | 0.045 | ECOS1EA822BA | | | | | |
| | 25 x 25 | 2.60 | 2.99 | 0.066 | 0.053 | ECOS1CA822CA | | 25 x 30 | 2.70 | 3.11 | 0.061 | 0.045 | ECOS1EA822CA | | | | | |

TS-HA Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|-------------------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 25 VDC Working, 32 VDC Surge (continued) | | | | | | |
| 8200 | 30 x 25 | 2.70 | 3.11 | 0.061 | 0.045 | ECOS1EA822DA |
| 10000 | 22 x 40 | 3.00 | 3.45 | 0.051 | 0.039 | ECOS1EA103BA |
| | 25 x 35 | 3.00 | 3.45 | 0.051 | 0.039 | ECOS1EA103CA |
| | 30 x 30 | 3.00 | 3.45 | 0.051 | 0.039 | ECOS1EA103DA |
| 12000 | 22 x 45 | 3.20 | 3.68 | 0.044 | 0.033 | ECOS1EA123BA |
| | 25 x 40 | 3.20 | 3.68 | 0.044 | 0.035 | ECOS1EA123CA |
| | 30 x 30 | 3.20 | 3.68 | 0.044 | 0.035 | ECOS1EA123DA |
| | 35 x 25 | 3.20 | 3.68 | 0.044 | 0.035 | ECOS1EA123EA |
| 15000 | 25 x 45 | 3.60 | 4.14 | 0.036 | 0.031 | ECOS1EA153CA |
| | 30 x 35 | 3.60 | 4.14 | 0.036 | 0.031 | ECOS1EA153DA |
| | 35 x 30 | 3.60 | 4.14 | 0.036 | 0.031 | ECOS1EA153EA |
| 18000 | 25 x 50 | 3.90 | 4.49 | 0.030 | 0.027 | ECOS1EA183CA |
| | 30 x 40 | 3.90 | 4.49 | 0.030 | 0.027 | ECOS1EA183DA |
| | 35 x 35 | 3.90 | 4.49 | 0.030 | 0.027 | ECOS1EA183EA |
| 22000 | 30 x 45 | 4.30 | 4.95 | 0.025 | 0.022 | ECOS1EA223DA |
| | 35 x 35 | 4.30 | 4.95 | 0.025 | 0.022 | ECOS1EA223EA |
| 27000 | 35 x 45 | 4.80 | 5.52 | 0.021 | 0.019 | ECOS1EA273EA |
| 33000 | 35 x 50 | 5.50 | 6.33 | 0.018 | 0.016 | ECOS1EA333EA |
| 35 VDC Working, 44 VDC Surge | | | | | | |
| 1500 | 22 x 20 | 1.10 | 1.27 | 0.287 | 0.216 | ECOS1VA152BL |
| | 22 x 25 | 1.10 | 1.27 | 0.287 | 0.216 | ECOS1VA152BA |
| 2200 | 22 x 25 | 1.48 | 1.70 | 0.196 | 0.147 | ECOS1VA222BA |
| | 25 x 20 | 1.40 | 1.61 | 0.196 | 0.147 | ECOS1VA222CL |
| 3300 | 22 x 25 | 1.90 | 2.19 | 0.121 | 0.090 | ECOS1VA332BA |
| | 30 x 20 | 1.70 | 1.96 | 0.131 | 0.098 | ECOS1VA332DL |
| 3900 | 22 x 30 | 2.00 | 2.30 | 0.111 | 0.083 | ECOS1VA392BA |
| 4700 | 22 x 35 | 2.20 | 2.53 | 0.088 | 0.066 | ECOS1VA472BA |
| | 25 x 25 | 2.20 | 2.53 | 0.088 | 0.066 | ECOS1VA472CA |
| | 35 x 20 | 2.00 | 2.30 | 0.095 | 0.071 | ECOS1VA472EL |
| 5600 | 22 x 35 | 2.40 | 2.76 | 0.074 | 0.056 | ECOS1VA562BA |
| | 25 x 30 | 2.40 | 2.76 | 0.074 | 0.056 | ECOS1VA562CA |
| | 30 x 25 | 2.40 | 2.76 | 0.074 | 0.056 | ECOS1VA562DA |
| 6800 | 22 x 40 | 2.60 | 2.99 | 0.061 | 0.046 | ECOS1VA682BA |
| | 25 x 35 | 2.60 | 2.99 | 0.061 | 0.046 | ECOS1VA682CA |
| | 30 x 30 | 2.60 | 2.99 | 0.061 | 0.046 | ECOS1VA682DA |
| 8200 | 22 x 50 | 2.90 | 3.34 | 0.051 | 0.038 | ECOS1VA822BA |
| | 25 x 40 | 2.90 | 3.34 | 0.051 | 0.038 | ECOS1VA822CA |
| | 30 x 30 | 2.90 | 3.34 | 0.051 | 0.038 | ECOS1VA822DA |
| | 35 x 25 | 2.90 | 3.34 | 0.051 | 0.038 | ECOS1VA822EA |
| 10000 | 25 x 45 | 3.20 | 3.68 | 0.041 | 0.031 | ECOS1VA103CA |
| | 30 x 35 | 3.20 | 3.68 | 0.041 | 0.031 | ECOS1VA103DA |
| | 35 x 30 | 3.20 | 3.68 | 0.041 | 0.031 | ECOS1VA103EA |
| 12000 | 25 x 50 | 3.50 | 4.03 | 0.035 | 0.026 | ECOS1VA123CA |
| | 30 x 40 | 3.50 | 4.03 | 0.035 | 0.026 | ECOS1VA123DA |
| | 35 x 30 | 3.50 | 4.03 | 0.035 | 0.026 | ECOS1VA123EA |
| 15000 | 30 x 45 | 3.90 | 4.49 | 0.030 | 0.022 | ECOS1VA153DA |
| | 35 x 35 | 3.90 | 4.49 | 0.030 | 0.022 | ECOS1VA153EA |
| 18000 | 35 x 40 | 4.30 | 4.95 | 0.028 | 0.021 | ECOS1VA183EA |
| 22000 | 35 x 50 | 5.00 | 5.75 | 0.023 | 0.017 | ECOS1VA223EA |
| 50 VDC Working, 63 VDC Surge | | | | | | |
| 1000 | 22 x 20 | 0.90 | 1.04 | 0.265 | 0.199 | ECOS1VA102BL |
| | 22 x 25 | 0.90 | 1.04 | 0.232 | 0.174 | ECOS1VA102BA |
| 1500 | 22 x 25 | 1.25 | 1.44 | 0.155 | 0.116 | ECOS1VA152BA |
| | 25 x 20 | 1.20 | 1.38 | 0.177 | 0.133 | ECOS1VA152CL |
| 1800 | 22 x 25 | 1.50 | 1.73 | 0.129 | 0.097 | ECOS1VA182BA |
| 2200 | 22 x 30 | 1.70 | 1.96 | 0.105 | 0.079 | ECOS1VA222BA |
| | 30 x 20 | 1.40 | 1.61 | 0.121 | 0.090 | ECOS1VA222DL |
| 2700 | 22 x 30 | 1.80 | 2.07 | 0.086 | 0.064 | ECOS1VA272BA |
| | 25 x 25 | 1.80 | 2.07 | 0.086 | 0.064 | ECOS1VA272CA |
| 3300 | 22 x 35 | 2.00 | 2.30 | 0.070 | 0.053 | ECOS1VA332BA |
| | 25 x 30 | 2.00 | 2.30 | 0.070 | 0.053 | ECOS1VA332CA |
| | 35 x 20 | 1.70 | 1.96 | 0.085 | 0.064 | ECOS1VA332EL |
| 3900 | 22 x 40 | 2.20 | 2.53 | 0.064 | 0.048 | ECOS1VA392BA |
| | 25 x 35 | 2.20 | 2.53 | 0.064 | 0.048 | ECOS1VA392CA |
| | 30 x 25 | 2.20 | 2.53 | 0.064 | 0.048 | ECOS1VA392DA |
| 4700 | 22 x 45 | 2.50 | 2.88 | 0.053 | 0.040 | ECOS1VA472BA |
| | 25 x 40 | 2.50 | 2.88 | 0.053 | 0.040 | ECOS1VA472CA |
| | 30 x 30 | 2.50 | 2.88 | 0.053 | 0.040 | ECOS1VA472DA |
| | 35 x 25 | 2.50 | 2.88 | 0.053 | 0.040 | ECOS1VA472EA |
| 5600 | 22 x 50 | 2.80 | 3.22 | 0.050 | 0.038 | ECOS1VA562BA |
| | 25 x 40 | 2.80 | 3.22 | 0.050 | 0.038 | ECOS1VA562CA |
| | 30 x 35 | 2.80 | 3.22 | 0.050 | 0.038 | ECOS1VA562DA |
| | 35 x 30 | 2.80 | 3.22 | 0.050 | 0.038 | ECOS1VA562EA |
| 6800 | 25 x 50 | 3.30 | 3.80 | 0.046 | 0.035 | ECOS1VA682CA |
| | 30 x 40 | 3.30 | 3.80 | 0.046 | 0.035 | ECOS1VA682DA |
| 50 VDC Working, 63 VDC Surge (continued) | | | | | | |
| 3300 | 22 x 20 | 0.80 | 1.04 | 0.265 | 0.199 | ECOS1VA102BL |
| | 22 x 25 | 0.80 | 1.04 | 0.232 | 0.174 | ECOS1VA102BA |
| 4700 | 22 x 25 | 1.00 | 1.15 | 0.268 | 0.188 | ECOS1VA681BA |
| | 25 x 20 | 1.00 | 1.15 | 0.317 | 0.206 | ECOS1KA681CL |
| 6800 | 22 x 25 | 1.20 | 1.38 | 0.222 | 0.145 | ECOS1KA821BA |
| 1000 | 22 x 30 | 1.30 | 1.50 | 0.182 | 0.119 | ECOS1KA102BA |
| | 25 x 25 | 1.30 | 1.50 | 0.182 | 0.119 | ECOS1KA102CA |
| | 30 x 20 | 1.20 | 1.38 | 0.216 | 0.140 | ECOS1KA102DL |
| 1200 | 22 x 30 | 1.50 | 1.73 | 0.166 | 0.116 | ECOS1KA122BA |
| | 25 x 25 | 1.50 | 1.73 | 0.166 | 0.116 | ECOS1KA122CA |
| 1500 | 22 x 35 | 1.70 | 1.96 | 0.133 | 0.093 | ECOS1KA152BA |
| | 25 x 30 | 1.70 | 1.96 | 0.133 | 0.093 | ECOS1KA152CA |
| | 35 x 20 | 1.40 | 1.61 | 0.155 | 0.108 | ECOS1KA152EL |
| 1800 | 22 x 40 | 1.80 | 2.07 | 0.111 | 0.077 | ECOS1KA182BA |
| | 25 x 35 | 1.80 | 2.07 | 0.111 | 0.077 | ECOS1KA182CA |
| | 30 x 25 | 1.80 | 2.07 | 0.111 | 0.077 | ECOS1KA182DA |
| 2200 | 22 x 45 | 2.10 | 2.42 | 0.090 | 0.063 | ECOS1KA222BA |
| | 25 x 35 | 2.10 | 2.42 | 0.090 | 0.063 | ECOS1KA222CA |
| | 30 x 30 | 2.10 | 2.42 | 0.090 | 0.063 | ECOS1KA222DA |
| 2700 | 25 x 45 | 2.40 | 2.76 | 0.074 | 0.055 | ECOS1KA272CA |
| | 30 x 35 | 2.40 | 2.76 | 0.074 | 0.055 | ECOS1KA272DA |
| | 35 x 30 | 2.40 | 2.76 | 0.074 | 0.055 | ECOS1KA272EA |
| 3300 | 25 x 50 | 2.60 | 2.99 | 0.065 | 0.049 | ECOS1KA332CA |
| | 30 x 40 | 2.60 | 2.99 | 0.065 | 0.049 | ECOS1KA332DA |
| | 35 x 30 | 2.60 | 2.99 | 0.065 | 0.049 | ECOS1KA332EA |
| 3900 | 30 x 45 | 3.00 | 3.45 | 0.060 | 0.045 | ECOS1KA392DA |
| | 35 x 35 | 3.00 | 3.45 | 0.060 | 0.045 | ECOS1KA392EA |
| 4700 | 30 x 50 | 3.30 | 3.80 | 0.049 | 0.037 | ECOS1KA472DA |
| | 35 x 40 | 3.30 | 3.80 | 0.049 | 0.037 | ECOS1KA472EA |
| 5600 | 35 x 45 | 3.70 | 4.26 | 0.050 | 0.038 | ECOS1KA562EA |
| | 35 x 30 | 3.90 | 4.49 | 0.041 | 0.031 | ECOS1KA682EA |
| 100 VDC Working, 125 VDC Surge | | | | | | |
| 330 | 22 x 20 | 0.80 | 1.20 | 0.653 | 0.392 | ECOS2AA331BL |
| | 22 x 25 | 0.80 | 1.20 | 0.553 | 0.332 | ECOS2AA331BA |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-HA Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|--------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |

100 VDC Working, 125 VDC Surge (continued)

| | | | | | | |
|------|---------|------|------|-------|-------|--------------|
| 470 | 22 x 25 | 0.92 | 1.38 | 0.388 | 0.233 | ECOS2AA471BA |
| | 25 x 20 | 1.00 | 1.50 | 0.459 | 0.275 | ECOS2AA471CL |
| 560 | 22 x 25 | 1.10 | 1.65 | 0.296 | 0.178 | ECOS2AA561BA |
| 680 | 30 x 20 | 1.10 | 1.65 | 0.317 | 0.190 | ECOS2AA681DL |
| 820 | 22 x 30 | 1.40 | 2.10 | 0.202 | 0.121 | ECOS2AA821BA |
| | 25 x 25 | 1.40 | 2.10 | 0.202 | 0.121 | ECOS2AA821CA |
| 1000 | 22 x 35 | 1.70 | 2.55 | 0.182 | 0.109 | ECOS2AA102BA |
| | 25 x 30 | 1.70 | 2.55 | 0.182 | 0.109 | ECOS2AA102CA |
| | 35 x 20 | 1.20 | 1.80 | 0.216 | 0.129 | ECOS2AA102EL |
| 1200 | 22 x 40 | 1.80 | 2.70 | 0.152 | 0.091 | ECOS2AA122BA |
| | 25 x 35 | 1.80 | 2.70 | 0.152 | 0.091 | ECOS2AA122CA |
| | 30 x 25 | 1.80 | 2.70 | 0.152 | 0.091 | ECOS2AA122DA |
| 1500 | 22 x 45 | 2.10 | 3.15 | 0.122 | 0.073 | ECOS2AA152BA |
| | 25 x 40 | 2.10 | 3.15 | 0.122 | 0.079 | ECOS2AA152CA |
| | 30 x 30 | 2.10 | 3.15 | 0.122 | 0.079 | ECOS2AA152DA |
| | 35 x 25 | 2.10 | 3.15 | 0.122 | 0.079 | ECOS2AA152EA |
| 1800 | 25 x 45 | 2.30 | 3.45 | 0.111 | 0.072 | ECOS2AA182CA |
| | 30 x 35 | 2.30 | 3.45 | 0.111 | 0.072 | ECOS2AA182DA |
| | 35 x 30 | 2.30 | 3.45 | 0.111 | 0.072 | ECOS2AA182EA |
| 2200 | 25 x 50 | 2.60 | 3.90 | 0.090 | 0.059 | ECOS2AA222CA |
| | 30 x 40 | 2.60 | 3.90 | 0.090 | 0.059 | ECOS2AA222DA |
| | 35 x 30 | 2.60 | 3.90 | 0.090 | 0.059 | ECOS2AA222EA |
| 2700 | 30 x 45 | 2.90 | 4.35 | 0.080 | 0.052 | ECOS2AA272DA |
| | 35 x 35 | 2.90 | 4.35 | 0.080 | 0.052 | ECOS2AA272EA |
| 3300 | 30 x 50 | 3.20 | 4.80 | 0.075 | 0.053 | ECOS2AA332DA |
| | 35 x 40 | 3.20 | 4.80 | 0.075 | 0.053 | ECOS2AA332EA |
| 3900 | 35 x 45 | 3.60 | 5.40 | 0.064 | 0.045 | ECOS2AA392EA |
| 4700 | 35 x 50 | 3.80 | 5.70 | 0.053 | 0.040 | ECOS2AA472EA |

160 VDC Working, 200 VDC Surge

| | | | | | | |
|------|---------|------|------|-------|-------|--------------|
| 150 | 22 x 20 | 0.55 | 0.77 | 1.437 | 0.647 | ECOS2CA151BL |
| | 22 x 25 | 0.61 | 0.85 | 1.216 | 0.547 | ECOS2CA151BA |
| 220 | 22 x 25 | 0.90 | 1.26 | 0.829 | 0.373 | ECOS2CA221BA |
| | 25 x 20 | 0.75 | 1.05 | 0.980 | 0.441 | ECOS2CA221CL |
| 270 | 22 x 25 | 1.10 | 1.54 | 0.675 | 0.304 | ECOS2CA271BA |
| 330 | 22 x 30 | 1.20 | 1.68 | 0.553 | 0.249 | ECOS2CA331BA |
| | 30 x 20 | 1.00 | 1.40 | 0.553 | 0.249 | ECOS2CA331DL |
| 390 | 22 x 30 | 1.30 | 1.82 | 0.553 | 0.249 | ECOS2CA391BA |
| | 25 x 25 | 1.30 | 1.82 | 0.553 | 0.249 | ECOS2CA391CA |
| 470 | 22 x 35 | 1.40 | 1.96 | 0.529 | 0.238 | ECOS2CA471BA |
| | 25 x 30 | 1.40 | 1.96 | 0.459 | 0.206 | ECOS2CA471CA |
| | 35 x 20 | 1.15 | 1.61 | 0.459 | 0.206 | ECOS2CA471EL |
| 560 | 22 x 40 | 1.50 | 2.10 | 0.385 | 0.173 | ECOS2CA561BA |
| | 25 x 30 | 1.50 | 2.10 | 0.385 | 0.173 | ECOS2CA561CA |
| | 30 x 25 | 1.50 | 2.10 | 0.385 | 0.173 | ECOS2CA561DA |
| 680 | 22 x 45 | 1.70 | 2.38 | 0.317 | 0.143 | ECOS2CA681BA |
| | 25 x 35 | 1.70 | 2.38 | 0.317 | 0.143 | ECOS2CA681CA |
| | 30 x 30 | 1.70 | 2.38 | 0.317 | 0.143 | ECOS2CA681DA |
| 820 | 25 x 40 | 2.00 | 2.80 | 0.263 | 0.118 | ECOS2CA821CA |
| | 30 x 30 | 2.00 | 2.80 | 0.263 | 0.118 | ECOS2CA821DA |
| 1000 | 25 x 45 | 2.20 | 3.08 | 0.216 | 0.108 | ECOS2CA102CA |
| | 30 x 35 | 2.20 | 3.08 | 0.216 | 0.108 | ECOS2CA102DA |
| 1200 | 25 x 50 | 2.30 | 3.22 | 0.180 | 0.090 | ECOS2CA122CA |
| | 30 x 40 | 2.30 | 3.22 | 0.180 | 0.090 | ECOS2CA122DA |
| 1500 | 30 x 45 | 2.50 | 3.50 | 0.166 | 0.083 | ECOS2CA152DA |
| | 35 x 35 | 2.50 | 3.50 | 0.166 | 0.083 | ECOS2CA152EA |
| 1800 | 30 x 50 | 2.70 | 3.78 | 0.138 | 0.083 | ECOS2CA182DA |
| | 35 x 40 | 2.70 | 3.78 | 0.138 | 0.069 | ECOS2CA182EA |
| 2200 | 35 x 50 | 2.90 | 4.06 | 0.113 | 0.057 | ECOS2CA222EA |

200 VDC Working, 250 VDC Surge

| | | | | | | |
|-----|---------|------|------|-------|-------|--------------|
| 100 | 22 x 20 | 0.50 | 0.70 | 1.989 | 0.895 | ECOS2DA101BL |
| | 22 x 25 | 0.50 | 0.70 | 1.658 | 0.746 | ECOS2DA101BA |
| 150 | 22 x 25 | 0.68 | 0.95 | 1.105 | 0.497 | ECOS2DA151BA |
| | 25 x 20 | 0.65 | 0.91 | 1.326 | 0.597 | ECOS2DA151CL |
| 220 | 22 x 25 | 1.00 | 1.40 | 0.754 | 0.339 | ECOS2DA221BA |
| | 30 x 20 | 0.87 | 1.22 | 0.904 | 0.407 | ECOS2DA221DL |
| 270 | 22 x 30 | 1.10 | 1.54 | 0.614 | 0.276 | ECOS2DA271BA |
| | 25 x 25 | 1.10 | 1.54 | 0.614 | 0.276 | ECOS2DA271CA |
| 330 | 22 x 30 | 1.20 | 1.68 | 0.502 | 0.226 | ECOS2DA331BA |
| | 25 x 25 | 1.20 | 1.68 | 0.502 | 0.226 | ECOS2DA331CA |
| | 35 x 20 | 1.10 | 1.54 | 0.603 | 0.271 | ECOS2DA331EL |
| 390 | 22 x 35 | 1.30 | 1.82 | 0.425 | 0.191 | ECOS2DA391BA |
| | 25 x 30 | 1.30 | 1.82 | 0.425 | 0.191 | ECOS2DA391CA |
| | 30 x 25 | 1.30 | 1.82 | 0.425 | 0.191 | ECOS2DA391DA |
| 470 | 22 x 40 | 1.40 | 1.96 | 0.353 | 0.159 | ECOS2DA471BA |
| | 25 x 35 | 1.40 | 1.96 | 0.353 | 0.159 | ECOS2DA471CA |
| | 30 x 25 | 1.40 | 1.96 | 0.353 | 0.159 | ECOS2DA471DA |

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|--------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |

200 VDC Working, 250 VDC Surge (continued)

| | | | | | | |
|------|---------|------|------|-------|-------|--------------|
| 560 | 22 x 45 | 1.50 | 2.10 | 0.296 | 0.133 | ECOS2DA561BA |
| | 25 x 35 | 1.50 | 2.10 | 0.296 | 0.133 | ECOS2DA561CA |
| 820 | 25 x 50 | 2.00 | 2.80 | 0.222 | 0.111 | ECOS2DA821CA |
| | 30 x 35 | 2.00 | 2.80 | 0.222 | 0.111 | ECOS2DA821DA |
| 1000 | 30 x 45 | 2.20 | 3.08 | 0.199 | 0.099 | ECOS2DA102DA |
| | 35 x 35 | 2.20 | 3.08 | 0.199 | 0.099 | ECOS2DA102EA |
| 1200 | 30 x 50 | 2.30 | 3.22 | 0.166 | 0.083 | ECOS2DA122DA |
| | 35 x 40 | 2.30 | 3.22 | 0.166 | 0.083 | ECOS2DA122EA |
| 1500 | 35 x 50 | 2.50 | 3.50 | 0.144 | 0.072 | ECOS2DA152EA |

250 VDC Working, 300 VDC Surge

| | | | | | | |
|-----|---------|------|------|-------|-------|--------------|
| 68 | 22 x 20 | 0.40 | 0.56 | 2.926 | 1.463 | ECOS2EA680BL |
| | 22 x 25 | 0.40 | 0.56 | 2.438 | 1.219 | ECOS2EA680BA |
| 100 | 22 x 25 | 0.55 | 0.77 | 1.658 | 0.829 | ECOS2EA101BA |
| | 25 x 20 | 0.50 | 0.70 | 1.989 | 0.995 | ECOS2EA101CL |
| 150 | 22 x 25 | 0.75 | 1.05 | 1.105 | 0.553 | ECOS2EA151BA |
| | 30 x 20 | 0.65 | 0.91 | 1.326 | 0.663 | ECOS2EA151DL |
| 180 | 22 x 30 | 0.90 | 1.26 | 0.921 | 0.461 | ECOS2EA181BA |
| | 25 x 25 | 0.90 | 1.26 | 0.921 | 0.461 | ECOS2EA181CA |
| 220 | 22 x 30 | 1.00 | 1.40 | 1.40 | 0.754 | ECOS2EA221BA |
| | 25 x 25 | 1.00 | 1.40 | 1.40 | 0.754 | ECOS2EA221CA |
| | 35 x 20 | 0.87 | 1.22 | 1.22 | 0.904 | ECOS2EA221EL |
| 270 | 22 x 35 | 1.10 | 1.54 | 1.54 | 0.754 | ECOS2EA271BA |
| | 30 x 30 | 1.10 | 1.54 | 1.54 | 0.754 | ECOS2EA271CA |
| 330 | 22 x 40 | 1.20 | 1.68 | 1.68 | 0.754 | ECOS2EA331BA |
| | 25 x 35 | 1.20 | 1.68 | 1.68 | 0.754 | ECOS2EA331CA |
| 390 | 22 x 45 | 1.30 | 1.82 | 1.82 | 0.884 | ECOS2TA391BA |
| | 25 x 30 | 1.30 | 1.82 | 1.82 | 0.884 | ECOS2TA391CA |
| 470 | 22 x 50 | 1.40 | 1.75 | 1.75 | 0.884 | ECOS2TA471BA |

385 VDC Working, 435 VDC Surge

| | | | | | | |
|-----|---------|------|--------|-------|-------|--------------|
| 33 | 22 x 20 | 0.20 | 0.28 | 5.024 | 1.758 | ECOS2TA330BL |
| 47 | 25 x 20 | 0.25 | 0.35 | 3.527 | 1.235 | ECOS2TA470CL |
| 56 | 22 x 25 | 0.51 | 0.71 | 2.368 | 0.829 | ECOS2TA560BA |
| 68 | 22 x 30 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2TA680BA |
| | 25 x 25 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2TA680CA |
| | 30 x 20 | 0.35 | 0.49 | 2.438 | 0.853 | ECOS2TA680DL |
| 82 | 22 x 35 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2TA820BA |
| | 25 x 25 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2TA820CA |
| 100 | 22 x 35 | 0.69 | 0.97 | 1.326 | 0.464 | ECOS2TA101BA |
| | 25 x 30 | 0.69 | 0.97 | 1.326 | 0.464 | ECOS2TA101CA |
| | 35 x 20 | 0.47 | 0.66 | 1.658 | 0.580 | ECOS2TA101EL |
| 120 | 22 x 35 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2TA121BA |
| | 25 x 30 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2TA121CA |
| 150 | 22 x 50 | 0.82 | 1.15</ | | | |

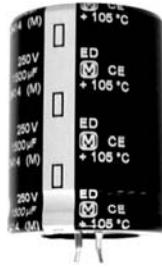
TS-HA Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 400 VDC Working, 450 VDC Surge | | | | | | |
| 33 | 22 x 20 | 0.20 | 0.28 | 5.024 | 1.758 | ECOS2GA330BL |
| | 22 x 25 | 0.30 | 0.42 | 4.521 | 1.582 | ECOS2GA330BA |
| 47 | 22 x 25 | 0.43 | 0.60 | 2.822 | 0.988 | ECOS2GA470BA |
| | 25 x 20 | 0.25 | 0.35 | 3.527 | 1.235 | ECOS2GA470CL |
| 56 | 22 x 25 | 0.51 | 0.71 | 2.368 | 0.829 | ECOS2GA560BA |
| 68 | 22 x 30 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2GA680BA |
| | 25 x 25 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2GA680CA |
| | 30 x 20 | 0.35 | 0.49 | 2.438 | 0.853 | ECOS2GA680DL |
| 82 | 22 x 35 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2GA820BA |
| | 25 x 25 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2GA820CA |
| 100 | 22 x 35 | 0.69 | 0.97 | 1.326 | 0.464 | ECOS2GA101BA |
| | 25 x 30 | 0.69 | 0.97 | 1.326 | 0.464 | ECOS2GA101CA |
| | 35 x 20 | 0.47 | 0.66 | 1.658 | 0.580 | ECOS2GA101EL |
| 120 | 22 x 40 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2GA121BA |
| | 25 x 35 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2GA121CA |
| | 30 x 25 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2GA121DA |
| 150 | 22 x 50 | 0.82 | 1.15 | 0.884 | 0.309 | ECOS2GA151BA |
| | 25 x 40 | 0.82 | 1.15 | 0.884 | 0.309 | ECOS2GA151CA |
| | 30 x 30 | 0.82 | 1.15 | 0.884 | 0.309 | ECOS2GA151DA |
| 180 | 25 x 45 | 0.95 | 1.33 | 0.737 | 0.258 | ECOS2GA181CA |
| | 30 x 35 | 0.95 | 1.33 | 0.737 | 0.258 | ECOS2GA181DA |
| | 35 x 25 | 0.95 | 1.33 | 0.737 | 0.258 | ECOS2GA181EA |
| 220 | 25 x 50 | 1.10 | 1.54 | 0.603 | 0.211 | ECOS2GA221CA |
| | 30 x 40 | 1.10 | 1.54 | 0.603 | 0.211 | ECOS2GA221DA |
| | 35 x 30 | 1.10 | 1.54 | 0.603 | 0.211 | ECOS2GA221EA |
| 270 | 30 x 45 | 1.20 | 1.68 | 0.491 | 0.172 | ECOS2GA271DA |
| | 35 x 35 | 1.20 | 1.68 | 0.491 | 0.172 | ECOS2GA271EA |
| 330 | 30 x 50 | 1.35 | 1.89 | 0.402 | 0.161 | ECOS2GA331DA |
| | 35 x 40 | 1.35 | 1.89 | 0.402 | 0.161 | ECOS2GA331EA |
| 390 | 35 x 45 | 1.55 | 2.17 | 0.340 | 0.136 | ECOS2GA391EA |
| 470 | 35 x 50 | 1.75 | 2.45 | 0.282 | 0.127 | ECOS2GA471EA |
| 450 VDC Working, 500 VDC Surge | | | | | | |
| 56 | 22 x 25 | 0.40 | 0.56 | 2.368 | 0.947 | ECOS2WA560BA |
| 68 | 22 x 30 | 0.50 | 0.70 | 1.950 | 0.780 | ECOS2WA680BA |
| | 25 x 25 | 0.50 | 0.70 | 1.950 | 0.780 | ECOS2WA680CA |
| 82 | 22 x 35 | 0.56 | 0.78 | 1.617 | 0.647 | ECOS2WA820BA |
| 100 | 22 x 40 | 0.64 | 0.90 | 1.326 | 0.531 | ECOS2WA101BA |
| | 25 x 30 | 0.64 | 0.90 | 1.326 | 0.531 | ECOS2WA101CA |
| | 30 x 25 | 0.64 | 0.90 | 1.326 | 0.531 | ECOS2WA101DA |
| 120 | 22 x 45 | 0.72 | 1.01 | 1.105 | 0.442 | ECOS2WA121BA |
| | 25 x 35 | 0.72 | 1.01 | 1.105 | 0.442 | ECOS2WA121CA |
| 150 | 22 x 50 | 0.79 | 1.11 | 0.884 | 0.354 | ECOS2WA151BA |
| | 25 x 40 | 0.79 | 1.11 | 0.884 | 0.354 | ECOS2WA151CA |
| | 30 x 30 | 0.79 | 1.11 | 0.884 | 0.354 | ECOS2WA151DA |
| | 35 x 25 | 0.79 | 1.11 | 0.884 | 0.354 | ECOS2WA151EA |
| 180 | 25 x 45 | 0.87 | 1.22 | 0.737 | 0.295 | ECOS2WA181CA |
| | 30 x 35 | 0.87 | 1.22 | 0.737 | 0.295 | ECOS2WA181DA |
| 220 | 25 x 50 | 1.00 | 1.40 | 0.678 | 0.271 | ECOS2WA221CA |
| | 30 x 40 | 1.00 | 1.40 | 0.678 | 0.271 | ECOS2WA221DA |
| | 35 x 30 | 1.00 | 1.40 | 0.678 | 0.271 | ECOS2WA221EA |
| 270 | 30 x 45 | 1.17 | 1.64 | 0.614 | 0.246 | ECOS2WA271DA |
| | 35 x 35 | 1.17 | 1.64 | 0.614 | 0.246 | ECOS2WA271EA |
| 330 | 30 x 50 | 1.38 | 1.93 | 0.502 | 0.201 | ECOS2WA331DA |
| | 35 x 40 | 1.38 | 1.93 | 0.502 | 0.201 | ECOS2WA331EA |
| 390 | 35 x 50 | 1.55 | 2.17 | 0.425 | 0.170 | ECOS2WA391EA |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-ED Series 105°C, 3000 hours

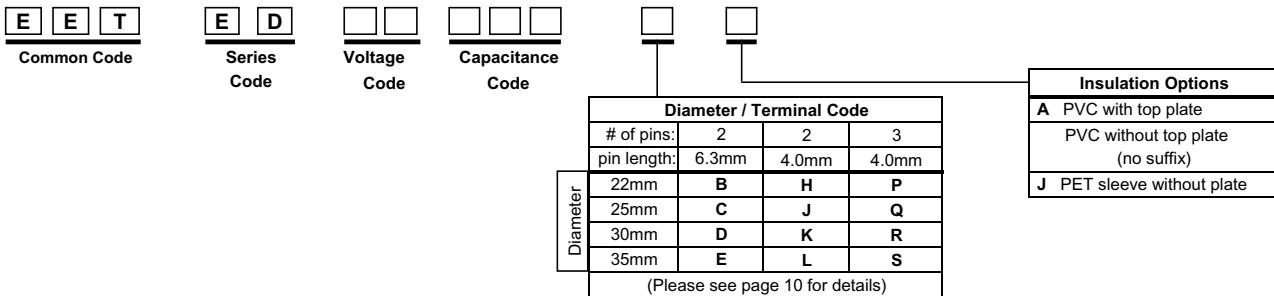
- Highest ripple current capability for demanding inverter applications**
- 2 and 3 pin versions available**
- 3000 hour life at 105°C**



| Rated Working Voltage: | 200 ~ 250 VDC | | | | | | 400 ~ 450 VDC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|------|-------|-----|----------------------------------|--|--|--|--|--|----------------|----|----|---------|-----|----|-------------|------|------|-----|-----|------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|---------------------------------------------|--|--|--|--|--|----------------------|-------|------|------|------|-------|-------------|-----|-----|-----|-----|------|
| Operating Temperature: | -40 ~ +105°C | | | | | | -25 ~ +105°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal Capacitance: | 220~2200 µF | | | | | | 56 ~ 560µF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Tolerance: | ± 20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor (120Hz, 20°C): | 15% maximum (120Hz, +20°C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current: | 3√CV (µA) max. after 5 minutes; C = Capacitance in µF, V = WV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple Current Multipliers: | <table border="1"> <thead> <tr> <th colspan="6">Ripple Current Frequency Factors</th> </tr> <tr> <th>Frequency(Hz):</th> <th>50</th> <th>60</th> <th>100-120</th> <th>500</th> <th>1k</th> </tr> </thead> <tbody> <tr> <td>Multiplier:</td> <td>0.71</td> <td>0.78</td> <td>1.0</td> <td>1.2</td> <td>1.25</td> <td>1.4</td> </tr> </tbody> </table> | | | | | | Ripple Current Frequency Factors | | | | | | Frequency(Hz): | 50 | 60 | 100-120 | 500 | 1k | Multiplier: | 0.71 | 0.78 | 1.0 | 1.2 | 1.25 | 1.4 | <table border="1"> <thead> <tr> <th colspan="6">Ripple Current Ambient Temperature Factors*</th> </tr> <tr> <th>Ambient Temperature:</th> <th>105°C</th> <th>85°C</th> <th>70°C</th> <th>60°C</th> <th>≤45°C</th> </tr> </thead> <tbody> <tr> <td>Multiplier:</td> <td>1.0</td> <td>1.7</td> <td>2.0</td> <td>2.2</td> <td>2.35</td> </tr> </tbody> </table> | | | | | | Ripple Current Ambient Temperature Factors* | | | | | | Ambient Temperature: | 105°C | 85°C | 70°C | 60°C | ≤45°C | Multiplier: | 1.0 | 1.7 | 2.0 | 2.2 | 2.35 |
| Ripple Current Frequency Factors | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frequency(Hz): | 50 | 60 | 100-120 | 500 | 1k | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiplier: | 0.71 | 0.78 | 1.0 | 1.2 | 1.25 | 1.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple Current Ambient Temperature Factors* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambient Temperature: | 105°C | 85°C | 70°C | 60°C | ≤45°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiplier: | 1.0 | 1.7 | 2.0 | 2.2 | 2.35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endurance: | 3000 hours at +105°C with maximum specified ripple current (see page 6) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



TS-ED Standard Ratings (part numbers shown with 6.3mm length terminal and top vinyl plate)

| Cap. (µF) | Size (mm) D x L | Max 105°C R.C. (A _{rms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number |
|---------------------------------------------------|--------------------|------------------------------------|--------|--------------------|-------|-----------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 200 VDC Working, 250 VDC Surge | | | | | | |
| 270 | 22 x 25 | 1.42 | 2.03 | 0.553 | 0.249 | EETED2D271BA |
| 330 | 22 x 30 | 1.56 | 2.23 | 0.452 | 0.203 | EETED2D331BA |
| 390 | 22 x 30 | 1.71 | 2.44 | 0.383 | 0.172 | EETED2D391BA |
| | 25 x 25 | 1.71 | 2.44 | 0.383 | 0.172 | EETED2D391CA |
| 470 | 22 x 35 | 1.85 | 2.64 | 0.317 | 0.143 | EETED2D471BA |
| | 25 x 30 | 1.85 | 2.64 | 0.317 | 0.143 | EETED2D471CA |
| 560 | 22 x 40 | 2.14 | 3.05 | 0.266 | 0.120 | EETED2D561BA |
| | 25 x 30 | 2.14 | 3.05 | 0.266 | 0.120 | EETED2D561CA |
| | 30 x 25 | 2.14 | 3.05 | 0.266 | 0.120 | EETED2D561DA |
| 680 | 22 x 45 | 2.42 | 3.45 | 0.219 | 0.099 | EETED2D681BA |
| | 25 x 35 | 2.42 | 3.45 | 0.219 | 0.099 | EETED2D681CA |
| | 30 x 30 | 2.42 | 3.45 | 0.219 | 0.099 | EETED2D681DA |
| 820 | 22 x 50 | 2.63 | 3.76 | 0.182 | 0.082 | EETED2D821BA |
| | 25 x 40 | 2.63 | 3.76 | 0.182 | 0.082 | EETED2D821CA |
| | 30 x 30 | 2.63 | 3.76 | 0.182 | 0.082 | EETED2D821DA |
| | 35 x 25 | 2.63 | 3.76 | 0.182 | 0.091 | EETED2D821EA |
| 1000 | 25 x 45 | 2.84 | 4.06 | 0.149 | 0.067 | EETED2D102CA |
| | 30 x 35 | 2.84 | 4.06 | 0.149 | 0.067 | EETED2D102DA |
| | 35 x 30 | 2.84 | 4.06 | 0.149 | 0.067 | EETED2D102EA |
| 1200 | 30 x 40 | 3.13 | 4.47 | 0.124 | 0.062 | EETED2D122DA |
| | 35 x 35 | 3.13 | 4.47 | 0.124 | 0.062 | EETED2D122EA |
| 1500 | 30 x 50 | 3.56 | 5.08 | 0.099 | 0.050 | EETED2D152DA |
| | 35 x 40 | 3.56 | 5.08 | 0.099 | 0.050 | EETED2D152EA |
| 1800 | 35 x 45 | 3.84 | 5.48 | 0.083 | 0.041 | EETED2D182EA |
| 2200 | 35 x 50 | 4.12 | 5.89 | 0.068 | 0.033 | EETED2D222EA |
| 250 VDC Working, 300 VDC Surge (continued) | | | | | | |
| 390 | 22 x 40 | 1.72 | 2.45 | 0.383 | 0.172 | EETED2E391BA |
| | 25 x 30 | 1.71 | 2.44 | 0.383 | 0.172 | EETED2E391CA |
| | 30 x 25 | 1.71 | 2.44 | 0.383 | 0.172 | EETED2E391DA |
| 470 | 22 x 45 | 1.85 | 2.64 | 0.317 | 0.143 | EETED2E471BA |
| | 25 x 35 | 1.85 | 2.64 | 0.317 | 0.143 | EETED2E471CA |
| | 30 x 30 | 1.85 | 2.64 | 0.317 | 0.143 | EETED2E471DA |
| 560 | 25 x 40 | 2.14 | 3.05 | 0.266 | 0.120 | EETED2E561CA |
| | 30 x 30 | 2.14 | 3.05 | 0.266 | 0.120 | EETED2E561DA |
| | 35 x 25 | 2.14 | 3.05 | 0.266 | 0.133 | EETED2E561EA |
| 680 | 25 x 45 | 2.42 | 3.45 | 0.219 | 0.099 | EETED2E681CA |
| | 30 x 35 | 2.42 | 3.45 | 0.219 | 0.099 | EETED2E681DA |
| | 35 x 30 | 2.42 | 3.45 | 0.219 | 0.110 | EETED2E681EA |
| 820 | 30 x 40 | 2.63 | 3.76 | 0.182 | 0.082 | EETED2E821DA |
| | 35 x 35 | 2.63 | 3.76 | 0.182 | 0.091 | EETED2E821EA |
| 1000 | 30 x 50 | 2.84 | 4.06 | 0.149 | 0.067 | EETED2E102DA |
| | 35 x 40 | 2.84 | 4.06 | 0.149 | 0.067 | EETED2E102EA |
| 1200 | 35 x 45 | 3.13 | 4.47 | 0.124 | 0.062 | EETED2E122EA |
| 1500 | 35 x 50 | 3.56 | 5.08 | 0.099 | 0.050 | EETED2E152EA |
| 400 VDC Working, 450 VDC Surge | | | | | | |
| 82 | 22 x 25 | 0.80 | 1.14 | 0.167 | 0.728 | EETED2G820BA |
| 100 | 22 x 30 | 0.91 | 1.30 | 0.1326 | 0.597 | EETED2G101BA |
| | 25 x 25 | 0.91 | 1.30 | 0.1326 | 0.597 | EETED2G101CA |
| 120 | 22 x 35 | 1.02 | 1.46 | 0.105 | 0.497 | EETED2G121BA |
| | 25 x 30 | 1.02 | 1.46 | 0.105 | 0.497 | EETED2G121CA |
| 150 | 22 x 40 | 1.07 | 1.53 | 0.0884 | 0.398 | EETED2G151BA |
| | 25 x 30 | 1.07 | 1.53 | 0.0884 | 0.398 | EETED2G151CA |
| | 30 x 25 | 1.07 | 1.53 | 0.0884 | 0.398 | EETED2G151DA |
| 180 | 22 x 45 | 1.12 | 1.60 | 0.0737 | 0.332 | EETED2G181BA |
| | 25 x 35 | 1.12 | 1.60 | 0.0737 | 0.332 | EETED2G181CA |
| | 30 x 30 | 1.12 | 1.60 | 0.0737 | 0.332 | EETED2G181DA |
| 220 | 22 x 50 | 1.42 | 2.03 | 0.0603 | 0.271 | EETED2G221BA |

TS-ED Standard Ratings (continued)

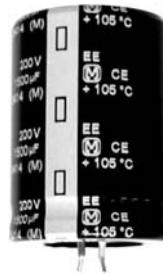
| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 400 VDC Working, 450 VDC Surge (continued) | | | | | | |
| 220 | 25 x 40 | 1.42 | 2.03 | 0.603 | 0.271 | EETED2G221CA |
| | 30 x 30 | 1.42 | 2.03 | 0.603 | 0.271 | EETED2G221DA |
| | 35 x 25 | 1.42 | 2.03 | 0.603 | 0.271 | EETED2G221EA |
| 270 | 25 x 45 | 1.56 | 2.23 | 0.491 | 0.221 | EETED2G271CA |
| | 30 x 35 | 1.56 | 2.23 | 0.491 | 0.221 | EETED2G271DA |
| | 35 x 30 | 1.56 | 2.23 | 0.491 | 0.221 | EETED2G271EA |
| 330 | 30 x 40 | 1.71 | 2.44 | 0.402 | 0.181 | EETED2G331DA |
| | 35 x 30 | 1.71 | 2.44 | 0.402 | 0.181 | EETED2G331EA |
| 390 | 30 x 45 | 1.85 | 2.64 | 0.340 | 0.153 | EETED2G391DA |
| | 35 x 35 | 1.85 | 2.64 | 0.340 | 0.153 | EETED2G391EA |
| 470 | 35 x 40 | 2.01 | 2.87 | 0.282 | 0.127 | EETED2G471EA |
| 560 | 35 x 45 | 2.35 | 3.36 | 0.237 | 0.107 | EETED2G561EA |
| 420 VDC Working, 470 VDC Surge | | | | | | |
| 68 | 22 x 25 | 1.08 | 0.95 | 1.950 | 0.878 | EETED2S680BA |
| 82 | 22 x 30 | 1.14 | 1.08 | 1.617 | 0.728 | EETED2S820BA |
| | 25 x 25 | 1.14 | 1.08 | 1.617 | 0.728 | EETED2S820CA |
| 100 | 22 x 30 | 1.30 | 1.14 | 1.326 | 0.597 | EETED2S101BA |
| | 25 x 25 | 1.30 | 1.14 | 1.326 | 0.597 | EETED2S101CA |
| 120 | 22 x 35 | 1.46 | 1.30 | 1.105 | 0.497 | EETED2S121BA |
| | 25 x 30 | 1.46 | 1.30 | 1.105 | 0.497 | EETED2S121CA |
| 150 | 22 x 40 | 1.53 | 1.46 | 0.884 | 0.398 | EETED2S151BA |
| | 25 x 35 | 1.53 | 1.46 | 0.884 | 0.398 | EETED2S151CA |
| | 30 x 25 | 1.53 | 1.46 | 0.884 | 0.398 | EETED2S151DA |
| 180 | 22 x 45 | 1.60 | 1.53 | 0.737 | 0.332 | EETED2S181BA |
| | 25 x 40 | 1.60 | 1.53 | 0.737 | 0.332 | EETED2S181CA |
| | 30 x 30 | 1.60 | 1.53 | 0.737 | 0.332 | EETED2S181DA |
| | 35 x 25 | 1.60 | 1.53 | 0.737 | 0.332 | EETED2S181EA |
| 220 | 25 x 45 | 2.03 | 1.60 | 0.603 | 0.271 | EETED2S221CA |
| | 30 x 35 | 2.03 | 1.60 | 0.603 | 0.271 | EETED2S221DA |
| | 35 x 30 | 2.03 | 1.60 | 0.603 | 0.271 | EETED2S221EA |
| 270 | 25 x 50 | 2.40 | 2.03 | 0.491 | 0.221 | EETED2S271CA |
| | 30 x 40 | 2.40 | 2.03 | 0.491 | 0.221 | EETED2S271DA |
| | 35 x 30 | 2.40 | 2.03 | 0.491 | 0.221 | EETED2S271EA |
| 330 | 30 x 45 | 2.54 | 2.45 | 0.402 | 0.181 | EETED2S331DA |
| | 35 x 35 | 2.54 | 2.45 | 0.402 | 0.181 | EETED2S331EA |
| 390 | 30 x 50 | 2.73 | 2.64 | 0.340 | 0.153 | EETED2S391DA |
| | 35 x 40 | 2.73 | 2.64 | 0.340 | 0.153 | EETED2S391EA |
| 470 | 35 x 45 | 3.18 | 2.82 | 0.282 | 0.127 | EETED2S471EA |
| 450 VDC Working, 500 VDC Surge | | | | | | |
| 56 | 22 x 25 | 0.67 | 0.95 | 2.368 | 1.066 | EETED2W560BA |
| 68 | 22 x 30 | 0.76 | 1.08 | 1.950 | 0.878 | EETED2W680BA |
| | 25 x 25 | 0.76 | 1.08 | 1.950 | 0.878 | EETED2W680CA |
| 82 | 22 x 30 | 0.80 | 1.14 | 1.617 | 0.728 | EETED2W820BA |
| | 25 x 25 | 0.80 | 1.14 | 1.617 | 0.728 | EETED2W820CA |
| 100 | 22 x 35 | 0.91 | 1.30 | 1.326 | 0.597 | EETED2W101BA |
| | 25 x 30 | 0.91 | 1.30 | 1.326 | 0.597 | EETED2W101CA |
| 120 | 22 x 40 | 1.02 | 1.46 | 1.105 | 0.497 | EETED2W121BA |
| | 25 x 35 | 1.02 | 1.46 | 1.105 | 0.497 | EETED2W121CA |
| | 30 x 25 | 1.02 | 1.46 | 1.105 | 0.497 | EETED2W121DA |
| 150 | 22 x 45 | 1.07 | 1.53 | 0.884 | 0.398 | EETED2W151BA |
| | 25 x 40 | 1.07 | 1.53 | 0.884 | 0.398 | EETED2W151CA |
| | 30 x 30 | 1.07 | 1.53 | 0.884 | 0.398 | EETED2W151DA |
| | 35 x 25 | 1.07 | 1.53 | 0.884 | 0.398 | EETED2W151EA |
| 180 | 22 x 50 | 1.12 | 1.60 | 0.737 | 0.332 | EETED2W181BA |
| | 25 x 40 | 1.12 | 1.60 | 0.737 | 0.332 | EETED2W181CA |
| | 30 x 30 | 1.12 | 1.60 | 0.737 | 0.332 | EETED2W181DA |
| | 35 x 25 | 1.12 | 1.60 | 0.737 | 0.332 | EETED2W181EA |
| 220 | 25 x 45 | 1.42 | 2.03 | 0.603 | 0.271 | EETED2W221CA |
| | 30 x 35 | 1.42 | 2.03 | 0.603 | 0.271 | EETED2W221DA |
| | 35 x 30 | 1.42 | 2.03 | 0.603 | 0.271 | EETED2W221EA |
| 270 | 30 x 40 | 1.72 | 2.45 | 0.491 | 0.221 | EETED2W271DA |
| | 35 x 35 | 1.72 | 2.45 | 0.491 | 0.221 | EETED2W271EA |
| 330 | 30 x 50 | 1.85 | 2.64 | 0.402 | 0.181 | EETED2W331DA |
| | 35 x 40 | 1.85 | 2.64 | 0.402 | 0.181 | EETED2W331EA |
| 390 | 35 x 40 | 1.97 | 2.82 | 0.340 | 0.153 | EETED2W391EA |
| 470 | 35 x 50 | 2.47 | 3.53 | 0.282 | 0.127 | EETED2W471EA |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

TS-EE Series 105°C, 3000 hours

- Highest ripple current capability
- 2 and 3 pin versions available
- PET Sleeve Option

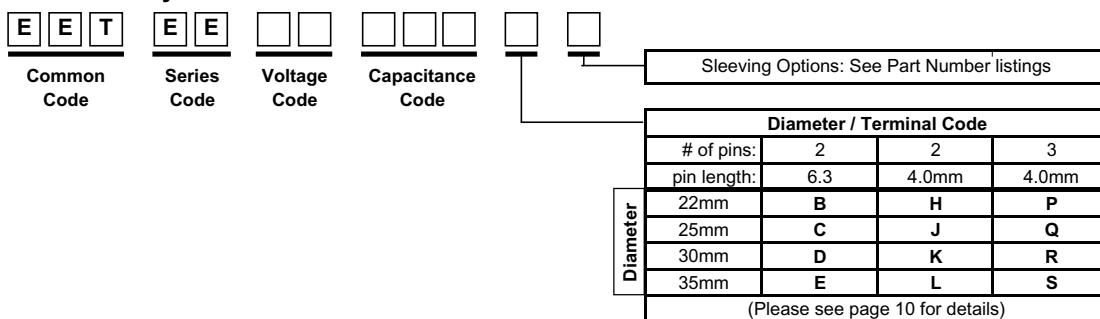
NEW SERIES



| | | | | | | | | | |
|-----------------------------|-------------------------------------------------------------------------|---------|-----|------|-----|-------------------|-------|------|-------|
| Rated Working Voltage: | 200 VDC | | | | | | | | |
| Operating Temperature: | -40 ~ +105°C | | | | | | | | |
| Nominal Capacitance: | 300 ~ 1800μF | | | | | | | | |
| Capacitance Tolerance: | ± 20% | | | | | | | | |
| Dissipation Factor: | 15% maximum @ 120 Hz, +20°C | | | | | | | | |
| Leakage Current: | $3\sqrt{CV}$ (μA) max. after 5 minutes; C = Capacitance in μF, V = WV | | | | | | | | |
| Ripple Current Multipliers: | Frequency(Hz): | 100~120 | 500 | 1k | 10k | Temperature (°C): | 105°C | 85°C | ≤70°C |
| | 200WV: | 1.0 | 1.2 | 1.25 | 1.4 | Multiplier: | 1.0 | 1.42 | 1.6 |
| Endurance: | 3000 hours at +105°C with maximum specified ripple current (see page 6) | | | | | | | | |

*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



TS-EE Standard Ratings

(part numbers shown with 2 pins and 4mm length terminal)

Part Number Suffix Sleeving Options

| Cap. (μF) | Size (mm) D x L | Max 105°C R.C. (A _{rms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number | PVC with Top Plate | PVC without Top Plate | PET without Top Plate |
|--------------------------------|--------------------|------------------------------------|--------|--------------------|-------|-----------------------|--------------------|-----------------------|-----------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | | | |
| 200 VDC Working, 250 VDC Surge | | | | | | | | | |
| 300 | 22 x 25 | 1.70 | 2.38 | 0.829 | 0.592 | EETEE2D301H_ | A | (No suffix) | J |
| 390 | 22 x 30 | 2.17 | 3.04 | 0.637 | 0.455 | EETEE2D391H_ | A | (No suffix) | J |
| 590 | 22 x 40 | 2.30 | 3.22 | 0.421 | 0.300 | EETEE2D591H_ | A | (No suffix) | J |
| | 25 x 30 | 2.30 | 3.22 | 0.421 | 0.300 | EETEE2D591J_ | A | (No suffix) | J |
| 700 | 22 x 45 | 2.65 | 3.71 | 0.355 | 0.254 | EETEE2D701H_ | A | (No suffix) | J |
| | 25 x 35 | 2.65 | 3.71 | 0.355 | 0.254 | EETEE2D701J_ | A | (No suffix) | J |
| 590 | 30 x 25 | 3.08 | 4.31 | 0.421 | 0.300 | EETEE2D591K_ | A | (No suffix) | J |
| 800 | 22 x 50 | 3.08 | 4.31 | 0.311 | 0.222 | EETEE2D801H_ | A | (No suffix) | J |
| | 25 x 40 | 3.08 | 4.31 | 0.311 | 0.222 | EETEE2D801J_ | A | (No suffix) | J |
| | 30 x 30 | 3.48 | 4.87 | 0.311 | 0.222 | EETEE2D801K_ | A | (No suffix) | J |
| | 35 x 25 | 3.48 | 4.87 | 0.311 | 0.222 | EETEE2D801L_ | A | (No suffix) | J |
| 1000 | 25 x 50 | 3.48 | 4.87 | 0.249 | 0.178 | EETEE2D102J_ | A | (No suffix) | J |
| | 30 x 35 | 3.98 | 5.57 | 0.249 | 0.178 | EETEE2D102K_ | A | (No suffix) | J |
| | 35 x 30 | 4.20 | 5.88 | 0.249 | 0.178 | EETEE2D102L_ | A | (No suffix) | J |
| 1200 | 30 x 40 | 4.20 | 5.88 | 0.209 | 0.149 | EETEE2D122K_ | A | (No suffix) | J |
| 1300 | 30 x 45 | 4.62 | 6.47 | 0.191 | 0.136 | EETEE2D132K_ | A | (No suffix) | J |
| 1500 | 35 x 40 | 4.62 | 6.47 | 0.166 | 0.118 | EETEE2D152L_ | A | (No suffix) | J |
| | 30 x 50 | 5.22 | 7.31 | 0.166 | 0.118 | EETEE2D152K_ | A | (No suffix) | J |
| 1800 | 35 x 45 | 5.22 | 7.31 | 0.138 | 0.099 | EETEE2D182L_ | A | (No suffix) | J |

TS-XB Series 105°C, 7000 hours

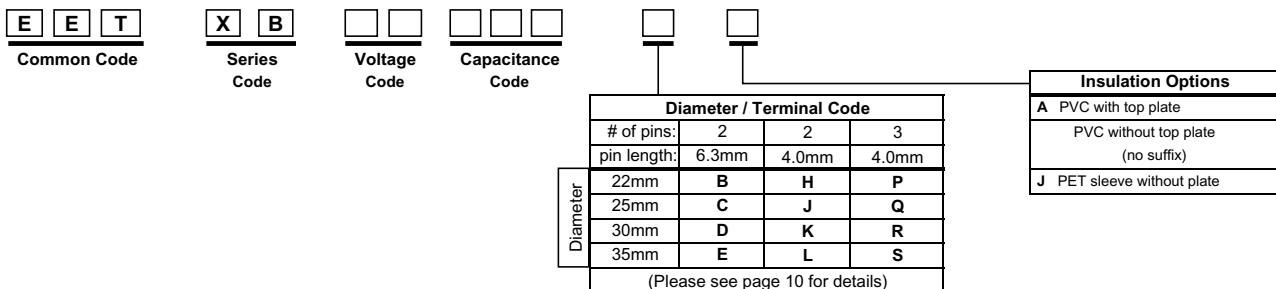
- **Designed for long life industrial applications**
- **Compact size**
- **Compact size**



| Rated Working Voltage: | 160 ~ 250 VDC | | | | | | 315 ~ 450 VDC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|------|-------|-----|----------------------------------|--|--|--|--|--|----------------|----|----|---------|-----|----|------------|------|-----|-----|-----|------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|---------------------------------------------|--|--|--|--|--|----------------------|-------|------|------|------|-------|-------------|-----|-----|-----|-----|------|
| Operating Temperature: | -40 ~ +105°C | | | | | | -25 ~ +105°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal Capacitance: | 180 ~ 2200μF | | | | | | 39 ~ 680μF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Tolerance: | ± 20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor: | 15% maximum (120Hz, +20°C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current: | 3√CV (μA) max. after 5 minutes; C = Capacitance in μF, V = WV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple Current Multipliers: | <table border="1"> <thead> <tr> <th colspan="6">Ripple Current Frequency Factors</th> </tr> <tr> <th>Frequency(Hz):</th> <th>50</th> <th>60</th> <th>100~120</th> <th>500</th> <th>1k</th> </tr> </thead> <tbody> <tr> <td>160~450WV:</td> <td>0.75</td> <td>0.8</td> <td>1.0</td> <td>1.2</td> <td>1.25</td> <td>1.4</td> </tr> </tbody> </table> | | | | | | Ripple Current Frequency Factors | | | | | | Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 160~450WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | <table border="1"> <thead> <tr> <th colspan="6">Ripple Current Ambient Temperature Factors*</th> </tr> <tr> <th>Ambient Temperature:</th> <th>105°C</th> <th>85°C</th> <th>70°C</th> <th>60°C</th> <th>≤45°C</th> </tr> </thead> <tbody> <tr> <td>Multiplier:</td> <td>1.0</td> <td>1.7</td> <td>2.0</td> <td>2.2</td> <td>2.35</td> </tr> </tbody> </table> | | | | | | | | Ripple Current Ambient Temperature Factors* | | | | | | Ambient Temperature: | 105°C | 85°C | 70°C | 60°C | ≤45°C | Multiplier: | 1.0 | 1.7 | 2.0 | 2.2 | 2.35 |
| Ripple Current Frequency Factors | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 160~450WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple Current Ambient Temperature Factors* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambient Temperature: | 105°C | 85°C | 70°C | 60°C | ≤45°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiplier: | 1.0 | 1.7 | 2.0 | 2.2 | 2.35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endurance: | 7000 hours at +105°C with maximum specified ripple current (see page 6) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



TS-XB Standard Ratings

 (part numbers shown with 2 pins, 6.3mm length terminal, and top vinyl plate)

| Cap. (μF) | Size (mm) D x L | Max 105°C R.C. (A _{ms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number | Cap. (μF) | Size (mm) D x L | Max 105°C R.C. (A _{ms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number |
|---------------------------------------|--------------------|-----------------------------------|--------|--------------------|-------|--------------------------|--------------|--------------------|-----------------------------------|--------|--------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 160 VDC Working, 200 VDC Surge | | | | | | | | | | | | | |
| 270 | 22 x 25 | 1.10 | 1.54 | 0.655 | 0.295 | EETXB2C271BA | 470 | 22 x 35 | 1.40 | 1.96 | 0.376 | 0.17 | EETXB2P471BA |
| 330 | 22 x 30 | 1.20 | 1.68 | 0.536 | 0.241 | EETXB2C331BA | | 25 x 30 | 1.40 | 1.96 | 0.376 | 0.17 | EETXB2P471CA |
| 390 | 22 x 30 | 1.30 | 1.82 | 0.453 | 0.204 | EETXB2C391BA | | 30 x 25 | 1.40 | 1.96 | 0.376 | 0.17 | EETXB2P471DA |
| 470 | 25 x 25 | 1.30 | 1.82 | 0.453 | 0.204 | EETXB2C391CA | 560 | 22 x 40 | 1.50 | 2.10 | 0.316 | 0.14 | EETXB2P561BA |
| 560 | 22 x 35 | 1.40 | 1.96 | 0.376 | 0.169 | EETXB2C471BA | | 25 x 35 | 1.50 | 2.10 | 0.316 | 0.14 | EETXB2P561CA |
| | 25 x 30 | 1.40 | 1.96 | 0.376 | 0.169 | EETXB2C471CA | | 30 x 25 | 1.50 | 2.10 | 0.316 | 0.14 | EETXB2P561DA |
| 680 | 22 x 40 | 1.50 | 2.10 | 0.316 | 0.142 | EETXB2C561BA | 680 | 22 x 50 | 1.70 | 2.38 | 0.260 | 0.12 | EETXB2P681BA |
| | 25 x 30 | 1.50 | 2.10 | 0.316 | 0.142 | EETXB2C561CA | | 25 x 40 | 1.70 | 2.38 | 0.260 | 0.12 | EETXB2P681CA |
| | 30 x 25 | 1.50 | 2.10 | 0.316 | 0.142 | EETXB2C561DA | | 30 x 30 | 1.70 | 2.38 | 0.260 | 0.12 | EETXB2P681DA |
| 680 | 22 x 45 | 1.70 | 2.38 | 0.260 | 0.117 | EETXB2C681BA | 820 | 25 x 45 | 2.00 | 2.80 | 0.216 | 0.10 | EETXB2P821CA |
| | 25 x 35 | 1.70 | 2.38 | 0.260 | 0.117 | EETXB2C681CA | | 30 x 35 | 2.00 | 2.80 | 0.234 | 0.11 | EETXB2P821DA |
| | 30 x 30 | 1.70 | 2.38 | 0.260 | 0.117 | EETXB2C681DA | | 35 x 30 | 2.00 | 2.80 | 0.234 | 0.11 | EETXB2P821EA |
| 820 | 25 x 40 | 2.00 | 2.80 | 0.216 | 0.097 | EETXB2C821CA | 1000 | 30 x 40 | 2.20 | 3.08 | 0.192 | 0.10 | EETXB2P102DA |
| | 30 x 30 | 2.00 | 2.80 | 0.216 | 0.097 | EETXB2C821DA | | 35 x 30 | 2.20 | 3.08 | 0.192 | 0.10 | EETXB2P102EA |
| 1000 | 25 x 45 | 2.20 | 3.08 | 0.177 | 0.080 | EETXB2C102CA | 1200 | 30 x 45 | 2.30 | 3.22 | 0.160 | 0.08 | EETXB2P122DA |
| | 30 x 35 | 2.20 | 3.08 | 0.177 | 0.080 | EETXB2C102DA | | 35 x 35 | 2.30 | 3.22 | 0.172 | 0.09 | EETXB2P122EA |
| 1200 | 25 x 50 | 2.30 | 3.22 | 0.160 | 0.080 | EETXB2C122CA | 1500 | 30 x 50 | 2.50 | 3.50 | 0.138 | 0.07 | EETXB2P152DA |
| | 30 x 40 | 2.30 | 3.22 | 0.160 | 0.080 | EETXB2C122DA | | 35 x 40 | 2.50 | 3.50 | 0.138 | 0.07 | EETXB2P152EA |
| 1500 | 35 x 35 | 2.30 | 3.22 | 0.160 | 0.080 | EETXB2C122EA | 1800 | 35 x 45 | 2.70 | 3.78 | 0.115 | 0.07 | EETXB2P182EA |
| 1800 | 30 x 50 | 2.70 | 3.78 | 0.115 | 0.057 | EETXB2C182DA | 2200 | 35 x 50 | 2.90 | 4.06 | 0.094 | 0.06 | EETXB2P222EA |
| 180 VDC Working, 225 VDC Surge | | | | | | | | | | | | | |
| 220 | 22 x 25 | 1.00 | 1.40 | 0.804 | 0.36 | EETXB2P221BA | 220 | 22 x 30 | 1.00 | 1.40 | 0.804 | 0.36 | EETXB2D221BA |
| 270 | 22 x 25 | 1.10 | 1.54 | 0.655 | 0.29 | EETXB2P271BA | 270 | 22 x 30 | 1.10 | 1.54 | 0.655 | 0.29 | EETXB2D271BA |
| 330 | 22 x 30 | 1.20 | 1.68 | 0.536 | 0.24 | EETXB2P331BA | | 25 x 25 | 1.10 | 1.54 | 0.655 | 0.29 | EETXB2D271CA |
| 390 | 25 x 25 | 1.20 | 1.68 | 0.536 | 0.24 | EETXB2P331CA | 330 | 22 x 30 | 1.20 | 1.68 | 0.536 | 0.24 | EETXB2D331BA |
| 1800 | 35 x 40 | 2.70 | 3.78 | 0.115 | 0.057 | EETXB2C182EA | | 25 x 25 | 1.20 | 1.68 | 0.536 | 0.24 | EETXB2D331CA |
| 2200 | 35 x 50 | 2.90 | 4.06 | 0.094 | 0.056 | EETXB2C222EA | 390 | 22 x 35 | 1.30 | 1.82 | 0.453 | 0.20 | EETXB2D391BA |
| | 25 x 25 | 1.30 | 1.82 | 0.453 | 0.20 | EETXB2P391BA | | 25 x 30 | 1.30 | 1.82 | 0.453 | 0.20 | EETXB2D391CA |
| | 30 x 25 | 1.30 | 1.82 | 0.453 | 0.20 | EETXB2P391CA | | 30 x 25 | 1.30 | 1.82 | 0.453 | 0.20 | EETXB2D391DA |
| 220 | 22 x 40 | 1.40 | 2.10 | 0.406 | 0.140 | EETXB2P401BA | 470 | 22 x 40 | 1.40 | 1.96 | 0.376 | 0.17 | EETXB2D471BA |
| | 25 x 35 | 1.40 | 2.10 | 0.406 | 0.140 | EETXB2P401CA | | 25 x 35 | 1.40 | 1.96 | 0.376 | 0.17 | EETXB2D471CA |
| | 30 x 30 | 1.40 | 2.10 | 0.406 | 0.140 | EETXB2P401DA | | 30 x 30 | 1.40 | 1.96 | 0.376 | 0.17 | EETXB2D471DA |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

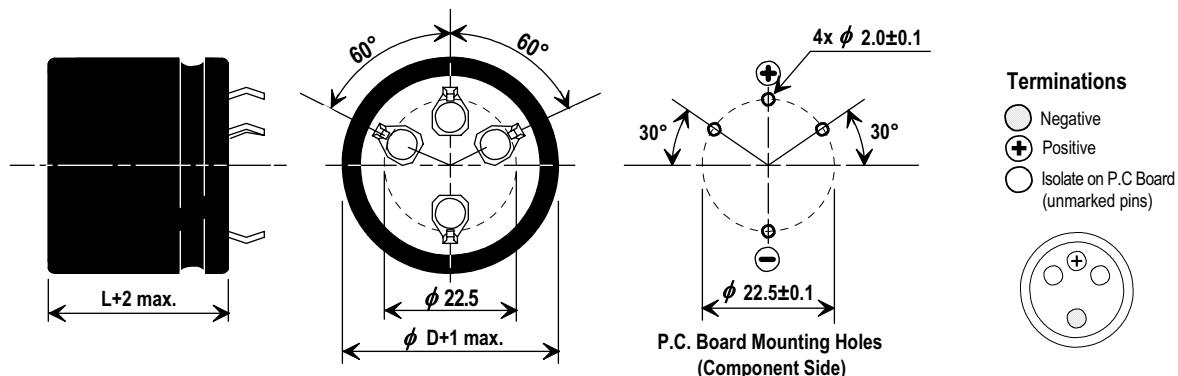
TS-XB Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------------------|--------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 200 VDC Working, 250 VDC Surge (continued) | | | | | | |
| 470 | 30 x 30 | 1.40 | 1.96 | 0.376 | 0.17 | EETXB2D471DA |
| 560 | 22 x 45 | 1.50 | 2.10 | 0.316 | 0.14 | EETXB2D561BA |
| | 25 x 35 | 1.50 | 2.10 | 0.316 | 0.14 | EETXB2D561CA |
| | 30 x 30 | 1.50 | 2.10 | 0.316 | 0.14 | EETXB2D561DA |
| 680 | 25 x 40 | 1.70 | 2.38 | 0.260 | 0.12 | EETXB2D681CA |
| | 30 x 35 | 1.70 | 2.38 | 0.260 | 0.12 | EETXB2D681DA |
| 820 | 25 x 50 | 2.00 | 2.80 | 0.216 | 0.10 | EETXB2D821CA |
| | 30 x 40 | 2.00 | 2.80 | 0.216 | 0.10 | EETXB2D821DA |
| | 35 x 30 | 2.00 | 2.80 | 0.216 | 0.10 | EETXB2D821EA |
| 1000 | 30 x 45 | 2.20 | 3.08 | 0.177 | 0.09 | EETXB2D102DA |
| | 35 x 35 | 2.20 | 3.08 | 0.177 | 0.09 | EETXB2D102EA |
| 1200 | 30 x 50 | 2.30 | 3.22 | 0.160 | 0.08 | EETXB2D122DA |
| | 35 x 40 | 2.30 | 3.22 | 0.160 | 0.08 | EETXB2D122EA |
| 1500 | 35 x 50 | 2.50 | 3.50 | 0.128 | 0.06 | EETXB2D152EA |
| 250 VDC Working, 300 VDC Surge | | | | | | |
| 180 | 22 x 30 | 0.90 | 1.26 | 0.819 | 0.41 | EETXB2E181BA |
| | 25 x 25 | 0.90 | 1.26 | 0.819 | 0.41 | EETXB2E181CA |
| 220 | 22 x 30 | 1.00 | 1.40 | 0.670 | 0.33 | EETXB2E221BA |
| | 25 x 25 | 1.00 | 1.40 | 0.670 | 0.33 | EETXB2E221CA |
| 270 | 22 x 35 | 1.10 | 1.54 | 0.546 | 0.27 | EETXB2E271BA |
| | 25 x 30 | 1.10 | 1.54 | 0.546 | 0.27 | EETXB2E271CA |
| | 30 x 25 | 1.10 | 1.54 | 0.546 | 0.27 | EETXB2E271DA |
| 330 | 22 x 40 | 1.20 | 1.68 | 0.447 | 0.22 | EETXB2E331BA |
| | 25 x 35 | 1.20 | 1.68 | 0.447 | 0.22 | EETXB2E331CA |
| | 30 x 25 | 1.20 | 1.68 | 0.447 | 0.22 | EETXB2E331DA |
| 390 | 22 x 45 | 1.30 | 1.82 | 0.378 | 0.19 | EETXB2E391BA |
| | 25 x 35 | 1.30 | 1.82 | 0.378 | 0.19 | EETXB2E391CA |
| | 30 x 30 | 1.30 | 1.82 | 0.378 | 0.19 | EETXB2E391DA |
| 470 | 25 x 45 | 1.40 | 1.96 | 0.314 | 0.16 | EETXB2E471CA |
| | 30 x 35 | 1.40 | 1.96 | 0.314 | 0.16 | EETXB2E471DA |
| | 35 x 30 | 1.40 | 1.96 | 0.314 | 0.16 | EETXB2E471EA |
| 560 | 25 x 50 | 1.50 | 2.10 | 0.263 | 0.13 | EETXB2E561CA |
| | 30 x 35 | 1.50 | 2.10 | 0.263 | 0.13 | EETXB2E561DA |
| | 35 x 30 | 1.50 | 2.10 | 0.263 | 0.13 | EETXB2E561EA |
| 680 | 30 x 45 | 1.70 | 2.38 | 0.217 | 0.12 | EETXB2E681DA |
| | 35 x 35 | 1.70 | 2.38 | 0.217 | 0.12 | EETXB2E681EA |
| 820 | 30 x 50 | 2.00 | 2.80 | 0.180 | 0.10 | EETXB2E821DA |
| | 35 x 40 | 2.00 | 2.80 | 0.180 | 0.10 | EETXB2E821EA |
| 1000 | 35 x 45 | 2.20 | 3.08 | 0.177 | 0.10 | EETXB2E102EA |
| | 35 x 50 | 2.30 | 3.22 | 0.147 | 0.09 | EETXB2E122EA |
| 315 VDC Working, 365 VDC Surge | | | | | | |
| 82 | 22 x 25 | 0.64 | 0.90 | 1.797 | 0.90 | EETXB2F820BA |
| 100 | 22 x 30 | 0.69 | 0.97 | 1.474 | 0.74 | EETXB2F101BA |
| 120 | 22 x 30 | 0.75 | 1.05 | 1.228 | 0.61 | EETXB2F121BA |
| | 25 x 25 | 0.75 | 1.05 | 1.228 | 0.61 | EETXB2F121CA |
| 150 | 22 x 35 | 0.82 | 1.15 | 0.982 | 0.49 | EETXB2F151BA |
| | 25 x 30 | 0.82 | 1.15 | 0.982 | 0.49 | EETXB2F151CA |
| | 30 x 25 | 0.82 | 1.15 | 0.982 | 0.49 | EETXB2F151DA |
| 180 | 22 x 40 | 0.90 | 1.26 | 0.819 | 0.41 | EETXB2F181BA |
| | 25 x 35 | 0.90 | 1.26 | 0.819 | 0.41 | EETXB2F181CA |
| | 30 x 25 | 0.90 | 1.26 | 0.819 | 0.41 | EETXB2F181DA |
| 220 | 22 x 45 | 1.00 | 1.40 | 0.737 | 0.37 | EETXB2F221BA |
| | 25 x 40 | 1.00 | 1.40 | 0.737 | 0.37 | EETXB2F221CA |
| | 30 x 30 | 1.00 | 1.40 | 0.737 | 0.37 | EETXB2F221DA |
| 270 | 25 x 45 | 1.10 | 1.54 | 0.600 | 0.30 | EETXB2F271CA |
| | 30 x 35 | 1.10 | 1.54 | 0.600 | 0.30 | EETXB2F271DA |
| | 35 x 30 | 1.10 | 1.54 | 0.600 | 0.30 | EETXB2F271EA |
| 330 | 25 x 50 | 1.20 | 1.68 | 0.491 | 0.25 | EETXB2F331CA |
| | 30 x 40 | 1.20 | 1.68 | 0.491 | 0.25 | EETXB2F331DA |
| | 35 x 30 | 1.20 | 1.68 | 0.491 | 0.25 | EETXB2F331EA |
| 390 | 30 x 45 | 1.30 | 1.82 | 0.453 | 0.23 | EETXB2F391DA |
| | 35 x 35 | 1.30 | 1.82 | 0.453 | 0.23 | EETXB2F391EA |
| 470 | 30 x 50 | 1.40 | 1.96 | 0.376 | 0.19 | EETXB2F471DA |
| | 35 x 40 | 1.40 | 1.96 | 0.376 | 0.19 | EETXB2F471EA |
| 560 | 35 x 45 | 1.50 | 2.10 | 0.316 | 0.16 | EETXB2F561EA |
| 680 | 35 x 50 | 1.70 | 2.38 | 0.260 | 0.14 | EETXB2F681EA |
| 350 VDC Working, 400 VDC Surge | | | | | | |
| 82 | 22 x 25 | 0.64 | 0.90 | 1.797 | 0.90 | EETXB2V820BA |
| 100 | 22 x 30 | 0.69 | 0.97 | 1.474 | 0.74 | EETXB2V101BA |
| 120 | 22 x 35 | 0.75 | 1.05 | 1.228 | 0.61 | EETXB2V121BA |
| | 25 x 30 | 0.75 | 1.05 | 1.228 | 0.61 | EETXB2V121CA |
| 350 VDC Working, 400 VDC Surge (continued) | | | | | | |
| 150 | 22 x 40 | 0.82 | 1.15 | 0.982 | 0.49 | EETXB2V151BA |
| 180 | 25 x 35 | 0.82 | 1.15 | 0.982 | 0.49 | EETXB2V151CA |
| | 30 x 25 | 0.82 | 1.15 | 0.982 | 0.49 | EETXB2V151DA |
| | 22 x 45 | 0.90 | 1.26 | 0.819 | 0.41 | EETXB2V181BA |
| 220 | 25 x 35 | 0.90 | 1.26 | 0.819 | 0.41 | EETXB2V181CA |
| | 30 x 30 | 0.90 | 1.26 | 0.819 | 0.41 | EETXB2V181DA |
| | 22 x 50 | 1.00 | 1.40 | 1.40 | 0.737 | EETXB2V221BA |
| 270 | 25 x 40 | 1.00 | 1.40 | 1.40 | 0.737 | EETXB2V221CA |
| | 30 x 35 | 1.00 | 1.40 | 1.40 | 0.737 | EETXB2V221DA |
| | 35 x 30 | 1.00 | 1.40 | 1.40 | 0.737 | EETXB2V221EA |
| 330 | 30 x 45 | 1.20 | 1.68 | 1.68 | 0.491 | EETXB2V331DA |
| | 35 x 40 | 1.20 | 1.68 | 1.68 | 0.491 | EETXB2V331EA |
| | 35 x 30 | 1.20 | 1.68 | 1.68 | 0.491 | EETXB2V331EA |
| 390 | 30 x 45 | 1.30 | 1.82 | 0.453 | 0.23 | EETXB2V391DA |
| | 35 x 35 | 1.30 | 1.82 | 0.453 | 0.23 | EETXB2V391EA |
| | 35 x 30 | 1.30 | 1.82 | 0.453 | 0.23 | EETXB2V391EA |
| 470 | 30 x 50 | 1.40 | 1.96 | 0.376 | 0.19 | EETXB2V471DA |
| | 35 x 40 | 1.40 | 1.96 | 0.376 | 0.19 | EETXB2V471EA |
| 560 | 35 x 45 | 1.50 | 2.10 | 0.316 | 0.16 | EETXB2V561EA |
| 680 | 35 x 50 | 1.70 | 2.38 | 0.260 | 0.14 | EETXB2V681EA |
| 720 | 22 x 25 | 0.75 | 1.05 | 1.228 | 0.61 | EETXB2V121CA |
| | 25 x 30 | 0.75 | 1.05 | 1.228 | 0.61 | EETXB2V121DA |
| | 30 x 30 | 0.75 | 1.05 | 1.228 | 0.61 | EETXB2V121EA |
| 780 | 22 x 30 | 0.82 | 1.15 | 1.228 | 0.61 | EETXB2V181CA |
| | 25 x 35 | 0.82 | 1.15 | 1.228 | 0.61 | EETXB2V181DA |
| | 30 x 30 | 0.82 | 1.15 | 1.228 | 0.61 | EETXB2V181EA |
| 820 | 22 x 35 | 0.90 | 1.26 | 1.40 | 0.737 | EETXB2V221CA |
| | 25 x 40 | 0.90 | 1.26 | 1.40 | 0.737 | EETXB2V221DA |
| | 30 x 30 | 0.90 | 1.26 | 1.40 | 0.737 | EETXB2V221EA |
| 860 | 22 x 40 | 0.98 | 1.34 | 1.40 | 0.737 | EETXB2V261CA |
| | 25 x 45 | 0.98 | 1.34 | 1.40 | 0.737 | EETXB2V261DA |
| | 30 x 35 | 0.98 | 1.34 | 1.40 | 0.737 | EETXB2V261EA |
| 900 | 22 x 45 | 1.06 | 1.42 | 1.40 | 0.737 | EETXB2V301CA |
| | 25 x 50 | 1.06 | 1.42 | 1.40 | 0.737 | EETXB2V301DA |
| | 30 x 35 | 1.06 | 1.42 | 1.40 | 0.737 | EETXB2V301EA |
| 940 | 22 x 50 | 1.14 | 1.50 | 1.40 | 0.737 | EETXB2V341CA |
| | 25 x 55 | 1.14 | 1.50 | 1.40 | 0.737 | EETXB2V341DA |
| | 30 x 40 | 1.14 | 1.50 | 1.40 | 0.737 | EETXB2V341EA |
| 980 | 22 x 55 | 1.22 | 1.58 | 1.40 | 0.737 | EETXB2V381CA |
| | 25 x 60 | 1.22 | 1.58 | 1.40 | 0.737 | EETXB2V381DA |
| | 30 x 45 | 1.22 | 1.58 | 1.40 | 0.737 | EETXB2V381EA |
| 1020 | 22 x 60 | 1.30 | 1.66 | 1.40 | 0.737 | EETXB2V421CA |
| | 25 x 65 | 1.30 | 1.66 | 1.40 | 0.737 | EETXB2V421DA |
| | 30 x 50 | 1.30 | 1.66 | 1.40 | 0.737 | EETXB2V421EA |
| 1060 | 22 x 65 | 1.38 | 1.74 | 1.40 | 0.737 | EETXB2V461CA |
| | 25 x 70 | 1.38 | 1.74 | 1.40 | 0.737 | EETXB2V461DA |
| | 30 x 55 | 1.38 | 1.74 | 1.40 | 0.737 | EETXB2V461EA |
| 1100 | 22 x 70 | 1.46 | 1.82 | 1.40 | 0.737 | EETXB2V501CA |
| | 25 x 75 | 1.46 | 1.82 | 1.40 | 0.737 | EETXB2V501DA |
| | 30 x 60 | 1.46 | 1.82 | 1.40 | 0.737 | EETXB2V501EA |
| 1140 | 22 x 75 | 1.54 | 1.90 | 1.40 | 0.737 | EETXB2V541CA |
| | 25 x 80 | 1.54 | 1.90 | 1.40 | 0.737 | EETXB2V541DA |
| | 30 x 65 | 1.54 | 1.90 | 1.40 | 0.737 | EETXB2V541EA |
| 1180 | 22 x 80 | 1.62 | 1.98 | 1.40 | 0.737 | EETXB2V581CA |
| | 25 x 85 | 1.62 | 1.98 | 1.40 | 0.737 | EETXB2V581DA |
| | 30 x 70 | 1.62 | 1.98 | 1.40 | 0.737 | EETXB2V581EA |
| 1220 | 22 x 85 | 1.70 | 2.06 | 1.40 | 0.737 | EETXB2V621CA |
| | 25 x 90 | 1.70 | 2.06 | 1.40 | 0.737 | EETXB2V621DA |
| | 30 x 75 | 1.70 | 2.06 | 1.40 | 0.737 | EETXB2V621EA |
| 1260 | 22 x 90 | 1.78 | 2.14 | 1.40 | 0.737 | EETXB2V661CA |
| | 25 x 95 | 1.78 | 2.14 | 1.40 | 0.737 | EETXB2V661DA |
| | 30 x 80 | 1.78 | 2.14 | 1.40 | 0.737 | EETXB2V661EA |
| 1300 | 22 x 95 | 1.86 | 2.22 | 1.40 | 0.737 | EETXB2V701CA |
| | 25 x 100 | 1.86 | 2.22 | 1.40 | 0.737 | EETXB2V701DA |
| | 30 x 85 | 1.86 | 2.22 | 1.40 | 0.737 | EETXB2V701EA |
| 1340 | 22 x 100 | 1.94 | 2.30 | 1.40 | 0.737 | EETXB2V741CA |
| | 25 x 105 | 1.94 | 2.30</ | | | |

T Type General Information

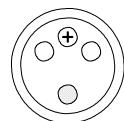
Dimensions

4 Pin Style (35 & 40mm Diameters)

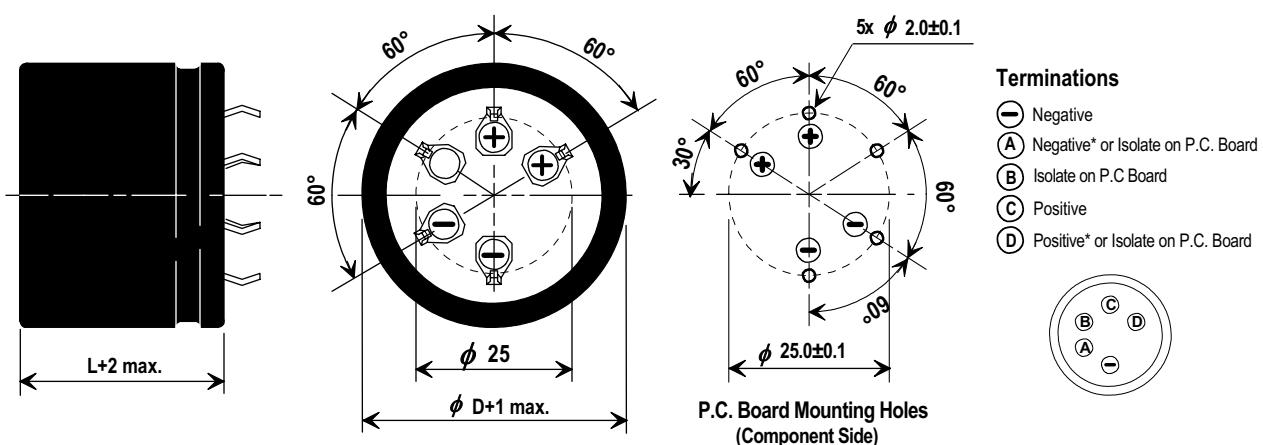


Terminations

- (○) Negative
- (+) Positive
- (○) Isolate on P.C Board (unmarked pins)

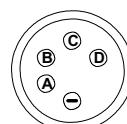


5 Pin Style (40 & 50mm Diameters)

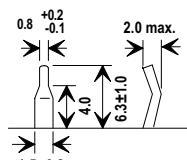


Terminations

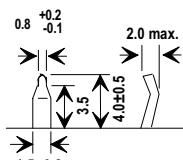
- (-) Negative
- (A) Negative* or Isolate on P.C. Board
- (B) Isolate on P.C Board
- (C) Positive
- (D) Positive* or Isolate on P.C. Board



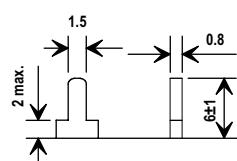
Terminal Dimensions



Snap-in Style (Standard)



4mm Length Snap-in Style
(Check Availability)



Straight Pin with Standoff

Standard Packaging Quantities

| Diameter | Length | Box Quantity |
|----------|--------------------|--------------|
| 35mm | $\leq 50\text{mm}$ | 100 |
| 35mm | $> 50\text{mm}$ | 50 |
| 40mm | All | 50 |
| 50mm | All | 42 |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

T-UP Series 85°C, 3000 hours

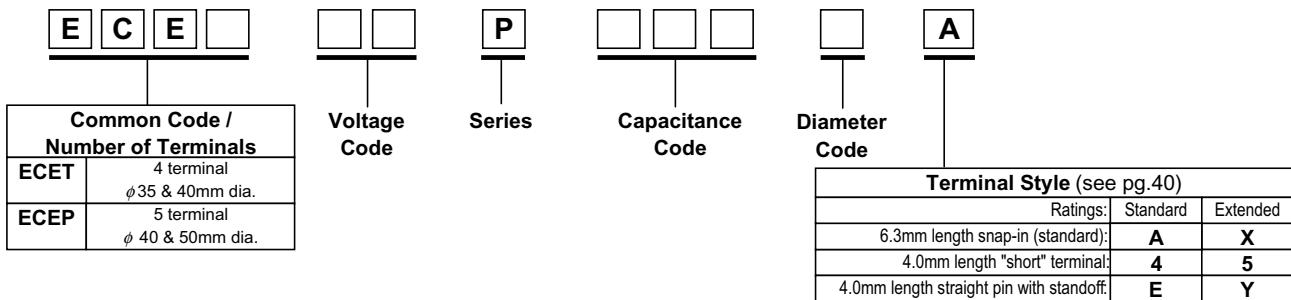
- 4 or 5 terminal mounting provides stability and keyed polarity
- Extended CV ratings
- Endurance rating of 3000 hours at 85°C
- Can vent construction



| Rated Working Voltage: | 16 ~ 250 VDC | | | | | | 350 ~ 500 VDC | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|------|------|------|--------------------------------------|----|----|---------|-----|----|------|-----------|------|------|-----|------|------|------|------------|------|-----|-----|-----|------|-----|-----------------------------|--|--|--|--|
| Operating Temperature: | -40 ~ +85°C | | | | | | -25 ~ +85°C | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal Capacitance: | 1200 ~ 270000µF ($\pm 20\%$ tolerance) | | | | | | 220 ~ 2700µF ($\pm 20\%$ tolerance) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current: | 3√CV (µA) max. after 5 minutes; C = Capacitance in µF, V = WV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple Current Multipliers: | <table border="1"> <thead> <tr> <th>Frequency(Hz):</th> <th>50</th> <th>60</th> <th>100~120</th> <th>500</th> <th>1k</th> <th>10k~</th> </tr> </thead> <tbody> <tr> <td>16~100WV:</td> <td>0.93</td> <td>0.95</td> <td>1.0</td> <td>1.05</td> <td>1.08</td> <td>1.15</td> </tr> <tr> <td>160~500WV:</td> <td>0.75</td> <td>0.8</td> <td>1.0</td> <td>1.2</td> <td>1.25</td> <td>1.4</td> </tr> </tbody> </table> | | | | | | Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k~ | 16~100WV: | 0.93 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 | 160~500WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | Ambient Temperature Factor* | | | | |
| Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k~ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16~100WV: | 0.93 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 160~500WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endurance: | 3000 hours at +85°C with maximum specified ripple current (see page 6) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



T-UP Standard Ratings

| Cap. (µF) | Size (mm) D x L | Max 85°C R.C. (A _{ms}) | | Max 20°C E.S.R. (Ω) | | Panasonic Part Number |
|-------------------------------------------------|--------------------|----------------------------------|--------|---------------------|-------|--------------------------|
| | | 120 Hz | 10kHz- | 120Hz | 20kHz | |
| 16 VDC Working, 20 VDC Surge | | | | | | |
| 47000 | 35 x 40 | 7.47 | 8.59 | 0.021 | 0.019 | ECET1CP473EA |
| 56000 | 40 x 40 | 9.05 | 10.41 | 0.022 | 0.021 | ECET1CP563FA |
| 68000 | 35 x 50 | 9.05 | 10.41 | 0.018 | 0.017 | ECET1CP683EA |
| 82000 | 35 x 63 | 10.02 | 11.52 | 0.016 | 0.015 | ECET1CP823EA |
| | 40 x 50 | 10.29 | 11.83 | 0.016 | 0.015 | ECET1CP823FA |
| 100000 | 35 x 80 | 11.00 | 12.65 | 0.015 | 0.014 | ECET1CP104EA |
| | 40 x 63 | 11.36 | 13.06 | 0.018 | 0.017 | ECET1CP104FA |
| 120000 | 35 x 105 | 12.81 | 14.73 | 0.014 | 0.013 | ECET1CP124EA |
| | 40 x 80 | 12.42 | 14.28 | 0.017 | 0.016 | ECET1CP124FA |
| | 50 x 50 | 13.17 | 15.15 | 0.014 | 0.013 | ECEP1CP124HA |
| 150000 | 50 x 63 | 14.40 | 16.56 | 0.012 | 0.011 | ECEP1CP154HA |
| 180000 | 40 x 105 | 14.85 | 17.08 | 0.013 | 0.012 | ECET1CP184FA |
| | 50 x 80 | 15.69 | 18.04 | 0.011 | 0.010 | ECEP1CP184HA |
| 220000 | 50 x 92 | 16.73 | 19.24 | 0.010 | 0.009 | ECEP1CP224HA |
| 270000 | 50 x 105 | 17.79 | 20.46 | 0.009 | 0.008 | ECEP1CP274HA |
| 25 VDC Working, 32 VDC Surge | | | | | | |
| 33000 | 35 x 40 | 6.84 | 7.87 | 0.019 | 0.015 | ECET1EP333EA |
| 39000 | 40 x 40 | 8.00 | 9.20 | 0.020 | 0.018 | ECET1EP393EA |
| 47000 | 35 x 50 | 8.00 | 9.20 | 0.014 | 0.012 | ECET1EP473EA |
| 56000 | 35 x 63 | 8.85 | 10.18 | 0.015 | 0.013 | ECET1EP563EA |
| | 40 x 50 | 8.96 | 10.30 | 0.016 | 0.015 | ECET1EP563FA |
| 68000 | 35 x 80 | 10.43 | 11.99 | 0.013 | 0.011 | ECET1EP683EA |
| | 40 x 63 | 10.25 | 11.79 | 0.017 | 0.015 | ECET1EP683FA |
| 82000 | 50 x 50 | 12.29 | 14.13 | 0.016 | 0.015 | ECET1EP823HA |
| 100000 | 35 x 105 | 11.97 | 13.77 | 0.010 | 0.008 | ECET1EP104EA |
| | 40 x 80 | 12.08 | 13.89 | 0.012 | 0.011 | ECET1EP104FA |
| | 50 x 63 | 13.45 | 15.47 | 0.014 | 0.013 | ECEP1EP104HA |
| 120000 | 50 x 80 | 15.29 | 17.58 | 0.012 | 0.011 | ECEP1EP124HA |
| 150000 | 40 x 105 | 14.07 | 16.18 | 0.011 | 0.010 | ECET1EP154FA |
| | 50 x 92 | 16.01 | 18.41 | 0.011 | 0.010 | ECEP1EP154HA |
| 180000 | 50 x 105 | 16.89 | 19.42 | 0.010 | 0.009 | ECEP1EP184HA |
| 35 VDC Working, 44 VDC Surge | | | | | | |
| 22000 | 35 x 40 | 6.10 | 7.02 | 0.026 | 0.020 | ECET1VP223EA |
| 27000 | 40 x 40 | 6.84 | 7.87 | 0.021 | 0.017 | ECET1VP273FA |
| 45 VDC Working, 55 VDC Surge (continued) | | | | | | |
| 33000 | 35 x 50 | 7.15 | 8.22 | 0.018 | 0.014 | ECET1VP333EA |
| 39000 | 35 x 63 | 7.94 | 9.13 | 0.015 | 0.012 | ECET1VP393EA |
| | 40 x 50 | 7.98 | 9.18 | 0.017 | 0.014 | ECET1VP393FA |
| 47000 | 35 x 80 | 9.53 | 10.96 | 0.014 | 0.011 | ECET1VP473EA |
| | 40 x 63 | 9.58 | 11.02 | 0.016 | 0.013 | ECET1VP473FA |
| 56000 | 40 x 80 | 10.30 | 11.85 | 0.015 | 0.012 | ECET1VP563FA |
| | 50 x 50 | 10.94 | 12.58 | 0.015 | 0.012 | ECEP1VP563HA |
| 68000 | 35 x 105 | 10.62 | 12.21 | 0.010 | 0.008 | ECET1VP683EA |
| | 50 x 63 | 11.93 | 13.72 | 0.013 | 0.011 | ECEP1VP683HA |
| 82000 | 40 x 105 | 12.02 | 13.82 | 0.012 | 0.009 | ECET1VP823FA |
| | 50 x 80 | 13.06 | 15.02 | 0.012 | 0.010 | ECEP1VP823HA |
| 100000 | 50 x 92 | 13.97 | 16.07 | 0.011 | 0.009 | ECEP1VP104HA |
| 120000 | 50 x 105 | 14.86 | 17.09 | 0.010 | 0.008 | ECEP1VP124HA |
| 55 VDC Working, 63 VDC Surge | | | | | | |
| 15000 | 35 x 40 | 6.44 | 7.41 | 0.028 | 0.021 | ECET1HP153EA |
| 18000 | 40 x 40 | 6.94 | 7.98 | 0.023 | 0.017 | ECET1HP183FA |
| 22000 | 35 x 50 | 7.57 | 8.71 | 0.021 | 0.017 | ECET1HP223EA |
| 27000 | 35 x 63 | 8.31 | 9.56 | 0.018 | 0.015 | ECET1HP223FA |
| | 40 x 50 | 8.12 | 9.34 | 0.018 | 0.015 | ECET1HP273FA |
| 33000 | 35 x 80 | 9.23 | 10.61 | 0.015 | 0.012 | ECET1HP333EA |
| | 40 x 63 | 9.10 | 10.47 | 0.018 | 0.014 | ECET1HP333FA |
| | 50 x 50 | 10.48 | 12.05 | 0.018 | 0.014 | ECEP1HP333HA |
| 39000 | 40 x 80 | 10.12 | 11.64 | 0.015 | 0.012 | ECET1HP393FA |
| 47000 | 35 x 105 | 10.27 | 11.81 | 0.014 | 0.011 | ECET1HP473EA |
| | 50 x 63 | 11.54 | 13.27 | 0.013 | 0.010 | ECEP1HP473HA |
| 56000 | 40 x 105 | 11.47 | 13.19 | 0.012 | 0.009 | ECET1HP563FA |
| | 50 x 80 | 12.46 | 14.33 | 0.012 | 0.009 | ECEP1HP563HA |
| 68000 | 50 x 92 | 13.17 | 15.15 | 0.011 | 0.009 | ECEP1HP683HA |
| 82000 | 50 x 105 | 13.87 | 15.95 | 0.011 | 0.008 | ECEP1HP823HA |
| 63 VDC Working, 79 VDC Surge | | | | | | |
| 10000 | 35 x 40 | 6.52 | 7.50 | 0.041 | 0.033 | ECET1JP103EA |
| 12000 | 35 x 50 | 7.15 | 8.22 | 0.035 | 0.028 | ECET1JP123EA |
| | 40 x 40 | 7.15 | 8.22 | 0.035 | 0.028 | ECET1JP123FA |
| 15000 | 35 x 63 | 7.71 | 8.87 | 0.028 | 0.022 | ECET1JP153EA |

T-UP Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max. 85°C R.C. (A_{rms}) | | Max. 20°C E.S.R. (Ω) | | Panasonic Part Number |
|--------------------|--------------------|------------------------------|--------|-------------------------------|-------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |

63 VDC Working, 79 VDC Surge (continued)

| | | | | | | |
|-------|----------|-------|-------|-------|-------|--------------|
| 15000 | 40 x 50 | 7.53 | 8.66 | 0.033 | 0.027 | ECET1JP153FA |
| 18000 | 35 x 80 | 9.41 | 10.82 | 0.023 | 0.018 | ECET1JP183EA |
| | 40 x 63 | 9.25 | 10.64 | 0.028 | 0.022 | ECET1JP183FA |
| 27000 | 35 x 105 | 10.38 | 11.94 | 0.015 | 0.012 | ECET1JP273EA |
| | 40 x 80 | 9.97 | 11.47 | 0.018 | 0.015 | ECET1JP273FA |
| | 50 x 50 | 10.86 | 12.49 | 0.018 | 0.015 | ECET1JP273HA |
| 33000 | 40 x 105 | 11.76 | 13.52 | 0.015 | 0.012 | ECET1JP333FA |
| | 50 x 63 | 11.67 | 13.42 | 0.017 | 0.013 | ECEP1JP333HA |
| 47000 | 50 x 80 | 12.78 | 14.70 | 0.013 | 0.010 | ECEP1JP473HA |
| 51000 | 50 x 92 | 13.34 | 15.34 | 0.012 | 0.010 | ECEP1JP513HA |
| 56000 | 50 x 105 | 13.93 | 16.02 | 0.012 | 0.009 | ECEP1JP563HA |

80 VDC Working, 100 VDC Surge

| | | | | | | |
|-------|----------|-------|-------|-------|-------|--------------|
| 6800 | 35 x 40 | 5.16 | 5.93 | 0.046 | 0.035 | ECET1KP682EA |
| 8200 | 35 x 50 | 5.83 | 6.70 | 0.038 | 0.029 | ECET1KP822EA |
| | 40 x 40 | 5.83 | 6.70 | 0.038 | 0.029 | ECET1KP822FA |
| 10000 | 35 x 63 | 6.38 | 7.34 | 0.033 | 0.025 | ECET1KP103EA |
| | 40 x 50 | 6.56 | 7.54 | 0.033 | 0.025 | ECET1KP103FA |
| 12000 | 35 x 80 | 6.92 | 7.96 | 0.028 | 0.021 | ECET1KP123EA |
| | 40 x 63 | 7.29 | 8.38 | 0.028 | 0.021 | ECET1KP123FA |
| 15000 | 40 x 80 | 8.93 | 10.27 | 0.024 | 0.018 | ECET1KP153FA |
| 18000 | 50 x 50 | 10.00 | 11.50 | 0.023 | 0.017 | ECEP1KP183HA |
| 22000 | 35 x 105 | 9.86 | 11.34 | 0.015 | 0.011 | ECET1KP223EA |
| | 50 x 63 | 11.08 | 12.74 | 0.019 | 0.014 | ECET1KP223HA |
| 27000 | 40 x 105 | 11.35 | 13.05 | 0.015 | 0.012 | ECET1KP273EA |
| | 50 x 80 | 12.33 | 14.18 | 0.015 | 0.012 | ECEP1KP273HA |
| 33000 | 50 x 92 | 13.37 | 15.38 | 0.014 | 0.010 | ECEP1KP333HA |
| 39000 | 50 x 105 | 14.34 | 16.49 | 0.013 | 0.010 | ECEP1KP393HA |

100 VDC Working, 125 VDC Surge

| | | | | | | |
|-------|----------|-------|-------|-------|-------|--------------|
| 4700 | 35 x 40 | 5.13 | 5.90 | 0.071 | 0.049 | ECET2AP472EA |
| 5600 | 40 x 40 | 5.75 | 6.61 | 0.059 | 0.044 | ECET2AP562FA |
| 6800 | 35 x 50 | 6.60 | 7.59 | 0.049 | 0.037 | ECET2AP682EA |
| 8200 | 35 x 63 | 7.05 | 8.11 | 0.040 | 0.030 | ECET2AP822EA |
| | 40 x 50 | 7.28 | 8.37 | 0.040 | 0.030 | ECET2AP822FA |
| 10000 | 35 x 80 | 7.74 | 8.90 | 0.033 | 0.025 | ECET2AP103EA |
| | 40 x 63 | 7.97 | 9.17 | 0.033 | 0.025 | ECET2AP103FA |
| | 50 x 50 | 8.82 | 10.14 | 0.033 | 0.025 | ECEP2AP103HA |
| 12000 | 35 x 105 | 8.57 | 9.86 | 0.028 | 0.021 | ECET2AP123EA |
| | 40 x 80 | 8.65 | 9.95 | 0.028 | 0.021 | ECET2AP123FA |
| 15000 | 40 x 105 | 10.12 | 11.64 | 0.022 | 0.017 | ECEP2AP153EA |
| | 50 x 63 | 10.07 | 11.58 | 0.022 | 0.017 | ECEP2AP153HA |
| 18000 | 50 x 80 | 11.00 | 12.65 | 0.018 | 0.014 | ECEP2AP183HA |
| 22000 | 50 x 92 | 11.76 | 13.52 | 0.015 | 0.011 | ECEP2AP223HA |
| 27000 | 50 x 105 | 12.53 | 14.41 | 0.014 | 0.010 | ECEP2AP273HA |

160 VDC Working, 200 VDC Surge

| | | | | | | |
|-------|----------|-------|-------|-------|-------|--------------|
| 2200 | 35 x 40 | 4.78 | 6.69 | 0.098 | 0.049 | ECET2CP222EA |
| 2700 | 35 x 50 | 5.45 | 7.63 | 0.080 | 0.044 | ECET2CP272EA |
| | 40 x 40 | 5.45 | 7.63 | 0.080 | 0.044 | ECET2CP272FA |
| 3300 | 35 x 63 | 6.29 | 8.81 | 0.065 | 0.036 | ECET2CP332EA |
| | 40 x 50 | 6.29 | 8.81 | 0.065 | 0.036 | ECET2CP332FA |
| 3900 | 35 x 80 | 7.27 | 10.18 | 0.055 | 0.030 | ECET2CP392EA |
| | 40 x 63 | 7.27 | 10.18 | 0.055 | 0.030 | ECET2CP392FA |
| 5600 | 40 x 80 | 8.32 | 11.65 | 0.038 | 0.021 | ECET2CP562FA |
| | 50 x 50 | 8.25 | 11.55 | 0.038 | 0.021 | ECEP2CP562HA |
| 6800 | 35 x 105 | 9.05 | 12.67 | 0.032 | 0.017 | ECET2CP682EA |
| 8200 | 50 x 63 | 8.93 | 12.50 | 0.026 | 0.014 | ECEP2CP822HA |
| 10000 | 40 x 105 | 9.86 | 13.80 | 0.022 | 0.012 | ECET2CP103EA |
| | 50 x 80 | 9.80 | 13.72 | 0.022 | 0.012 | ECEP2CP103HA |
| 12000 | 50 x 92 | 12.93 | 18.10 | 0.018 | 0.010 | ECEP2CP123HA |
| 15000 | 50 x 105 | 14.10 | 19.74 | 0.014 | 0.008 | ECEP2CP153HA |

200 VDC Working, 250 VDC Surge

| | | | | | | |
|------|----------|------|-------|-------|-------|--------------|
| 1800 | 35 x 40 | 4.32 | 6.05 | 0.120 | 0.060 | ECET2DP182EA |
| 2200 | 35 x 50 | 4.92 | 6.89 | 0.098 | 0.054 | ECET2DP222EA |
| | 40 x 40 | 4.92 | 6.89 | 0.098 | 0.054 | ECET2DP222FA |
| 2700 | 35 x 63 | 5.50 | 7.70 | 0.080 | 0.044 | ECET2DP272EA |
| | 40 x 50 | 5.41 | 7.57 | 0.080 | 0.044 | ECET2DP272FA |
| 3300 | 35 x 80 | 6.44 | 9.02 | 0.065 | 0.036 | ECET2DP332EA |
| | 40 x 63 | 6.32 | 8.85 | 0.065 | 0.036 | ECET2DP332FA |
| 3900 | 35 x 80 | 6.60 | 9.24 | 0.055 | 0.030 | ECET2DP392EA |
| | 40 x 63 | 6.81 | 9.53 | 0.055 | 0.030 | ECET2DP392FX |
| | 50 x 50 | 8.22 | 11.51 | 0.055 | 0.030 | ECEP2DP392HA |
| 4700 | 40 x 80 | 8.38 | 11.73 | 0.046 | 0.025 | ECET2DP472FA |
| | 50 x 63 | 9.32 | 13.05 | 0.046 | 0.025 | ECEP2DP472HA |
| 5600 | 35 x 105 | 8.90 | 12.46 | 0.038 | 0.021 | ECET2DP562EA |
| | 50 x 63 | 9.57 | 13.40 | 0.038 | 0.021 | ECEP2DP562HA |

| Cap. (μ F) | Size (mm) D x L | Max. 85°C R.C. (A_{rms}) | | Max. 20°C E.S.R. (Ω) | | Panasonic Part Number |
|-----------------|--------------------|------------------------------|--------|-------------------------------|-------|-----------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |

200 VDC Working, 250 VDC Surge (continued)

| | | | | | | |
|-------|----------|-------|-------|-------|-------|--------------|
| 6800 | 40 x 105 | 8.65 | 12.11 | 0.032 | 0.017 | ECET2DP682FA |
| | 50 x 80 | 11.41 | 15.97 | 0.032 | 0.017 | ECEP2DP682HA |
| 7500 | 50 x 92 | 12.28 | 17.19 | 0.029 | 0.016 | ECEP2DP752HA |
| 8200 | 50 x 92 | 13.02 | 18.23 | 0.026 | 0.014 | ECEP2DP822HX |
| | 50 x 105 | 13.16 | 18.42 | 0.026 | 0.014 | ECEP2DP822HA |
| 10000 | 50 x 105 | 14.17 | 19.84 | 0.021 | 0.011 | ECEP2DP103HA |

250 VDC Working, 300 VDC Surge

| | | | | | | |
|------|----------|-------|-------|-------|-------|--------------|
| 1200 | 35 x 40 | 3.32 | 4.65 | 0.166 | 0.083 | ECET2EP122EA |
| 1500 | 35 x 50 | 4.04 | 5.66 | 0.133 | 0.066 | ECET2EP152EA |
| | 40 x 40 | 4.04 | 5.66 | 0.133 | 0.066 | ECET2EP152FA |
| 1800 | 35 x 63 | 4.49 | 6.29 | 0.111 | 0.055 | ECET2EP182EA |
| | 40 x 50 | 4.49 | 6.29 | 0.111 | 0.055 | ECET2EP182FA |
| 2200 | 35 x 63 | 4.70 | 6.58 | 0.090 | 0.045 | ECET2EP222EX |
| | 35 x 80 | 4.94 | 6.92 | 0.090 | 0.045 | ECET2EP222EA |
| | 40 x 63 | 4.94 | 6.92 | 0.090 | 0.045 | ECET2EP222FA |
| 2700 | 35 x 80 | 5.63 | 7.88 | 0.074 | 0.037 | ECET2EP272EA |
| | 40 x 63 | 5.81 | 8.13 | 0.074 | 0.037 | ECET2EP272FX |
| 3300 | 40 x 80 | 7.00 | 9.80 | 0.060 | 0.030 | ECET2EP332FA |
| | 50 x 50 | 7.22 | 10.11 | 0.060 | 0.030 | ECEP2EP332HX |
| | 50 x 63 | 7.79 | 10.91 | 0.060 | 0.030 | ECEP2EP332HA |
| 3900 | 35 x 105 | 7.47 | 10.46 | 0.051 | 0.026 | ECET2EP392EA |
| | 40 x 80 | 7.36 | 10.30 | 0.051 | 0.026 | ECET2EP392FA |
| | 50 x 63 | 8.19 | 11.47 | 0.051 | 0.026 | ECET2EP392HA |
| 4700 | 40 x 105 | 8.88 | 12.43 | 0.042 | 0.021 | ECET2EP472EA |
| | 50 x 80 | 9.65 | 13.51 | 0.042 | 0.021 | ECEP2EP472HA |
| 5600 | 50 x 80 | 14.34 | 20.08 | 0.036 | 0.018 | ECEP2EP562HX |
| | 50 x 92 | 10.80 | 15.12 | 0.036 | 0.018 | ECEP2EP562HA |
| 6800 | 50 x 105 | 12.16 | 17.02 | 0.029 | 0.015 | ECEP2EP682HA |
| 7500 | 50 x 105 | 12.56 | 17.58 | 0.026 | 0.014 | ECEP2EP752HA |

350 VDC Working, 400 VDC Surge

| | | | | | | |
|------|---------|------|------|-------|-------|--------------|
| 470 | 35 x 40 | 2.40 | 3.36 | 0.388 | 0.175 | ECET2VP471EA |
| 680 | 35 x 50 | 2.96 | 4.14 | 0.366 | 0.165 | ECET2VP681EA |
| | 40 x 40 | 2.96 | 4.14 | 0.366 | 0.165 | ECET2VP681FA |
| 1000 | 35 x 63 | 3.80 | | | | |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

T-UP Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max. 85°C R.C. (A_{rms}) | | Max. 20°C E.S.R. (Ω) | | Panasonic Part Number |
|---------------------------------------------------|--------------------|------------------------------|--------|-------------------------------|-------|--------------------------|
| | | 120 Hz | 10kHz~ | 120Hz | 20kHz | |
| 400 VDC Working, 450 VDC Surge (continued) | | | | | | |
| 560 | 35 x 63 | 2.90 | 4.06 | 0.355 | 0.195 | ECET2WP561EA |
| 680 | 35 x 80 | 3.17 | 4.44 | 0.293 | 0.161 | ECET2WP681EA |
| | 40 x 50 | 3.15 | 4.41 | 0.293 | 0.161 | ECET2WP681FA |
| 820 | 35 x 80 | 3.78 | 5.29 | 0.243 | 0.133 | ECET2WP821EA |
| | 40 x 63 | 3.70 | 5.18 | 0.243 | 0.133 | ECET2WP821FA |
| | 50 x 50 | 4.31 | 6.03 | 0.263 | 0.145 | ECEP2WP821HA |
| 1000 | 40 x 80 | 4.21 | 5.89 | 0.216 | 0.119 | ECET2WP102FA |
| | 50 x 63 | 4.96 | 6.94 | 0.216 | 0.119 | ECEP2WP102HA |
| 1200 | 35 x 105 | 4.80 | 6.72 | 0.166 | 0.091 | ECET2WP122EA |
| | 40 x 80 | 4.84 | 6.78 | 0.166 | 0.091 | ECET2WP122FA |
| | 50 x 63 | 5.43 | 7.60 | 0.180 | 0.099 | ECEP2WP122HX |
| | 50 x 80 | 5.71 | 7.99 | 0.180 | 0.099 | ECEP2WP122HA |
| 1500 | 40 x 105 | 5.81 | 8.13 | 0.133 | 0.073 | ECET2WP152FA |
| | 50 x 80 | 6.15 | 8.61 | 0.144 | 0.079 | ECEP2WP152HX |
| | 50 x 92 | 6.55 | 9.17 | 0.144 | 0.079 | ECEP2WP152HA |
| 1800 | 50 x 92 | 7.02 | 9.83 | 0.120 | 0.066 | ECEP2WP182HX |
| | 50 x 105 | 7.36 | 10.30 | 0.120 | 0.066 | ECEP2WP182HA |
| 500 VDC Working, 550 VDC Surge | | | | | | |
| 270 | 35 x 40 | 1.76 | 2.46 | 0.614 | 0.276 | ECET2HP271EA |
| 330 | 40 x 40 | 2.16 | 3.02 | 0.502 | 0.276 | ECET2HP331FA |
| 390 | 35 x 50 | 2.22 | 3.11 | 0.425 | 0.234 | ECET2HP391EA |
| 470 | 35 x 63 | 2.58 | 3.61 | 0.353 | 0.194 | ECET2HP471EA |
| | 40 x 50 | 2.70 | 3.78 | 0.353 | 0.194 | ECET2HP471FA |
| 560 | 40 x 63 | 3.11 | 4.35 | 0.326 | 0.179 | ECET2HP561FA |
| | 50 x 50 | 3.52 | 4.93 | 0.355 | 0.195 | ECEP2HP561HA |
| 680 | 35 x 80 | 3.21 | 4.49 | 0.244 | 0.134 | ECET2HP681EA |
| | 50 x 50 | 3.88 | 5.43 | 0.293 | 0.161 | ECEP2HP681HX |
| | 50 x 63 | 4.07 | 5.70 | 0.293 | 0.161 | ECEP2HP681HA |
| 820 | 35 x 105 | 3.97 | 5.56 | 0.202 | 0.111 | ECET2HP821EA |
| | 40 x 80 | 3.88 | 5.43 | 0.222 | 0.122 | ECET2HP821FA |
| | 50 x 63 | 4.47 | 6.26 | 0.222 | 0.122 | ECEP2HP821HA |
| 1000 | 50 x 80 | 5.05 | 7.07 | 0.199 | 0.109 | ECEP2HP102HA |
| 1200 | 40 x 105 | 5.90 | 8.26 | 0.152 | 0.084 | ECET2HP122FA |
| | 50 x 80 | 5.35 | 7.49 | 0.166 | 0.091 | ECEP2HP122HX |
| | 50 x 92 | 5.74 | 8.04 | 0.166 | 0.091 | ECEP2HP122HA |
| 1500 | 50 x 105 | 6.65 | 9.31 | 0.144 | 0.079 | ECEP2HP152HA |

T-HA Series 105°C, 3000 hours

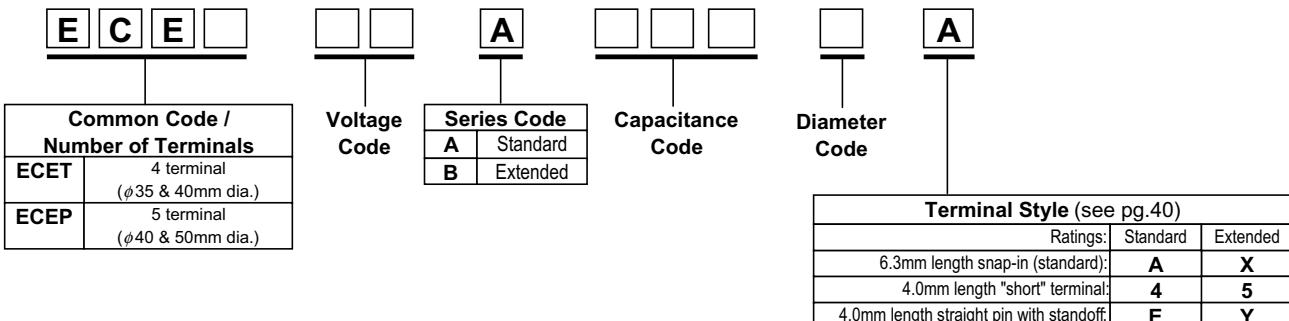
- Long Life - endurance rating of 3000 hours at 105°C
- 4 or 5 terminal mounting provides stability and keyed polarity
- Extended higher CV ratings
- Can vent construction



| Rated Working Voltage: | 16 ~ 250 VDC | | | | | | 350 ~ 450 VDC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|------|-------|------|-----------------------------|----|----|---------|-----|----|------|-----------|------|------|-----|------|------|------|------------|------|-----|-----|-----|------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|-----------------------------|--|--|--|--|--|----------------------|-------|------|------|------|-------|-------------|-----|-----|-----|-----|------|
| Operating Temperature: | -40 ~ +105°C | | | | | | -25 ~ +105°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal Capacitance: | 1000~250000μF (±20% tolerance) | | | | | | 330~2700μF (±20% tolerance) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current: | 3√CV (μA) max. after 5 minutes; C = Capacitance in μF, V = WV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple Current Multipliers: | <table border="1"> <thead> <tr> <th>Frequency(Hz):</th> <th>50</th> <th>60</th> <th>100~120</th> <th>500</th> <th>1k</th> <th>10k~</th> </tr> </thead> <tbody> <tr> <td>16~100WV:</td> <td>0.93</td> <td>0.95</td> <td>1.0</td> <td>1.05</td> <td>1.08</td> <td>1.15</td> </tr> <tr> <td>160~450WV:</td> <td>0.75</td> <td>0.8</td> <td>1.0</td> <td>1.2</td> <td>1.25</td> <td>1.4</td> </tr> </tbody> </table> | | | | | | Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k~ | 16~100WV: | 0.93 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 | 160~450WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | <table border="1"> <thead> <tr> <th colspan="6">Ambient Temperature Factor*</th> </tr> <tr> <th>Ambient Temperature:</th> <th>105°C</th> <th>85°C</th> <th>70°C</th> <th>60°C</th> <th>≤45°C</th> </tr> </thead> <tbody> <tr> <td>Multiplier:</td> <td>1.0</td> <td>1.7</td> <td>2.0</td> <td>2.2</td> <td>2.35</td> </tr> </tbody> </table> | | | | | | Ambient Temperature Factor* | | | | | | Ambient Temperature: | 105°C | 85°C | 70°C | 60°C | ≤45°C | Multiplier: | 1.0 | 1.7 | 2.0 | 2.2 | 2.35 |
| Frequency(Hz): | 50 | 60 | 100~120 | 500 | 1k | 10k~ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16~100WV: | 0.93 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 160~450WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambient Temperature Factor* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambient Temperature: | 105°C | 85°C | 70°C | 60°C | ≤45°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiplier: | 1.0 | 1.7 | 2.0 | 2.2 | 2.35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endurance: | 3000 hours at +105°C with maximum specified ripple current (see page 6) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



T-HA Standard Ratings

| Cap. (μF) | Size (mm) D x L | Max 105°C R.C. (A _{ms}) | | Max 20°C ESR (Ω) | | Panasonic Part Number |
|------------------------------|--------------------|-----------------------------------|--------|------------------|-------|--------------------------|
| | | 120 Hz | 10kHz~ | 120Hz | 20kHz | |
| 16 VDC Working, 20 VDC Surge | | | | | | |
| 39000 | 35 x 40 | 5.10 | 5.87 | 0.022 | 0.020 | ECET1CA393EA |
| 47000 | 40 x 40 | 5.50 | 6.33 | 0.020 | 0.018 | ECET1CA473FA |
| 56000 | 35 x 50 | 6.00 | 6.90 | 0.019 | 0.017 | ECET1CA563EA |
| 68000 | 35 x 63 | 6.62 | 7.61 | 0.017 | 0.015 | ECET1CA683EA |
| | 40 x 50 | 7.29 | 8.38 | 0.015 | 0.014 | ECET1CA683FA |
| 82000 | 40 x 63 | 7.66 | 8.81 | 0.017 | 0.015 | ECET1CA823FA |
| 100000 | 35 x 80 | 8.03 | 9.23 | 0.015 | 0.013 | ECET1CA104EA |
| 120000 | 35 x 105 | 8.71 | 10.02 | 0.014 | 0.012 | ECET1CA124EA |
| | 40 x 80 | 8.79 | 10.11 | 0.014 | 0.012 | ECET1CA124FA |
| | 50 x 50 | 9.02 | 10.37 | 0.015 | 0.014 | ECEP1CA124HA |
| 150000 | 40 x 105 | 9.88 | 11.36 | 0.013 | 0.012 | ECET1CA154FA |
| | 50 x 63 | 10.15 | 11.67 | 0.014 | 0.013 | ECEP1CA154HA |
| 180000 | 50 x 80 | 11.02 | 12.67 | 0.013 | 0.012 | ECEP1CA184HA |
| 220000 | 50 x 92 | 11.71 | 13.47 | 0.012 | 0.011 | ECEP1CA224HA |
| 250000 | 50 x 105 | 12.31 | 14.16 | 0.011 | 0.010 | ECEP1CA254HA |
| 35 VDC Working, 44 VDC Surge | | | | | | |
| 18000 | 35 x 40 | 4.30 | 4.95 | 0.028 | 0.021 | ECET1VA183EA |
| 22000 | 35 x 50 | 5.00 | 5.75 | 0.023 | 0.017 | ECET1VA223EA |
| | 40 x 40 | 5.00 | 5.75 | 0.023 | 0.017 | ECET1VA223FA |
| 27000 | 35 x 63 | 5.53 | 6.36 | 0.025 | 0.018 | ECET1VA273EA |
| | 40 x 50 | 5.44 | 6.26 | 0.020 | 0.015 | ECET1VA273FA |
| 33000 | 40 x 63 | 6.61 | 7.60 | 0.019 | 0.014 | ECET1VA333FA |
| 39000 | 35 x 80 | 6.52 | 7.50 | 0.019 | 0.014 | ECET1VA393EA |
| 47000 | 35 x 105 | 8.07 | 9.28 | 0.017 | 0.013 | ECET1VA473EA |
| | 40 x 80 | 7.79 | 8.96 | 0.018 | 0.013 | ECET1VA473FA |
| | 50 x 50 | 8.25 | 9.49 | 0.021 | 0.016 | ECEP1VA473HA |
| 56000 | 50 x 63 | 9.07 | 10.43 | 0.019 | 0.014 | ECEP1VA563HA |
| 68000 | 40 x 105 | 9.27 | 10.66 | 0.016 | 0.012 | ECET1VA683FA |
| | 50 x 80 | 10.07 | 11.58 | 0.017 | 0.013 | ECEP1VA683HA |
| 82000 | 50 x 92 | 10.89 | 12.52 | 0.015 | 0.011 | ECEP1VA823HA |
| 100000 | 50 x 105 | 11.75 | 13.51 | 0.013 | 0.010 | ECEP1VA104HA |
| 25 VDC Working, 32 VDC Surge | | | | | | |
| 27000 | 35 x 40 | 4.80 | 5.52 | 0.018 | 0.017 | ECET1EA273EA |
| 33000 | 35 x 50 | 5.50 | 6.33 | 0.018 | 0.016 | ECET1EA333EA |
| | 40 x 40 | 5.50 | 6.33 | 0.018 | 0.016 | ECET1EA333FA |
| 47000 | 35 x 63 | 6.56 | 7.54 | 0.017 | 0.015 | ECET1EA473EA |
| | 40 x 50 | 6.47 | 7.44 | 0.015 | 0.014 | ECET1EA473FA |
| 56000 | 35 x 80 | 7.25 | 8.34 | 0.015 | 0.013 | ECET1EA563EA |
| | 40 x 63 | 7.17 | 8.25 | 0.014 | 0.013 | ECET1EA563FA |
| 82000 | 35 x 105 | 8.58 | 9.87 | 0.013 | 0.012 | ECET1EA823EA |
| | 40 x 80 | 8.68 | 9.98 | 0.013 | 0.012 | ECET1EA823FA |
| | 50 x 50 | 9.20 | 10.58 | 0.016 | 0.015 | ECEP1EA823HA |
| 100000 | 40 x 105 | 9.76 | 11.22 | 0.012 | 0.010 | ECET1EA104FA |
| | 50 x 63 | 10.02 | 11.52 | 0.015 | 0.013 | ECEP1EA104HA |
| 120000 | 50 x 80 | 10.93 | 12.57 | 0.013 | 0.012 | ECEP1EA124HA |
| 150000 | 50 x 92 | 11.70 | 13.46 | 0.012 | 0.011 | ECEP1EA154HA |
| 180000 | 50 x 105 | 12.42 | 14.28 | 0.010 | 0.009 | ECEP1EA184HA |
| 50 VDC Working, 63 VDC Surge | | | | | | |
| 10000 | 35 x 40 | 4.00 | 4.60 | 0.033 | 0.025 | ECET1HA103EA |
| 15000 | 35 x 50 | 4.80 | 5.52 | 0.022 | 0.018 | ECET1HA153EA |
| | 40 x 40 | 4.80 | 5.52 | 0.022 | 0.018 | ECET1HA153FA |
| 18000 | 35 x 63 | 5.27 | 6.06 | 0.020 | 0.016 | ECET1HA183EA |
| 22000 | 40 x 50 | 5.15 | 5.92 | 0.016 | 0.013 | ECET1HA223FA |
| 27000 | 35 x 80 | 6.16 | 7.08 | 0.015 | 0.012 | ECET1HA273EA |
| | 40 x 63 | 6.05 | 6.96 | 0.015 | 0.012 | ECET1HA273FA |
| 33000 | 35 x 105 | 7.23 | 8.31 | 0.013 | 0.010 | ECET1HA333EA |
| | 50 x 50 | 7.75 | 8.91 | 0.018 | 0.014 | ECEP1HA333HA |
| 39000 | 40 x 80 | 7.55 | 8.68 | 0.014 | 0.011 | ECET1HA393FA |
| | 50 x 63 | 8.40 | 9.66 | 0.016 | 0.013 | ECEP1HA393HA |
| 47000 | 40 x 105 | 8.18 | 9.41 | 0.012 | 0.010 | ECET1HA473FA |
| | 50 x 80 | 9.19 | 10.57 | 0.014 | 0.011 | ECEP1HA473HA |
| 56000 | 50 x 92 | 9.79 | 11.26 | 0.012 | 0.009 | ECEP1HA563HA |
| 68000 | 50 x 105 | 10.42 | 11.98 | 0.011 | 0.009 | ECEP1HA683HA |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

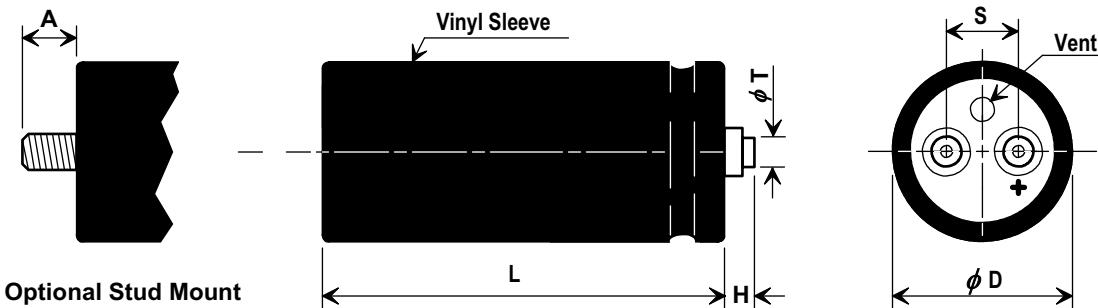
LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

T-HA Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | Max 20°C ESR (Ω) | | Panasonic Part Number | Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | Max 20°C ESR (Ω) | | Panasonic Part Number | | | | | | | |
|---------------------------------------|--------------------|------------------------------|--------|------------------|-------|--------------------------|---------------------------------------------------|--------------------|------------------------------|--------|------------------|-------|--------------------------|---------------------------------------|--|--|--|--|--|--|
| | | 120 Hz | 10kHz~ | 120Hz | 20kHz | | | | 120 Hz | 10kHz~ | 120Hz | 20kHz | | | | | | | | |
| 63 VDC Working, 79 VDC Surge | | | | | | | | | | | | | | | | | | | | |
| 6800 | 35 x 40 | 3.60 | 4.14 | 0.049 | 0.037 | ECET1JA682EA | 2200 | 40 x 63 | 3.68 | 5.15 | 0.098 | 0.064 | ECET2EA222FA | | | | | | | |
| 12000 | 35 x 50 | 4.40 | 5.06 | 0.028 | 0.023 | ECET1JA123EA | | 50 x 50 | 4.35 | 6.09 | 0.098 | 0.064 | ECEP2EA222HA | | | | | | | |
| | 40 x 40 | 4.52 | 5.20 | 0.030 | 0.026 | ECET1JA123FA | 2700 | 35 x 105 | 4.80 | 6.72 | 0.080 | 0.052 | ECET2EA272EA | | | | | | | |
| 15000 | 35 x 63 | 4.92 | 5.66 | 0.024 | 0.021 | ECET1JA153EA | | 50 x 50 | 4.80 | 6.72 | 0.080 | 0.052 | ECEP2EA272HX | | | | | | | |
| | 40 x 50 | 4.80 | 5.52 | 0.027 | 0.023 | ECET1JA153FA | | 50 x 63 | 4.98 | 6.97 | 0.080 | 0.052 | ECEP2EA272HA | | | | | | | |
| 18000 | 35 x 80 | 5.79 | 6.66 | 0.022 | 0.019 | ECET1JA183EA | 3300 | 35 x 105 | 4.86 | 6.80 | 0.065 | 0.042 | ECET2EA332EA | | | | | | | |
| | 40 x 63 | 5.39 | 6.20 | 0.023 | 0.020 | ECET1JA183FA | | 40 x 80 | 4.86 | 6.80 | 0.065 | 0.042 | ECET2EA332FA | | | | | | | |
| 22000 | 50 x 50 | 6.76 | 7.77 | 0.019 | 0.016 | ECEP1JA223HA | | 50 x 63 | 5.48 | 7.67 | 0.065 | 0.042 | ECEP2EA332HA | | | | | | | |
| 27000 | 35 x 105 | 6.53 | 7.51 | 0.017 | 0.014 | ECET1JA273EA | 3900 | 40 x 105 | 5.61 | 7.85 | 0.055 | 0.036 | ECET2EA392FA | | | | | | | |
| | 40 x 80 | 6.59 | 7.58 | 0.017 | 0.014 | ECET1JA273FA | | 50 x 80 | 6.10 | 8.54 | 0.055 | 0.036 | ECEP2EA392HA | | | | | | | |
| | 50 x 63 | 7.34 | 8.44 | 0.017 | 0.014 | ECEP1JA273HA | 4300 | 50 x 92 | 6.67 | 9.34 | 0.050 | 0.033 | ECEP2EA432HA | | | | | | | |
| 33000 | 50 x 80 | 8.00 | 9.20 | 0.015 | 0.013 | ECEP1JA333HA | 4700 | 50 x 92 | 6.93 | 9.70 | 0.046 | 0.030 | ECEP2EA472HA | | | | | | | |
| 39000 | 40 x 105 | 7.53 | 8.66 | 0.014 | 0.012 | ECET1JA393FA | | 50 x 105 | 7.03 | 9.84 | 0.046 | 0.030 | ECEP2EA472HA | | | | | | | |
| | 50 x 92 | 8.48 | 9.75 | 0.014 | 0.012 | ECEP1JA393HA | 5600 | 50 x 105 | 7.67 | 10.74 | 0.039 | 0.025 | ECEP2EA562HA | | | | | | | |
| 47000 | 50 x 105 | 8.99 | 10.34 | 0.012 | 0.010 | ECEP1JA473HA | 250 VDC Working, 300 VDC Surge (continued) | | | | | | | | | | | | | |
| 80 VDC Working, 100 VDC Surge | | | | | | | | | | | | | | 350 VDC Working, 400 VDC Surge | | | | | | |
| 4700 | 35 x 40 | 3.30 | 3.80 | 0.049 | 0.037 | ECET1KA472EA | 470 | 35 x 40 | 2.00 | 2.80 | 0.459 | 0.183 | ECET2VA471EA | | | | | | | |
| 6800 | 35 x 50 | 3.90 | 4.49 | 0.041 | 0.031 | ECET1KA682EA | 680 | 35 x 50 | 2.15 | 3.01 | 0.317 | 0.127 | ECET2VA681EA | | | | | | | |
| | 40 x 40 | 3.90 | 4.49 | 0.041 | 0.031 | ECET1KA682FA | | 40 x 40 | 2.30 | 3.22 | 0.317 | 0.127 | ECET2VA681FA | | | | | | | |
| 8200 | 35 x 63 | 4.39 | 5.05 | 0.036 | 0.027 | ECET1KA822EA | 820 | 35 x 63 | 2.65 | 3.71 | 0.263 | 0.105 | ECET2VA821EA | | | | | | | |
| | 40 x 50 | 4.29 | 4.93 | 0.036 | 0.027 | ECET1KA822FA | | 40 x 50 | 2.65 | 3.71 | 0.263 | 0.105 | ECET2VA821FA | | | | | | | |
| 10000 | 35 x 80 | 4.88 | 5.61 | 0.031 | 0.024 | ECET1KA103EA | 1000 | 50 x 50 | 3.56 | 4.98 | 0.216 | 0.086 | ECEP2VA102HA | | | | | | | |
| | 40 x 63 | 4.73 | 5.44 | 0.033 | 0.025 | ECET1KA103FA | 1200 | 35 x 80 | 3.22 | 4.51 | 0.180 | 0.072 | ECET2VA122EA | | | | | | | |
| 12000 | 50 x 50 | 6.03 | 6.93 | 0.035 | 0.026 | ECEP1KA123HA | | 40 x 63 | 3.22 | 4.51 | 0.180 | 0.072 | ECET2VA122FA | | | | | | | |
| 15000 | 35 x 105 | 6.13 | 7.05 | 0.024 | 0.018 | ECET1KA153EA | 1500 | 35 x 105 | 4.78 | 6.69 | 0.144 | 0.057 | ECET2VA152EA | | | | | | | |
| | 40 x 80 | 5.97 | 6.87 | 0.025 | 0.019 | ECET1KA153FA | | 40 x 80 | 3.75 | 5.25 | 0.144 | 0.057 | ECET2VA152FA | | | | | | | |
| | 50 x 63 | 6.65 | 7.65 | 0.028 | 0.021 | ECEP1KA153HA | | 50 x 63 | 4.16 | 5.82 | 0.144 | 0.057 | ECEP2VA152HA | | | | | | | |
| 18000 | 50 x 80 | 7.29 | 8.38 | 0.026 | 0.019 | ECEP1KA183HA | 1800 | 40 x 105 | 5.23 | 7.32 | 0.120 | 0.048 | ECET2VA182FA | | | | | | | |
| 22000 | 40 x 105 | 6.95 | 7.99 | 0.019 | 0.014 | ECET1KA223FA | | 50 x 80 | 5.69 | 7.97 | 0.120 | 0.048 | ECEP2VA182HA | | | | | | | |
| | 50 x 92 | 7.83 | 9.00 | 0.022 | 0.016 | ECEP1KA223HA | 2000 | 50 x 92 | 6.34 | 8.88 | 0.108 | 0.043 | ECEP2VA202HA | | | | | | | |
| 27000 | 50 x 105 | 8.38 | 9.64 | 0.018 | 0.014 | ECEP1KA273HA | 2200 | 50 x 105 | 7.03 | 9.84 | 0.098 | 0.039 | ECEP2VA222HA | | | | | | | |
| 100 VDC Working, 125 VDC Surge | | | | | | | | | | | | | | 400 VDC Working, 450 VDC Surge | | | | | | |
| 3300 | 35 x 40 | 3.20 | 3.68 | 0.075 | 0.053 | ECET2AA332EA | 390 | 35 x 45 | 1.55 | 2.17 | 0.425 | 0.170 | ECET2GA391EA | | | | | | | |
| 4700 | 35 x 50 | 3.80 | 4.37 | 0.053 | 0.040 | ECET2AA472EA | 470 | 40 x 40 | 1.75 | 2.45 | 0.353 | 0.141 | ECET2GA471FA | | | | | | | |
| | 40 x 40 | 3.80 | 4.37 | 0.053 | 0.040 | ECET2AA472FA | 560 | 35 x 50 | 1.80 | 2.52 | 0.296 | 0.118 | ECET2GA561EA | | | | | | | |
| 5600 | 35 x 63 | 4.06 | 4.67 | 0.044 | 0.033 | ECEP2AA562EA | 680 | 40 x 50 | 2.17 | 3.04 | 0.244 | 0.098 | ECET2GA681EA | | | | | | | |
| 8200 | 35 x 80 | 5.15 | 5.92 | 0.030 | 0.023 | ECET2AA822EA | 820 | 35 x 63 | 2.44 | 3.42 | 0.202 | 0.081 | ECET2GA821EA | | | | | | | |
| | 40 x 63 | 5.02 | 5.77 | 0.030 | 0.023 | ECET2AA822FA | | 40 x 50 | 2.58 | 3.61 | 0.202 | 0.081 | ECET2GA821FA | | | | | | | |
| | 50 x 50 | 6.14 | 7.06 | 0.030 | 0.023 | ECEP2AA822HA | | 50 x 50 | 3.15 | 4.41 | 0.202 | 0.081 | ECEP2GA821HA | | | | | | | |
| 10000 | 35 x 105 | 6.38 | 7.34 | 0.025 | 0.019 | ECET2AA103EA | 1000 | 35 x 80 | 3.00 | 4.20 | 0.166 | 0.066 | ECET2GA102EA | | | | | | | |
| 12000 | 40 x 80 | 6.44 | 7.41 | 0.021 | 0.016 | ECET2AA123EA | | 40 x 63 | 3.00 | 4.20 | 0.166 | 0.066 | ECET2GA102FA | | | | | | | |
| | 50 x 63 | 7.17 | 8.25 | 0.022 | 0.017 | ECET2AA123FA | | 50 x 50 | 3.45 | 4.83 | 0.166 | 0.066 | ECEP2GA102HA | | | | | | | |
| 15000 | 40 x 105 | 7.37 | 8.48 | 0.017 | 0.012 | ECET2AA153EA | 1200 | 35 x 105 | 3.75 | 5.25 | 0.138 | 0.055 | ECET2GA122EA | | | | | | | |
| 18000 | 50 x 80 | 8.01 | 9.21 | 0.019 | 0.014 | ECEP2AA153HA | | 40 x 80 | 3.79 | 5.31 | 0.138 | 0.055 | ECET2GA122FA | | | | | | | |
| | 50 x 92 | 8.64 | 9.94 | 0.017 | 0.012 | ECEP2AA183HA | | 50 x 63 | 4.22 | 5.91 | 0.152 | 0.061 | ECEP2GA122HA | | | | | | | |
| 22000 | 50 x 105 | 9.32 | 10.72 | 0.015 | 0.011 | ECEP2AA223HA | 1500 | 40 x 105 | 4.81 | 6.73 | 0.111 | 0.044 | ECET2GA152FA | | | | | | | |
| 200 VDC Working, 250 VDC Surge | | | | | | | | | | | | | | 450 VDC Working, 500 VDC Surge | | | | | | |
| 1200 | 35 x 40 | 2.50 | 3.50 | 0.133 | 0.066 | ECET2DA122EA | 330 | 35 x 40 | 1.37 | 1.92 | 0.502 | 0.176 | ECET2WA331EA | | | | | | | |
| 1800 | 40 x 40 | 2.70 | 3.78 | 0.129 | 0.077 | ECET2DA182FA | 470 | 35 x 50 | 1.74 | 2.44 | 0.353 | 0.123 | ECET2WA471EA | | | | | | | |
| 2200 | 35 x 50 | 2.90 | 4.06 | 0.098 | 0.059 | ECET2DA222EA | 560 | 35 x 63 | 2.15 | 3.01 | 0.296 | 0.104 | ECET2WA561EA | | | | | | | |
| 2700 | 35 x 63 | 3.65 | 5.11 | 0.080 | 0.048 | ECET2DA272EA | | 40 x 50 | 2.10 | 2.94 | 0.296 | 0.104 | ECET2WA561FA | | | | | | | |
| | 40 x 50 | 3.55 | 4.97 | 0.086 | 0.052 | ECET2DA272FA | 680 | 40 x 63 | 2.50 | 3.50 | 0.244 | 0.085 | ECET2WA681FA | | | | | | | |
| 3300 | 35 x 80 | 4.52 | 6.33 | 0.065 | 0.039 | ECET2DA332EA | 820 | 35 x 80 | 2.70 | 3.78 | 0.202 | 0.071 | ECET2WA821EA | | | | | | | |
| | 40 x 63 | 4.40 | 6.16 | 0.070 | 0.042 | ECET2DA332FA | | 50 x 50 | 3.42 | 4.79 | 0.222 | 0.079 | ECEP2WA821HX | | | | | | | |
| | 50 x 50 | 5.20 | 7.28 | 0.075 | 0.045 | ECEP2DA332HA | | 50 x 63 | 3.42 | 4.79 | 0.222 | 0.078 | ECEP2WA821HA | | | | | | | |
| 3900 | 50 x 50 | 5.65 | 7.91 | 0.064 | 0.038 | ECEP2DA392HX | 1000 | 35 x 105 | 3.47 | 4.86 | 0.166 | 0.058 | ECET2WA102EA | | | | | | | |
| | 50 x 63 | 5.90 | 8.26 | 0.064 | 0.038 | ECEP2DA392HA | | 40 x 80 | 3.50 | 4.90 | 0.166 | 0.058 | ECET2WA102FA | | | | | | | |
| 4700 | 35 x 105 | 5.70 | 7.98 | 0.046 | 0.028 | ECET2DA472EA | | 50 x 63 | 3.74 | 5.24 | 0.172 | 0.065 | ECEP2WA102HA | | | | | | | |
| | 40 x 80 | 5.76 | 8.06 | 0.049 | 0.030 | ECET2DA472FA | 1200 | 40 x 105 | 4.33 | 6.06 | 0.138 | 0.048 | ECET2WA122FA | | | | | | | |
| | 50 x 63 | 6.48 | 9.07 | 0.053 | 0.032 | ECEP2DA472HX | | 50 x 80 | 4.70 | 6.58 | 0.152 | 0.053 | ECEP2WA122HA | | | | | | | |
| | 50 x 80 | 6.82 | 9.55 | 0.053 | 0.032 | ECEP2DA472HA | 1300 | 50 x 92 | 5.18 | 7.25 | 0.140 | 0.049 | ECEP2WA132HA | | | | | | | |
| 5600 | 40 x 105 | 6.76 | 9.46 | 0.041 | 0.025 | ECET2DA562FA | 1500 | 50 x 105 | 6.03 | 8.44 | 0.122 | 0.043 | ECEP2WA152HA | | | | | | | |
| 6800 | 50 x 92 | 7.68 | 10.75 | 0.044 | 0.027 | ECEP2DA562HA | 1800 | 50 x 105 | 6.23 | 8.72 | 0.101 | 0.036 | ECEP2WA182HA | | | | | | | |
| | 50 x 105 | 8.71 | 12.19 | 0.034 | 0.020 | ECEP2DA682HA | | | | | | | | | | | | | | |
| 8200 | 50 x 105 | 9.56 | 13.38 | 0.028 | 0.016 | ECEP2DA822HA | | | | | | | | | | | | | | |
| 250 VDC Working, 300 VDC Surge | | | | | | | | | | | | | | | | | | | | |
| 820 | 35 x 40 | 2.20 | 3.08 | 0.243 | 0.133 | ECET2EA821EA | | | | | | | | | | | | | | |
| 1200 | 35 x 50 | 2.30 | 3.22 | 0.180 | 0.117 | ECET2EA122EA | | | | | | | | | | | | | | |
| | 40 x 40 | 2.66 | 3.72 | 0.180 | 0.117 | ECET2EA122FA | | | | | | | | | | | | | | |
| 1500 | 35 x 63 | 2.57 | 3.60 | 0.1 | | | | | | | | | | | | | | | | |

G Type General Information

Dimensions



| Case Code | Nominal Size DxL (inches) | Sleeved Case Dimensions | | | | | | Terminal Specifications (inches) | | | | | | | |
|-----------|---------------------------|-------------------------|---------------|---------------|-------------------|--------------|--------------|----------------------------------|--------------------|---------------------------------------------|------------------|-------------------|---------------|-------------------------|--------|
| | | Inches | | | Millimeters | | | Stud Option | | | Thread | | | | |
| | | $\phi D \pm 0.031$ | L ± 0.062 | S ± 0.016 | $\phi D \pm 0.79$ | L ± 1.58 | S ± 0.41 | Thread | A $\pm 1\text{mm}$ | No Stud | With Stud | Min. thread depth | H ± 0.031 | $\phi T \pm 0.010$ | |
| CA | 1.375 x 1.625 | 1.395 | 1.656 | | 42.1 | | | | | E | N | 10-32 NF-2B | 0.375 | 0.250 | 0.314 |
| | 1.375 x 2.125 | | 2.156 | | 54.8 | | | | | L | Q | 10-32 NF-2B | 0.218 | 0.062 | 0.314 |
| | 1.375 x 2.625 | | 2.656 | | 67.5 | | | | | M | R | M5 | 0.375 | 0.250 | 0.314 |
| | 1.375 x 3.125 | | 3.156 | | 80.2 | | | | | P | U | M5 | 0.335 | 0.207 | 0.508 |
| | 1.375 x 3.625 | | 3.656 | 0.500 | 92.9 | | | | | H | T | 1/4-28 NF-2B | 0.469 | 0.250 | 0.684 |
| | 1.375 x 4.125 | | 4.156 | | 105.6 | | | | | J | S | 1/4-28 NF-2B | 0.354 | 0.110 | 0.684 |
| | 1.375 x 4.625 | | 4.656 | | 118.3 | | | | | X | W | M6 | 0.469 | 0.250 | 0.684 |
| | 1.375 x 5.125 | | 5.156 | | 131.0 | | | | | Y | V | M6 | 0.354 | 0.110 | 0.684 |
| CP | 1.375 x 5.625 | | 5.656 | | 143.7 | | | | | Terminal Specifications (millimeters) | | | | | |
| FB | 2.000 x 1.875 | 2.020 | 1.906 | | 48.4 | | | | | Terminal / Mtg. Code | Thread | Min. thread depth | H ± 0.79 | $\phi T \pm 0.25$ | |
| | 2.000 x 2.125 | | 2.156 | | 54.8 | | | | | No Stud | With Stud | | | | |
| | 2.000 x 2.625 | | 2.656 | | 67.5 | | | | | E | N | 10-32 NF-2B | 9.5 | 6.4 | 8.0 |
| | 2.000 x 3.125 | | 3.156 | | 80.2 | | | | | L | Q | 10-32 NF-2B | 5.5 | 1.6 | 8.0 |
| | 2.000 x 3.625 | | 3.656 | 0.863 | 92.9 | | | | | M | R | M5 | 9.5 | 6.4 | 8.0 |
| | 2.000 x 4.125 | | 4.156 | | 105.6 | | | | | P | U | M5 | 8.5 | 5.3 | 12.9 |
| | 2.000 x 4.625 | | 4.656 | | 118.3 | | | | | H | T | 1/4-28 NF-2B | 11.9 | 6.4 | 17.4 |
| | 2.000 x 5.125 | | 5.156 | | 131.0 | | | | | J | S | 1/4-28 NF-2B | 9.0 | 2.8 | 17.4 |
| FP | 2.000 x 5.625 | | 5.656 | | 143.7 | | | | | X | W | M6 | 11.9 | 6.4 | 17.4 |
| GG | 2.500 x 3.125 | 2.520 | 3.156 | | 80.2 | | | | | Y | V | M6 | 9.0 | 2.8 | 17.4 |
| | 2.500 x 3.625 | | 3.656 | | 92.9 | | | | | Terminal Availability by Diameter | | | | | |
| | 2.500 x 4.125 | | 4.156 | | 105.6 | | | | | Terminal / Mtg. Code | Nominal Diameter | | | Max. ripple current (A) | |
| | 2.500 x 4.625 | | 4.656 | 1.125 | 118.3 | | | | | No Stud | With Stud | 1.375" | 2.000" | 2.500" | 3.000" |
| | 2.500 x 5.125 | | 5.156 | | 131.0 | | | | | E | N | S | S | S | S |
| | 2.500 x 5.625 | | 5.656 | | 143.7 | | | | | L | Q | O | O | O | O |
| | HG | | 3.156 | | 80.2 | | | | | M | R | O | O | O | O |
| | HH | | 3.656 | | 92.9 | | | | | P | U | N.A. | N.A. | O | O |
| HL | 3.000 x 4.125 | 3.020 | 4.156 | | 105.6 | | | | | H | T | N.A. | N.A. | O | O |
| | 3.000 x 4.625 | | 4.656 | 1.250 | 118.3 | | | | | J | S | N.A. | N.A. | O | O |
| | 3.000 x 5.125 | | 5.156 | | 131.0 | | | | | X | W | N.A. | N.A. | O | O |
| | 3.000 x 5.625 | | 5.656 | | 143.7 | | | | | Y | V | N.A. | N.A. | O | O |
| | HW | | 8.656 | | 219.9 | | | | | S: standard O: optional N.A.: not available | | | | | |

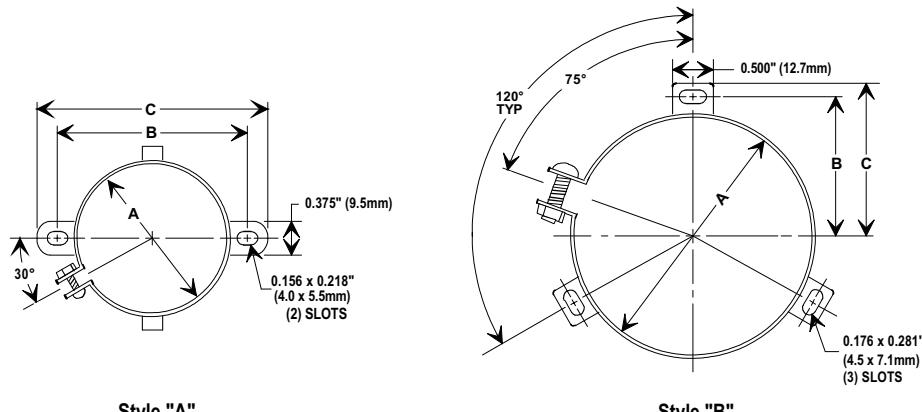
Standard Packaging Quantities

| Diameter | Length | Box Quantity |
|---------------|----------------|--------------|
| 1.375" (35mm) | 1.625" (41mm) | 100 |
| 1.375" (35mm) | >1.625" (41mm) | 50 |
| 2.000" (51mm) | All | 42 |
| 2.500" (64mm) | All | 30 |
| 3.000" (76mm) | All | 20 |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

G Type Mounting Hardware

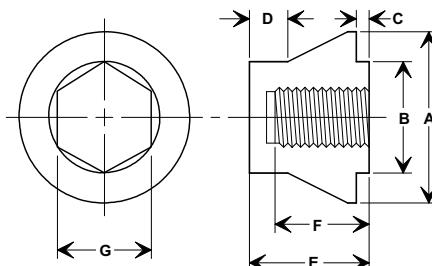
Mounting Clamp



Material: 20GA. (0.95mm) Zinc Plated Steel

| Style | Dia. (A) | B | C | P/N |
|-------|---------------|-----------------|-----------------|-------------------|
| A | 1.375" (35mm) | 1.781" (45.2mm) | 2.129" (54.1mm) | EJGHMC36B2 |
| B | 2.000" (51mm) | 1.250" (31.8mm) | 1.437" (36.5mm) | EJGHMC51B3 |
| | 2.500" (64mm) | 1.500" (38.1mm) | 1.690" (42.9mm) | EJGHMC64B3 |
| | 3.000" (76mm) | 1.750" (44.5mm) | 1.937" (49.2mm) | EJGHMC77B3 |

Stud Mount Hardware Insulating Nut



Material: ABS

Dimensions (mm)

| Thread | A | B | C | D | E | F (min.) | G | P/N |
|--------|----|----|-----|---|------|----------|----|--------------------|
| M8 | 25 | 17 | 1 | 4 | 15 | 11 | 17 | EJGHSN8X17 |
| M12 | 30 | 22 | 1.4 | 6 | 17.5 | 15 | 19 | EJGHSN12X22 |
| M12 | 38 | 30 | 1.4 | 6 | 18 | 15 | 19 | EJGHSN12X30 |

G-AA Series 85°C, 3000 hours

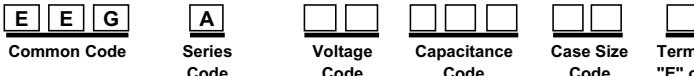
- General purpose for industrial applications
- High ripple current with 3000 hour life
- Stud mount available



| | | | | | | | | | |
|------------------------|---------------------------------------------------|-----------------------------|------------------------------|------|------|---------|---------|------|------|
| Rated Working Voltage: | 16 ~ 500 VDC | Ripple Current Multipliers: | Frequency (Hz): | 50 | 60 | 100~120 | 300~360 | 1k | 10k~ |
| Operating Temperature: | -40 ~ +85°C | | 16~100WV: | 0.9 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 |
| Nominal Capacitance: | 150 ~ 1200000μF | | 160~500WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 |
| Capacitance Tolerance: | ± 20% | | | | | | | | |
| Max. Leakage Current: | 3√CV (μA) after 5 minutes; C = Cap. in μF, V = WV | | Ambient Temperature Factor** | | | | | | |
| Endurance: | 3000 hours at +85°C* | | Ambient Temperature: | 85°C | 70°C | 60°C | ≤45°C | | |

*with maximum rated ripple current applied. See page 6 for additional details. **Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



NOTE: Series code in part number formerly "AA", shortened to "A"

G-AA Typical Ratings

| Cap. (μF) | Nominal Size D x L (inches) | Max 85°C R.C. (A _{rms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number |
|-------------------------------------------------|-----------------------------|-----------------------------------|--------|--------------------|--------|-----------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 16 VDC Working, 20 VDC Surge | | | | | | |
| 33000 | 1.375 x 1.625 | 5.16 | 5.93 | 0.0313 | 0.0281 | EEGA1C333CAE |
| 39000 | 1.375 x 2.125 | 5.86 | 6.74 | 0.0269 | 0.0242 | EEGA1C393CCE |
| 56000 | 1.375 x 2.625 | 7.30 | 8.40 | 0.0196 | 0.0177 | EEGA1C563CEE |
| 68000 | 1.375 x 3.125 | 8.31 | 9.56 | 0.0167 | 0.0150 | EEGA1C683CGE |
| 82000 | 1.375 x 3.625 | 9.37 | 10.78 | 0.0143 | 0.0129 | EEGA1C823CHE |
| | 2.000 x 1.875 | 10.01 | 11.51 | 0.0143 | 0.0129 | EEGA1C823FB |
| 100000 | 1.375 x 4.125 | 10.51 | 12.09 | 0.0123 | 0.0110 | EEGA1C104CKE |
| | 2.000 x 2.125 | 11.01 | 12.66 | 0.0123 | 0.0110 | EEGA1C104FCE |
| 120000 | 1.375 x 4.625 | 11.67 | 13.42 | 0.0107 | 0.0096 | EEGA1C124CLE |
| | 2.000 x 2.625 | 12.41 | 14.27 | 0.0107 | 0.0096 | EEGA1C124FEE |
| 130000 | 1.375 x 5.125 | 12.41 | 14.27 | 0.0101 | 0.0091 | EEGA1C134CNE |
| 150000 | 1.375 x 5.625 | 13.44 | 15.46 | 0.0091 | 0.0082 | EEGA1C154CPE |
| | 2.000 x 3.125 | 13.98 | 16.08 | 0.0091 | 0.0082 | EEGA1C154FG |
| 180000 | 2.000 x 3.625 | 15.42 | 17.73 | 0.0081 | 0.0073 | EEGA1C184FHE |
| 220000 | 2.000 x 4.125 | 16.93 | 19.47 | 0.0072 | 0.0064 | EEGA1C224FKE |
| 270000 | 2.000 x 5.125 | 19.08 | 21.94 | 0.0052 | 0.0047 | EEGA1C274FNE |
| | 2.500 x 3.125 | 19.31 | 22.21 | 0.0064 | 0.0057 | EEGA1C274GGE |
| 330000 | 2.000 x 5.625 | 20.63 | 23.72 | 0.0070 | 0.0063 | EEGA1C334FPE |
| | 2.500 x 3.625 | 21.02 | 24.17 | 0.0057 | 0.0052 | EEGA1C334GHE |
| 390000 | 2.500 x 4.125 | 22.50 | 25.88 | 0.0053 | 0.0048 | EEGA1C394GKE |
| | 3.000 x 3.125 | 23.79 | 27.36 | 0.0053 | 0.0048 | EEGA1C394HGE |
| 470000 | 2.500 x 4.625 | 24.11 | 27.73 | 0.0049 | 0.0044 | EEGA1C474GLE |
| | 3.000 x 3.625 | 25.51 | 29.34 | 0.0049 | 0.0044 | EEGA1C474HHE |
| 500000 | 2.500 x 5.125 | 25.05 | 28.81 | 0.0048 | 0.0043 | EEGA1C504GNE |
| 560000 | 2.500 x 5.625 | 26.23 | 30.16 | 0.0046 | 0.0041 | EEGA1C564GPE |
| | 3.000 x 4.125 | 27.08 | 31.14 | 0.0046 | 0.0041 | EEGA1C564HKE |
| 680000 | 3.000 x 4.625 | 28.74 | 33.05 | 0.0043 | 0.0039 | EEGA1C684HLE |
| 750000 | 3.000 x 5.125 | 29.88 | 34.36 | 0.0042 | 0.0037 | EEGA1C754HNE |
| 820000 | 3.000 x 5.625 | 30.97 | 35.62 | 0.0040 | 0.0036 | EEGA1C824HPE |
| 1200000 | 3.000 x 8.625 | 36.78 | 42.30 | 0.0037 | 0.0033 | EEGA1C125HWE |
| 20 VDC Working, 24 VDC Surge | | | | | | |
| 27000 | 1.375 x 1.625 | 4.95 | 5.69 | 0.0327 | 0.0295 | EEGA1D273CAE |
| 33000 | 1.375 x 2.125 | 5.72 | 6.58 | 0.0274 | 0.0246 | EEGA1D333CCE |
| 47000 | 1.375 x 2.625 | 7.12 | 8.19 | 0.0202 | 0.0181 | EEGA1D473CEE |
| 56000 | 1.375 x 3.125 | 8.05 | 9.26 | 0.0174 | 0.0157 | EEGA1D563CGE |
| 68000 | 1.375 x 3.625 | 9.12 | 10.49 | 0.0149 | 0.0134 | EEGA1D683CHE |
| | 2.000 x 1.875 | 9.75 | 11.21 | 0.0149 | 0.0134 | EEGA1D683FB |
| 20 VDC Working, 24 VDC Surge (continued) | | | | | | |
| 82000 | 1.375 x 4.125 | 10.21 | 11.74 | 0.0129 | 0.0116 | EEGA1D823CKE |
| | 2.000 x 2.125 | 10.70 | 12.31 | 0.0129 | 0.0116 | EEGA1D823FCE |
| 100000 | 1.375 x 4.625 | 11.45 | 13.17 | 0.0112 | 0.0100 | EEGA1D104CLE |
| | 2.000 x 2.625 | 12.17 | 14.00 | 0.0112 | 0.0100 | EEGA1D104FEE |
| 110000 | 1.375 x 5.125 | 12.25 | 14.09 | 0.0104 | 0.0094 | EEGA1D114CNE |
| 120000 | 1.375 x 5.625 | 13.04 | 15.00 | 0.0098 | 0.0088 | EEGA1D124CP |
| | 2.000 x 3.125 | 13.57 | 15.61 | 0.0098 | 0.0088 | EEGA1D124FGE |
| 150000 | 2.000 x 3.625 | 15.22 | 17.50 | 0.0085 | 0.0077 | EEGA1D154FHE |
| 180000 | 2.000 x 4.125 | 16.68 | 19.18 | 0.0076 | 0.0069 | EEGA1D184FKE |
| 220000 | 2.000 x 5.125 | 18.86 | 21.69 | 0.0068 | 0.0061 | EEGA1D224FNE |
| | 2.500 x 3.125 | 19.08 | 21.94 | 0.0068 | 0.0061 | EEGA1D224GGE |
| 270000 | 2.000 x 5.625 | 20.50 | 23.58 | 0.0061 | 0.0055 | EEGA1D274FPE |
| | 2.500 x 3.625 | 20.89 | 24.02 | 0.0061 | 0.0055 | EEGA1D274GHE |
| 330000 | 2.500 x 4.125 | 22.62 | 26.01 | 0.0056 | 0.0050 | EEGA1D334GKE |
| | 3.000 x 3.125 | 23.92 | 27.51 | 0.0056 | 0.0050 | EEGA1D334HGE |
| 390000 | 2.500 x 4.625 | 24.21 | 27.84 | 0.0052 | 0.0047 | EEGA1D394GLE |
| | 3.000 x 3.625 | 25.62 | 29.46 | 0.0052 | 0.0047 | EEGA1D394HHE |
| 430000 | 2.500 x 5.125 | 25.38 | 29.19 | 0.0050 | 0.0045 | EEGA1D434GNE |
| 470000 | 2.500 x 5.625 | 26.49 | 30.46 | 0.0049 | 0.0044 | EEGA1D474GPE |
| | 3.000 x 4.125 | 27.34 | 31.44 | 0.0049 | 0.0044 | EEGA1D474HKE |
| 560000 | 3.000 x 4.625 | 29.03 | 33.38 | 0.0046 | 0.0041 | EEGA1D564HLE |
| 620000 | 3.000 x 5.125 | 30.25 | 34.79 | 0.0045 | 0.0040 | EEGA1D624HNE |
| 680000 | 3.000 x 5.625 | 31.41 | 36.12 | 0.0044 | 0.0039 | EEGA1D684HPE |
| 1000000 | 3.000 x 8.625 | 37.54 | 43.17 | 0.0040 | 0.0036 | EEGA1D105HWE |
| 25 VDC Working, 32 VDC Surge | | | | | | |
| 22000 | 1.375 x 1.625 | 4.93 | 5.67 | 0.0234 | 0.0199 | EEGA1E223CAE |
| 27000 | 1.375 x 2.125 | 5.70 | 6.56 | 0.0196 | 0.0167 | EEGA1E273CCE |
| 39000 | 1.375 x 2.625 | 7.16 | 8.23 | 0.0144 | 0.0123 | EEGA1E393CEE |
| 47000 | 1.375 x 3.125 | 8.15 | 9.37 | 0.0124 | 0.0106 | EEGA1E473CGE |
| 56000 | 1.375 x 3.625 | 9.17 | 10.55 | 0.0109 | 0.0092 | EEGA1E563CHE |
| | 2.000 x 1.875 | 9.78 | 11.25 | 0.0109 | 0.0092 | EEGA1E563FBE |
| 68000 | 1.375 x 4.125 | 10.31 | 11.86 | 0.0094 | 0.0080 | EEGA1E683CKE |
| | 2.000 x 2.125 | 10.79 | 12.41 | 0.0094 | 0.0080 | EEGA1E683FCE |
| 82000 | 1.375 x 4.625 | 11.53 | 13.26 | 0.0083 | 0.0070 | EEGA1E823CLE |
| | 2.000 x 2.625 | 12.24 | 14.08 | 0.0083 | 0.0070 | EEGA1E823FEE |
| 91000 | 1.375 x 5.125 | 12.39 | 14.25 | 0.0077 | 0.0066 | EEGA1E913CNE |
| 100000 | 1.375 x 5.625 | 13.23 | 15.21 | 0.0073 | 0.0062 | EEGA1E104CP |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

G-AA Typical Ratings (continued)

| Cap. (μ F) | Nominal Size D x L (inches) | Max 85°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Cap. (μ F) | Nominal Size D x L (inches) | Max 85°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | | | | | | | | | |
|-------------------------------------------------|--------------------------------|-----------------------------|--------|-----------------------------|--------|--------------------------|-------------------------------------------------|--------------------------------|-----------------------------|--------|-----------------------------|--------|--------------------------|--|--|--|--|--|--|--|--|--|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | | | | 120Hz | 10kHz~ | 120Hz | 20kHz | | | | | | | | | | |
| 25 VDC Working, 32 VDC Surge (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 100000 | 2.000 x 3.125 | 13.75 | 15.81 | 0.0073 | 0.0062 | EEGA1E104FGE | 140000 | 2.500 x 5.125 | 20.36 | 23.41 | 0.0049 | 0.0042 | EEGA1H144GNE | | | | | | | | | |
| 120000 | 2.000 x 3.625 | 15.24 | 17.53 | 0.0065 | 0.0056 | EEGA1E124FHE | 150000 | 2.500 x 5.625 | 21.28 | 24.47 | 0.0047 | 0.0040 | EEGA1H154GPE | | | | | | | | | |
| 150000 | 2.000 x 4.125 | 16.98 | 19.53 | 0.0058 | 0.0049 | EEGA1E154FKE | 180000 | 3.000 x 4.125 | 21.91 | 25.20 | 0.0047 | 0.0040 | EEGA1H154HKE | | | | | | | | | |
| 180000 | 2.000 x 5.125 | 19.13 | 22.00 | 0.0053 | 0.0045 | EEGA1E184FNE | 200000 | 3.000 x 5.125 | 23.63 | 27.17 | 0.0043 | 0.0037 | EEGA1H184HLE | | | | | | | | | |
| | 2.500 x 3.125 | 19.33 | 22.23 | 0.0053 | 0.0045 | EEGA1E184GGE | 220000 | 3.000 x 5.625 | 24.84 | 28.57 | 0.0041 | 0.0035 | EEGA1H204HNE | | | | | | | | | |
| 220000 | 2.000 x 5.625 | 20.84 | 23.97 | 0.0048 | 0.0041 | EEGA1E224FPE | 390000 | 3.000 x 8.625 | 25.99 | 29.89 | 0.0039 | 0.0033 | EEGA1H224HPE | | | | | | | | | |
| | 2.500 x 3.625 | 21.20 | 24.38 | 0.0048 | 0.0041 | EEGA1E224GHE | 390000 | 3.000 x 8.625 | 32.95 | 37.89 | 0.0032 | 0.0027 | EEGA1H394HWE | | | | | | | | | |
| 270000 | 2.500 x 4.125 | 23.05 | 26.51 | 0.0044 | 0.0038 | EEGA1E274GKE | 50 VDC Working, 63 VDC Surge (continued) | | | | | | | | | | | | | | | |
| | 3.000 x 3.125 | 24.34 | 27.99 | 0.0044 | 0.0038 | EEGA1E274HGE | 6800 | 1.375 x 1.625 | 3.35 | 3.85 | 0.0542 | 0.0461 | EEGA1J682CAE | | | | | | | | | |
| 310000 | 2.500 x 4.625 | 24.57 | 28.26 | 0.0042 | 0.0036 | EEGA1E314GLE | 8200 | 1.375 x 2.125 | 3.85 | 4.43 | 0.0449 | 0.0382 | EEGA1J822CCE | | | | | | | | | |
| 330000 | 2.500 x 5.125 | 25.60 | 29.44 | 0.0041 | 0.0035 | EEGA1E334GNE | 12000 | 1.375 x 2.625 | 4.90 | 5.64 | 0.0307 | 0.0261 | EEGA1J123CEE | | | | | | | | | |
| | 3.000 x 3.625 | 26.34 | 30.29 | 0.0041 | 0.0035 | EEGA1E334HHE | 15000 | 1.375 x 3.125 | 5.70 | 6.56 | 0.0246 | 0.0209 | EEGA1J153CGE | | | | | | | | | |
| 390000 | 2.500 x 5.625 | 27.21 | 31.29 | 0.0039 | 0.0033 | EEGA1E394GPE | 18000 | 1.375 x 3.625 | 6.47 | 7.44 | 0.0205 | 0.0174 | EEGA1J183CHE | | | | | | | | | |
| | 3.000 x 4.125 | 28.06 | 32.27 | 0.0039 | 0.0033 | EEGA1E394HKE | 20000 | 2.000 x 2.125 | 7.01 | 8.06 | 0.0246 | 0.0209 | EEGA1J183FCE | | | | | | | | | |
| 470000 | 3.000 x 4.625 | 29.91 | 34.40 | 0.0037 | 0.0032 | EEGA1E474HLE | 22000 | 1.375 x 4.125 | 7.33 | 8.43 | 0.0167 | 0.0142 | EEGA1J223CKE | | | | | | | | | |
| 520000 | 3.000 x 5.125 | 31.20 | 35.88 | 0.0036 | 0.0031 | EEGA1E524HNE | 24000 | 2.000 x 2.625 | 8.07 | 9.28 | 0.0201 | 0.0171 | EEGA1J223FEE | | | | | | | | | |
| 560000 | 3.000 x 5.625 | 32.33 | 37.18 | 0.0036 | 0.0030 | EEGA1E564HPE | 27000 | 1.375 x 4.625 | 7.91 | 9.10 | 0.0154 | 0.0130 | EEGA1J243CLE | | | | | | | | | |
| 910000 | 3.000 x 8.625 | 39.28 | 45.17 | 0.0032 | 0.0028 | EEGA1E914HWE | 33000 | 1.375 x 5.125 | 8.59 | 9.88 | 0.0164 | 0.0139 | EEGA1J273CNE | | | | | | | | | |
| 35 VDC Working, 44 VDC Surge | | | | | | | | | | | | | | | | | | | | | | |
| 15000 | 1.375 x 1.625 | 4.12 | 4.74 | 0.0344 | 0.0292 | EEGA1V153CAE | 39000 | 2.000 x 3.125 | 9.97 | 11.47 | 0.0134 | 0.0114 | EEGA1J333CPG | | | | | | | | | |
| 18000 | 1.375 x 2.125 | 4.73 | 5.44 | 0.0289 | 0.0246 | EEGA1V183CCE | 47000 | 2.000 x 4.125 | 11.07 | 12.73 | 0.0116 | 0.0099 | EEGA1J393FHE | | | | | | | | | |
| 22000 | 1.375 x 2.625 | 5.53 | 6.36 | 0.0239 | 0.0203 | EEGA1V223CEE | 56000 | 2.000 x 5.125 | 13.94 | 16.03 | 0.0087 | 0.0074 | EEGA1J563FNE | | | | | | | | | |
| 33000 | 1.375 x 3.125 | 6.99 | 8.04 | 0.0164 | 0.0140 | EEGA1V333CGE | 68000 | 2.000 x 5.625 | 15.33 | 17.63 | 0.0075 | 0.0063 | EEGA1J683FPE | | | | | | | | | |
| | 2.000 x 1.875 | 7.70 | 8.86 | 0.0164 | 0.0140 | EEGA1V333FBE | 82000 | 2.500 x 3.625 | 15.57 | 17.91 | 0.0075 | 0.0063 | EEGA1J683GHE | | | | | | | | | |
| 39000 | 1.375 x 3.625 | 7.87 | 9.05 | 0.0141 | 0.0120 | EEGA1V393CHE | 100000 | 2.500 x 4.625 | 18.65 | 21.45 | 0.0057 | 0.0048 | EEGA1J104GLE | | | | | | | | | |
| 47000 | 1.375 x 4.125 | 8.86 | 10.19 | 0.0120 | 0.0102 | EEGA1V473CKE | 110000 | 2.500 x 5.125 | 19.68 | 22.63 | 0.0053 | 0.0045 | EEGA1J14GNE | | | | | | | | | |
| | 2.000 x 2.125 | 9.16 | 10.53 | 0.0120 | 0.0102 | EEGA1V473FCE | 120000 | 2.500 x 5.625 | 20.67 | 23.77 | 0.0050 | 0.0043 | EEGA1J124GPE | | | | | | | | | |
| 56000 | 1.375 x 4.625 | 9.91 | 11.40 | 0.0103 | 0.0088 | EEGA1V563CLE | 130000 | 3.000 x 4.125 | 22.33 | 25.68 | 0.0048 | 0.0041 | EEGA1J134HLE | | | | | | | | | |
| | 2.000 x 2.625 | 10.39 | 11.95 | 0.0103 | 0.0088 | EEGA1V563FEE | 150000 | 3.000 x 5.125 | 23.71 | 27.27 | 0.0044 | 0.0037 | EEGA1J154HNE | | | | | | | | | |
| 62000 | 1.375 x 5.125 | 10.68 | 12.28 | 0.0094 | 0.0080 | EEGA1V623CNE | 180000 | 3.000 x 5.625 | 25.31 | 29.11 | 0.0040 | 0.0034 | EEGA1J184HPE | | | | | | | | | |
| 68000 | 1.375 x 5.625 | 11.43 | 13.14 | 0.0087 | 0.0074 | EEGA1V683CPE | 270000 | 3.000 x 8.625 | 31.09 | 35.75 | 0.0033 | 0.0028 | EEGA1J274HWE | | | | | | | | | |
| | 2.000 x 3.125 | 11.73 | 13.49 | 0.0087 | 0.0074 | EEGA1V683FGE | 80 VDC Working, 100 VDC Surge | | | | | | | | | | | | | | | |
| 82000 | 2.000 x 3.625 | 13.12 | 15.09 | 0.0075 | 0.0064 | EEGA1V823FHE | 3900 | 1.375 x 1.625 | 2.83 | 3.25 | 0.0945 | 0.0756 | EEGA1K392CAE | | | | | | | | | |
| 100000 | 2.000 x 4.125 | 14.61 | 16.80 | 0.0064 | 0.0055 | EEGA1V104FKE | 5600 | 1.375 x 2.125 | 3.56 | 4.09 | 0.0658 | 0.0526 | EEGA1K562CCE | | | | | | | | | |
| 120000 | 2.000 x 5.125 | 16.60 | 19.09 | 0.0056 | 0.0048 | EEGA1V124FNE | 6800 | 1.375 x 2.625 | 4.17 | 4.80 | 0.0542 | 0.0433 | EEGA1K682CEE | | | | | | | | | |
| | 2.500 x 3.125 | 16.78 | 19.30 | 0.0056 | 0.0048 | EEGA1V124GGE | 10000 | 1.375 x 3.125 | 5.26 | 6.05 | 0.0368 | 0.0295 | EEGA1K103CGE | | | | | | | | | |
| 150000 | 2.000 x 5.625 | 18.40 | 21.16 | 0.0048 | 0.0041 | EEGA1V154FPE | 12000 | 1.375 x 3.625 | 5.99 | 6.89 | 0.0307 | 0.0246 | EEGA1K123CHE | | | | | | | | | |
| | 2.500 x 3.625 | 18.72 | 21.53 | 0.0048 | 0.0041 | EEGA1V154GHE | 13000 | 1.375 x 4.125 | 6.46 | 7.43 | 0.0283 | 0.0227 | EEGA1K133CKE | | | | | | | | | |
| 180000 | 2.500 x 4.125 | 20.42 | 23.48 | 0.0042 | 0.0036 | EEGA1V184GKE | 15000 | 1.375 x 4.625 | 7.17 | 8.25 | 0.0246 | 0.0196 | EEGA1K153CLE | | | | | | | | | |
| | 3.000 x 3.125 | 21.56 | 24.79 | 0.0042 | 0.0036 | EEGA1V184HGE | 18000 | 2.000 x 2.125 | 7.84 | 9.02 | 0.0246 | 0.0196 | EEGA1K153FEE | | | | | | | | | |
| 200000 | 2.500 x 4.625 | 21.71 | 24.97 | 0.0040 | 0.0034 | EEGA1V204GLE | 22000 | 1.375 x 5.125 | 8.05 | 9.26 | 0.0205 | 0.0164 | EEGA1K183CNE | | | | | | | | | |
| 220000 | 2.500 x 5.125 | 22.91 | 26.35 | 0.0037 | 0.0032 | EEGA1V224GNE | 33000 | 2.000 x 3.125 | 9.08 | 10.44 | 0.0167 | 0.0134 | EEGA1K223CPG | | | | | | | | | |
| | 3.000 x 3.625 | 23.57 | 27.11 | 0.0037 | 0.0032 | EEGA1V224HHE | 39000 | 2.000 x 4.125 | 9.72 | 11.18 | 0.0167 | 0.0134 | EEGA1K223FGE | | | | | | | | | |
| 250000 | 3.000 x 4.125 | 25.07 | 28.83 | 0.0035 | 0.0029 | EEGA1V254HKE | 47000 | 2.000 x 5.125 | 11.05 | 12.71 | 0.0136 | 0.0109 | EEGA1K273FHE | | | | | | | | | |
| 270000 | 2.500 x 5.625 | 24.81 | 28.53 | 0.0033 | 0.0028 | EEGA1V274GPE | 51000 | 2.500 x 4.125 | 12.44 | 14.31 | 0.0112 | 0.0089 | EEGA1K333FKE | | | | | | | | | |
| | 3.000 x 4.625 | 26.29 | 30.23 | 0.0033 | 0.0028 | EEGA1V274HLE | 39000 | 2.000 x 5.125 | 14.18 | 16.31 | 0.0102 | 0.0082 | EEGA1K393FNE | | | | | | | | | |
| 330000 | 3.000 x 5.125 | 28.27 | 32.51 | 0.0030 | 0.0025 | EEGA1V334HNE | 47000 | 2.000 x 5.625 | 15.71 | 18.07 | 0.0091 | 0.0073 | EEGA1K473FPE | | | | | | | | | |
| 360000 | 3.000 x 5.625 | 29.50 | 33.93 | 0.0029 | 0.0024 | EEGA1V364HPE | 56000 | 2.500 x 4.125 | 16.19 | 18.62 | 0.0101 | 0.0081 | EEGA1K513GKE | | | | | | | | | |
| | 3.000 x 8.625 | 36.46 | 41.93 | 0.0024 | 0.0020 | EEGA1V564HWE | 68000 | 2.500 x 5.125 | 17.29 | 19.88 | 0.0092 | 0.0074 | EEGA1K563GLE | | | | | | | | | |
| 390000 | 1.375 x 1.625 | 3.36 | 3.86 | 0.0539 | 0.0458 | EEGA1H822CAE | 75000 | 3.000 x 4.125 | 20.71 | 23.82 | 0.0079 | 0.0063 | EEGA1K753HKE | | | | | | | | | |
| 470000 | 2.000 x 3.125 | 4.97 | 5.72 | 0.0295 | 0.0251 | EEGA1H103CCE | 82000 | 2.500 x 5.625 | 20.87 | 24.00 | 0.0066 | 0.0053 | EEGA1K823GPE | | | | | | | | | |
| 520000 | 2.000 x 4.125 | 11.17 | 12.85 | 0.0101 | 0.0086 | EEGA1H473FHE | 100000 | 3.000 x 5.125 | 24.00 | 27.60 | 0.0059 | 0.0047 | EEGA1K104HNE | | | | | | | | | |
| 560000 | 2.000 x 4.625 | 12.36 | 14.21 | 0.0088 | 0.0075 | EEGA1H563FKE | 110000 | 3.000 x 5.625 | 25.30 | 29.10 | 0.0060 | 0.0048 | EEGA1K114HPE | | | | | | | | | |
| 680000 | 2.000 x 5.125 | 14.15 | 16.27 | 0.0077 | 0.0065 | EEGA1H683FNE | 180000 | 3.000 x 8.625 | 32.90 | 37.84 | 0.0041 | 0.0033 | EEGA1K184HWE | | | | | | | | | |
| | 2.500 x 3.125 | 14.27 | 16.41 | 0.0077 | 0.0065 | EEGA1H683GGE | 100 VDC Working, 125 VDC Surge | | | | | | | | | | | | | | | |
| 82000 | 2.000 x 5.625 | 15.54 | 17.87 | 0.0067 | 0.0057 | EEGA1H823FPE | 2700 | 1.375 x 1.625 | 2.22 | 2.55 | 0.1092 | 0.0873 | EEGA2A272CAE | | | | | | | | | |
| | 2.500 x 3.625 | 15.78 | 18.15 | 0.0067 | 0.0057 | EEGA1H823GHE | 3300 | 1.375 x 2.125 | 2.58 | 2.97 | 0.0893 | 0.0714 | EEGA2A332CCE | | | | | | | | | |
| 100000 | 2.500 x 4.125 | 17.37 | 19.98 | 0.0059 | 0.0051 | EEGA1H104GKE | 4700 | 1.375 x 2.625 | 3.27 | 3.76 | 0.0627 | 0.0502 | EEGA2A472CEE | | | | | | | | | |
| 120000 | 2.500 x 4.625 | 18.96 | 21.80 | 0.0053 | 0.0045 | EEGA1H124GLE | | | | | | | | | | | | | | | | |
| | 3.000 x 3.625 | 20.00 | 23.00 | 0.0053 | 0.0045 | EEGA1H124HHE | | | | | | | | | | | | | | | | |

G-AA Typical Ratings (continued)

| Cap. (μ F) | Nominal Size D x L (inches) | Max 85°C R.C. (A _{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------------------|--------------------------------|-----------------------------------|-----------------------------|-----------------------------|--------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 100 VDC Working, 125 VDC Surge (continued) | | | | | | |
| 5600 | 1.375 x 3.125 | 3.74 | 4.30 | 0.0526 | 0.0421 | EEGA2A562CGE |
| 6800 | 1.375 x 3.625 | 4.29 | 4.93 | 0.0433 | 0.0347 | EEGA2A682CHE |
| | 2.000 x 1.875 | 4.72 | 5.43 | 0.0433 | 0.0347 | EEGA2A682FBE |
| 8200 | 1.375 x 4.125 | 4.88 | 5.61 | 0.0359 | 0.0288 | EEGA2A822CKE |
| | 2.000 x 2.125 | 5.27 | 6.06 | 0.0359 | 0.0288 | EEGA2A822FCE |
| 10000 | 1.375 x 4.625 | 5.58 | 6.42 | 0.0295 | 0.0236 | EEGA2A103CLE |
| | 2.000 x 2.625 | 6.11 | 7.03 | 0.0295 | 0.0236 | EEGA2A103FEE |
| 12000 | 1.375 x 5.125 | 6.29 | 7.23 | 0.0246 | 0.0196 | EEGA2A123CNE |
| 13000 | 1.375 x 5.625 | 6.74 | 7.75 | 0.0227 | 0.0181 | EEGA2A133CPE |
| 15000 | 2.000 x 3.125 | 7.72 | 8.88 | 0.0196 | 0.0157 | EEGA2A153FGE |
| 18000 | 2.000 x 3.625 | 8.73 | 10.04 | 0.0164 | 0.0131 | EEGA2A183FHE |
| 22000 | 2.000 x 4.125 | 9.90 | 11.39 | 0.0134 | 0.0107 | EEGA2A223FKE |
| | 2.500 x 3.125 | 10.95 | 12.59 | 0.0167 | 0.0134 | EEGA2A223GGE |
| 27000 | 2.000 x 5.125 | 11.56 | 13.29 | 0.0109 | 0.0087 | EEGA2A273FNE |
| | 2.500 x 3.625 | 12.43 | 14.29 | 0.0136 | 0.0109 | EEGA2A273GHE |
| 33000 | 2.000 x 5.625 | 12.98 | 14.93 | 0.0098 | 0.0079 | EEGA2A333FPE |
| | 2.500 x 4.125 | 14.00 | 16.10 | 0.0112 | 0.0089 | EEGA2A333GKE |
| | 3.000 x 3.125 | 15.18 | 17.46 | 0.0156 | 0.0125 | EEGA2A333HGE |
| 39000 | 2.500 x 4.625 | 15.51 | 17.84 | 0.0094 | 0.0076 | EEGA2A393GLE |
| | 3.000 x 3.625 | 16.83 | 19.35 | 0.0132 | 0.0106 | EEGA2A393HHE |
| 44000 | 2.500 x 5.125 | 16.76 | 19.27 | 0.0084 | 0.0067 | EEGA2A443GNE |
| 47000 | 2.500 x 5.625 | 17.66 | 20.31 | 0.0078 | 0.0063 | EEGA2A473GPE |
| | 3.000 x 4.125 | 18.71 | 21.52 | 0.0110 | 0.0088 | EEGA2A473HKE |
| 56000 | 3.000 x 4.625 | 20.66 | 23.76 | 0.0092 | 0.0074 | EEGA2A563HLE |
| 62000 | 3.000 x 5.125 | 22.05 | 25.36 | 0.0083 | 0.0067 | EEGA2A623HNE |
| 72000 | 3.000 x 5.625 | 23.91 | 27.50 | 0.0072 | 0.0057 | EEGA2A723HPE |
| 120000 | 3.000 x 8.625 | 32.58 | 37.47 | 0.0049 | 0.0039 | EEGA2A124HWE |
| 200 VDC Working, 250 VDC Surge | | | | | | |
| 820 | 1.375 x 1.625 | 2.69 | 3.77 | 0.270 | 0.202 | EEGA2D821CAE |
| 1200 | 1.375 x 2.125 | 3.41 | 4.77 | 0.184 | 0.138 | EEGA2D122CCE |
| 1500 | 1.375 x 2.625 | 4.05 | 5.67 | 0.147 | 0.111 | EEGA2D152CEE |
| 1800 | 1.375 x 3.125 | 4.65 | 6.51 | 0.123 | 0.092 | EEGA2D182CGE |
| | 2.000 x 1.875 | 5.16 | 7.22 | 0.123 | 0.092 | EEGA2D182FBE |
| 2200 | 1.375 x 3.625 | 5.35 | 7.49 | 0.100 | 0.075 | EEGA2D222CHE |
| 2700 | 1.375 x 4.125 | 6.12 | 8.57 | 0.082 | 0.061 | EEGA2D272CKE |
| | 2.000 x 2.125 | 6.38 | 8.93 | 0.082 | 0.061 | EEGA2D272FCE |
| 3300 | 1.375 x 4.625 | 6.98 | 9.77 | 0.067 | 0.050 | EEGA2D332CLE |
| | 2.000 x 2.625 | 7.38 | 10.33 | 0.067 | 0.050 | EEGA2D332FEE |
| 3900 | 1.375 x 5.125 | 7.80 | 10.92 | 0.057 | 0.043 | EEGA2D392CNE |
| | 2.000 x 3.125 | 8.32 | 11.65 | 0.057 | 0.043 | EEGA2D392FGE |
| 4700 | 1.375 x 5.625 | 8.75 | 12.25 | 0.047 | 0.035 | EEGA2D472CPE |
| 5600 | 2.000 x 3.625 | 10.18 | 14.25 | 0.039 | 0.030 | EEGA2D562FHE |
| | 2.500 x 3.125 | 11.64 | 16.30 | 0.039 | 0.030 | EEGA2D562GGE |
| 6200 | 2.000 x 4.125 | 11.00 | 15.40 | 0.036 | 0.027 | EEGA2D622FKE |
| 8200 | 2.000 x 5.125 | 13.21 | 18.49 | 0.027 | 0.020 | EEGA2D822FNE |
| | 2.500 x 3.625 | 14.21 | 19.89 | 0.027 | 0.020 | EEGA2D822GHE |
| 10000 | 2.000 x 5.625 | 14.74 | 20.64 | 0.022 | 0.017 | EEGA2D103FPE |
| | 2.500 x 4.125 | 15.89 | 22.25 | 0.022 | 0.017 | EEGA2D103GKE |
| | 3.000 x 3.125 | 16.69 | 23.37 | 0.022 | 0.017 | EEGA2D103HGE |
| 12000 | 2.500 x 4.625 | 17.62 | 24.67 | 0.018 | 0.014 | EEGA2D123GLE |
| | 3.000 x 3.625 | 18.52 | 25.93 | 0.018 | 0.014 | EEGA2D123HHE |
| 15000 | 2.500 x 5.125 | 19.71 | 27.59 | 0.015 | 0.011 | EEGA2D153GNE |
| | 3.000 x 4.125 | 20.73 | 29.02 | 0.015 | 0.011 | EEGA2D153HKE |
| 17000 | 2.500 x 5.625 | 21.17 | 29.64 | 0.013 | 0.010 | EEGA2D173GPE |
| 18000 | 3.000 x 4.625 | 22.78 | 31.89 | 0.012 | 0.009 | EEGA2D183HLE |
| 21000 | 3.000 x 5.125 | 24.62 | 34.47 | 0.011 | 0.008 | EEGA2D213HNE |
| 22000 | 3.000 x 5.625 | 25.59 | 35.83 | 0.010 | 0.008 | EEGA2D223HPE |
| 37000 | 3.000 x 8.625 | 34.04 | 47.66 | 0.008 | 0.006 | EEGA2D373HWE |
| 250 VDC Working, 300 VDC Surge | | | | | | |
| 560 | 1.375 x 1.625 | 2.40 | 3.36 | 0.395 | 0.296 | EEGA2E561CAE |
| 820 | 1.375 x 2.125 | 3.05 | 4.27 | 0.270 | 0.202 | EEGA2E821CCE |
| 1200 | 1.375 x 2.625 | 3.92 | 5.49 | 0.184 | 0.138 | EEGA2E122CEE |
| 1500 | 1.375 x 3.125 | 4.58 | 6.41 | 0.147 | 0.111 | EEGA2E152CGE |
| | 2.000 x 1.875 | 5.06 | 7.08 | 0.147 | 0.111 | EEGA2E152FBE |
| 1800 | 1.375 x 3.625 | 5.23 | 7.32 | 0.123 | 0.092 | EEGA2E182CHE |
| | 2.000 x 2.125 | 5.63 | 7.88 | 0.123 | 0.092 | EEGA2E182FCE |
| 2200 | 1.375 x 4.125 | 5.98 | 8.37 | 0.100 | 0.075 | EEGA2E222CKE |
| | 2.000 x 2.625 | 6.53 | 9.14 | 0.100 | 0.075 | EEGA2E222FEE |
| 2500 | 1.375 x 4.625 | 6.60 | 9.24 | 0.088 | 0.066 | EEGA2E252CLE |
| 2700 | 1.375 x 5.125 | 7.07 | 9.90 | 0.082 | 0.061 | EEGA2E272CNE |
| 3300 | 1.375 x 5.625 | 8.01 | 11.21 | 0.067 | 0.050 | EEGA2E332CPE |
| | 2.000 x 3.125 | 8.24 | 11.54 | 0.067 | 0.050 | EEGA2E332FGE |
| 3900 | 2.000 x 3.625 | 9.25 | 12.95 | 0.057 | 0.043 | EEGA2E392FHE |
| 250 VDC Working, 300 VDC Surge (continued) | | | | | | |
| Cap. (μ F) | Nominal Size D x L (inches) | Max 85°C R.C. (A _{rms}) | 20°C ESR (Ω , max.) | 120Hz | 10kHz~ | Panasonic Part Number |
| | | | | 120Hz | 20kHz | |
| 4700 | 2.000 x 4.125 | 10.41 | 14.57 | 0.047 | 0.035 | EEGA2E472FKE |
| 5600 | 2.500 x 3.125 | 12.00 | 16.80 | 0.039 | 0.030 | EEGA2E562GGE |
| 6800 | 2.000 x 5.125 | 13.04 | 18.26 | 0.033 | 0.024 | EEGA2E682FNE |
| | 2.500 x 3.625 | 13.52 | 18.93 | 0.033 | 0.024 | EEGA2E682GHE |
| 8200 | 2.000 x 5.625 | 14.52 | 20.33 | 0.027 | 0.020 | EEGA2E822FPE |
| | 2.500 x 4.125 | 15.08 | 21.11 | 0.027 | 0.020 | EEGA2E822GKE |
| | 3.000 x 3.125 | 15.81 | 22.13 | 0.027 | 0.020 | EEGA2E822HGE |
| 10000 | 2.500 x 4.625 | 16.88 | 23.63 | 0.022 | 0.017 | EEGA2E103GLE |
| | 3.000 x 3.625 | 17.70 | 24.78 | 0.022 | 0.017 | EEGA2E103HNE |
| 12000 | 2.500 x 5.125 | 18.64 | 26.10 | 0.018 | 0.014 | EEGA2E123GNE |
| | 3.000 x 4.125 | 19.56 | 27.38 | 0.018 | 0.014 | EEGA2E123HKE |
| 13000 | 2.500 x 5.625 | 19.71 | 27.59 | 0.017 | 0.013 | EEGA2E133GPE |
| 15000 | 3.000 x 4.625 | 21.89 | 30.65 | 0.015 | 0.011 | EEGA2E153HLE |
| 17000 | 3.000 x 5.125 | 23.48 | 32.87 | 0.013 | 0.010 | EEGA2E173HNE |
| 18000 | 3.000 x 5.625 | 24.52 | 34.33 | 0.012 | 0.009 | EEGA2E183HPE |
| 27000 | 3.000 x 8.625 | 31.85 | 44.59 | 0.010 | 0.007 | EEGA2E273HWE |
| 350 VDC Working, 400 VDC Surge | | | | | | |
| 330 | 1.375 x 1.625 | 1.71 | 2.39 | 0.536 | 0.402 | EEGA2V331CAE |
| 470 | 1.375 x 2.125 | 2.15 | 3.01 | 0.376 | 0.282 | EEGA2V471CCE |
| 560 | 1.375 x 2.625 | 2.49 | 3.49 | 0.316 | 0.237 | EEGA2V561CEE |
| 680 | 1.375 x 3.125 | 2.89 | 4.05 | 0.260 | 0.195 | EEGA2V681CGE |
| 820 | 1.375 x 3.625 | 3.31 | 4.63 | 0.216 | 0.162 | EEGA2V821CHE |
| | 2.000 x 1.875 | 3.64 | 5.10 | 0.216 | 0.162 | EEGA2V821FBE |
| 1000 | 1.375 x 4.125 | 3.80 | 5.32 | 0.177 | 0.133 | EEGA2V102CKE |
| | 2.000 x 2.125 | 4.10 | 5.74 | 0.177 | 0.133 | EEGA2V102FCE |
| 1200 | 1.375 x 4.625 | 4.33 | 6.06 | 0.147 | 0.111 | EEGA2V122CLE |
| | 2.000 x 2.625 | 4.73 | 6.62 | 0.147 | 0.111 | EEGA2V122FEE |
| 1500 | 1.375 x 5.125 | 5.00 | 7.00 | 0.118 | 0.088 | EEGA2V152CNE |
| 1800 | 1.375 x 5.625 | 5.64 | 7.90 | 0.098 | 0.074 | EEGA2V182CPE |
| | 2.000 x 3.125 | 6.04 | 8.46 | 0.098 | 0.074 | EEGA2V182FGE |
| 2200 | 2.000 x 3.625 | 6.94 | 9.72 | 0.080 | 0.060 | EEGA2V222FHE |
| 2700 | 2.000 x 4.125 | 7.95 | 11.13 | 0.065 | 0.049 | EEGA2V272FKE |
| | 2.500 x 3.125 | 8.50 | 11.90 | 0.065 | 0.049 | EEGA2V272GGE |
| 3300 | 2.000 x 5.125 | 9.35 | 13.09 | 0.054 | 0.040 | EEGA2V332FNE |
| | 2.500 x 3.625 | 9.72 | 13.61 | 0.054 | 0.040 | EEGA2V332GHE |
| 3900 | 2.000 x 5.625 | 10.45 | 14.63 | 0.045 | 0.034 | EEGA2V392FPE |
| | 2.500 x 4.125 | 10.89 | 15.25 | 0.045 | 0.034 | EEGA2V392GKE |
| 4700 | 2.500 x 4.625 | 12.32 | 17.25 | 0.038 | 0.028 | EEGA2V472GLE |
| | 3.000 x 3.125 | 12.96 | 18.14 | 0.038 | 0.028 | EEGA2V472HGE |
| 5600 | 2.500 x 5.125 | 13.81 | 19.33 | 0.032 | 0.024 | EEGA2V562GNE |
| | 3.000 x 3.625 | 14.60 | 20.44 | 0.032 | 0.024 | EEGA2V562HHE |
| 6200 | 2.500 x 5.625 | 14.89 | 20.85 | 0.029 | 0.021 | EEGA2V622GPE |
| | 3.000 x 4.125 | 15.78 | 22.09 | 0.029 | 0.021 | EEGA2V622HKE |
| 6800 | 3.000 x 4.625 | 16.98 | 23.77 | 0.026 | 0.020 | EEGA2V682HLE |
| 8200 | 3.000 x 5.125 | 19.11 | 26.75 | 0.022 | 0.016 | EEGA2V822HNE |
| 9100 | 3.000 x 5.625 | 20.60 | 28.84 | 0.019 | 0.015 | EEGA2V912HPE |
| 15000 | 3.000 x 8.625 | 30.03 | 42.04 | 0.012 | 0.009 | EEGA2V153HWE |
| 400 VDC Working, 450 VDC Surge | | | | | | |
| 270 | 1.375 x 1.625 | 1.74 | 2.44 | 0.655 | 0.458 | EEGA2G271CAE |
| 390 | 1.375 x 2.125 | 2.21 | 3.09 | 0.453 | 0.317 | EEGA2G391CCE |
| 470 | 1.375 x 2.625 | 2.58 | 3.61 | 0.376 | 0.263 | EEGA2G471CEE |
| 560 | 1.375 x 3.125 | 2.96 | 4.14 | 0.316 | 0.221 | EEGA2G561CGE |
| 680 | 1.375 x 3.625 | 3.41 | 4.77 | 0.260 | 0.182 | EEGA2G681CHE |
| | 2.000 x 1.875 | 3.58 | 5.01 | 0.260 | 0.182 | EEGA2G6 |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

G-AA Typical Ratings (continued)

| Cap. (μ F) | Nominal Size D x L (inches) | Max 85°C R.C. (A _{ms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------------------|--------------------------------|----------------------------------|------------------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10KHz $^{\circ}$ | 120Hz | 20kHz | |
| 400 VDC Working, 450 VDC Surge (continued) | | | | | | |
| 5100 | 2.500 x 5.625 | 14.51 | 20.31 | 0.035 | 0.024 | EEGA2G512GPE |
| 5600 | 3.000 x 4.625 | 15.95 | 22.33 | 0.032 | 0.022 | EEGA2G562HLE |
| 6800 | 3.000 x 5.125 | 18.01 | 25.21 | 0.026 | 0.018 | EEGA2G682HNE |
| 7500 | 3.000 x 5.625 | 19.36 | 27.10 | 0.024 | 0.017 | EEGA2G752HPE |
| 12000 | 3.000 x 8.625 | 27.80 | 38.92 | 0.015 | 0.010 | EEGA2G123HWE |
| 450 VDC Working, 500 VDC Surge | | | | | | |
| 220 | 1.375 x 1.625 | 1.57 | 2.20 | 0.804 | 0.522 | EEGA2W221CAE |
| 270 | 1.375 x 2.125 | 1.83 | 2.56 | 0.655 | 0.426 | EEGA2W271CCE |
| 390 | 1.375 x 2.625 | 2.35 | 3.29 | 0.453 | 0.295 | EEGA2W391CEE |
| 470 | 1.375 x 3.125 | 2.71 | 3.79 | 0.376 | 0.245 | EEGA2W471CGE |
| 560 | 1.375 x 3.625 | 3.09 | 4.33 | 0.316 | 0.205 | EEGA2W561CHE |
| | 2.000 x 1.875 | 3.25 | 4.55 | 0.316 | 0.205 | EEGA2W561FBE |
| 680 | 1.375 x 4.125 | 3.54 | 4.96 | 0.260 | 0.169 | EEGA2W681CKE |
| | 2.000 x 2.125 | 3.65 | 5.11 | 0.260 | 0.169 | EEGA2W681FCE |
| 820 | 1.375 x 4.625 | 4.03 | 5.64 | 0.216 | 0.140 | EEGA2W821CLE |
| | 2.000 x 2.625 | 4.23 | 5.92 | 0.216 | 0.140 | EEGA2W821FEE |
| 1000 | 1.375 x 5.125 | 4.60 | 6.44 | 0.177 | 0.115 | EEGA2W102CNE |
| | 2.000 x 3.125 | 4.87 | 6.82 | 0.177 | 0.115 | EEGA2W102FGE |
| 1100 | 1.375 x 5.625 | 4.98 | 6.97 | 0.161 | 0.104 | EEGA2W112CPE |
| 1200 | 2.000 x 3.625 | 5.54 | 7.76 | 0.147 | 0.096 | EEGA2W122FHE |
| 1500 | 2.000 x 4.125 | 6.40 | 8.96 | 0.118 | 0.077 | EEGA2W152FKE |
| 1800 | 2.500 x 3.125 | 7.45 | 10.43 | 0.098 | 0.064 | EEGA2W182GGE |
| 2200 | 2.000 x 5.125 | 8.25 | 11.55 | 0.080 | 0.052 | EEGA2W222FNE |
| | 2.500 x 3.625 | 8.53 | 11.94 | 0.080 | 0.052 | EEGA2W222GHE |
| 2700 | 2.000 x 5.625 | 9.39 | 13.15 | 0.065 | 0.043 | EEGA2W272FPE |
| | 2.500 x 4.125 | 9.73 | 13.62 | 0.065 | 0.043 | EEGA2W272GKE |
| | 3.000 x 3.125 | 10.17 | 14.24 | 0.065 | 0.043 | EEGA2W272HGE |
| 3300 | 2.500 x 4.625 | 11.09 | 15.53 | 0.054 | 0.035 | EEGA2W332GLE |
| | 3.000 x 3.625 | 11.60 | 16.24 | 0.054 | 0.035 | EEGA2W332HHE |
| 3600 | 2.500 x 5.125 | 11.89 | 16.65 | 0.049 | 0.032 | EEGA2W362GNE |
| 3900 | 2.500 x 5.625 | 12.69 | 17.77 | 0.045 | 0.029 | EEGA2W392GPE |
| | 3.000 x 4.125 | 12.95 | 18.13 | 0.045 | 0.029 | EEGA2W392HKE |
| 4700 | 3.000 x 4.625 | 14.62 | 20.47 | 0.038 | 0.024 | EEGA2W472HLE |
| 5600 | 3.000 x 5.125 | 16.34 | 22.88 | 0.032 | 0.021 | EEGA2W562HNE |
| 6200 | 3.000 x 5.625 | 17.60 | 24.64 | 0.029 | 0.019 | EEGA2W622HPE |
| 10000 | 3.000 x 8.625 | 25.38 | 35.53 | 0.018 | 0.011 | EEGA2W103HWE |
| 500 VDC Working, 550 VDC Surge | | | | | | |
| 150 | 1.375 x 1.625 | 1.24 | 1.74 | 1.375 | 0.963 | EEGA2H151CAE |
| 180 | 1.375 x 2.125 | 1.43 | 2.00 | 1.146 | 0.802 | EEGA2H181CCE |
| 220 | 1.375 x 2.625 | 1.69 | 2.37 | 0.938 | 0.656 | EEGA2H221CEE |
| 330 | 1.375 x 3.125 | 2.17 | 3.04 | 0.625 | 0.438 | EEGA2H331CGE |
| 390 | 1.375 x 3.625 | 2.47 | 3.46 | 0.529 | 0.370 | EEGA2H391CHE |
| | 2.000 x 1.875 | 2.71 | 3.79 | 0.529 | 0.370 | EEGA2H391FBE |
| 470 | 1.375 x 4.125 | 2.81 | 3.93 | 0.439 | 0.307 | EEGA2H471CKE |
| | 2.000 x 2.125 | 3.03 | 4.24 | 0.439 | 0.307 | EEGA2H471FCE |
| 560 | 1.375 x 4.625 | 3.18 | 4.45 | 0.368 | 0.258 | EEGA2H561CLE |
| | 2.000 x 2.625 | 3.48 | 4.87 | 0.368 | 0.258 | EEGA2H561FEE |
| 680 | 1.375 x 5.125 | 3.62 | 5.07 | 0.303 | 0.212 | EEGA2H681CNE |
| 750 | 1.375 x 5.625 | 3.92 | 5.49 | 0.275 | 0.193 | EEGA2H751CPE |
| 820 | 2.000 x 3.125 | 4.39 | 6.15 | 0.252 | 0.176 | EEGA2H821FGE |
| 1000 | 2.000 x 3.625 | 5.03 | 7.04 | 0.206 | 0.144 | EEGA2H102FHE |
| 1200 | 2.000 x 4.125 | 6.35 | 8.89 | 0.172 | 0.120 | EEGA2H122FKE |
| | 2.500 x 3.125 | 6.29 | 8.81 | 0.172 | 0.120 | EEGA2H122GGE |
| 1500 | 2.000 x 5.125 | 6.76 | 9.46 | 0.138 | 0.096 | EEGA2H152FNE |
| | 2.500 x 3.625 | 7.27 | 10.18 | 0.138 | 0.096 | EEGA2H152GHE |
| 1800 | 2.000 x 5.625 | 7.59 | 10.63 | 0.115 | 0.080 | EEGA2H182FPE |
| | 2.500 x 4.125 | 8.18 | 11.45 | 0.115 | 0.080 | EEGA2H182GKE |
| 2000 | 3.000 x 3.125 | 8.91 | 12.47 | 0.103 | 0.072 | EEGA2H202HGE |
| 2200 | 2.500 x 4.625 | 9.30 | 13.02 | 0.094 | 0.066 | EEGA2H222GLE |
| 2400 | 2.500 x 5.125 | 9.96 | 13.94 | 0.086 | 0.060 | EEGA2H242GNE |
| | 3.000 x 3.625 | 10.04 | 14.06 | 0.086 | 0.060 | EEGA2H242HHE |
| 2700 | 2.500 x 5.625 | 10.82 | 15.15 | 0.076 | 0.053 | EEGA2H272GPE |
| | 3.000 x 4.125 | 10.92 | 15.29 | 0.076 | 0.053 | EEGA2H272HKE |
| 3300 | 3.000 x 4.625 | 12.37 | 17.32 | 0.063 | 0.044 | EEGA2H332HLE |
| 3600 | 3.000 x 5.125 | 13.21 | 18.49 | 0.057 | 0.040 | EEGA2H362HNE |
| 3900 | 3.000 x 5.625 | 14.05 | 19.67 | 0.053 | 0.037 | EEGA2H392HPE |
| 6800 | 3.000 x 8.625 | 20.71 | 28.99 | 0.030 | 0.021 | EEGA2H682HWE |

G-BA Series 105°C, 2000 hours

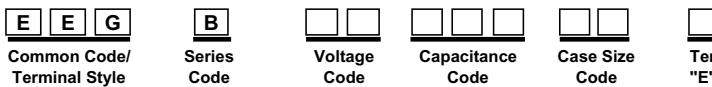
- Long life for industrial applications
- 2000 hour life @ 105°C with ripple current applied
- Stud mount available



| | | | | | | | | | |
|------------------------|---------------------------------------------------|-----------------------------|------------------------------|-------|------|---------|---------|-------|------|
| Rated Working Voltage: | 10 ~ 450 VDC | Ripple Current Multipliers: | Frequency (Hz): | 50 | 60 | 100~120 | 300~360 | 1k | 10k~ |
| Operating Temperature: | -40 ~ +105°C | | 16~100WV: | 0.9 | 0.95 | 1.0 | 1.05 | 1.08 | 1.15 |
| Nominal Capacitance: | 220 ~ 1200000μF | | 160~500WV: | 0.75 | 0.8 | 1.0 | 1.2 | 1.25 | 1.4 |
| Capacitance Tolerance: | ± 20% | | Ambient Temperature Factor** | | | | | | |
| Max. Leakage Current: | 3√CV (μA) after 5 minutes; C = Cap. in μF, V = WV | | Ambient Temperature: | 105°C | 85°C | 70°C | 60°C | ≤45°C | |
| Endurance: | 2000 hours at +105°C* | | Ripple Current Factor: | 1.0 | 1.75 | 2.0 | 2.2 | 2.35 | |

*with maximum rated ripple current applied. See page 6 for additional details. **Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System



"E" code (high post, 10-32 NF-2B thread, no stud) is shown.
Please see page 46 for other terminal / mounting options

NOTE: Series code in part number formerly "BA", shortened to "B"

G-BA Typical Ratings

| Cap. (μF) | Nominal Size D x L (inches) | Max 105°C R.C. (A _{rms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number |
|-------------------------------------------------|--------------------------------|------------------------------------|--------|--------------------|--------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 10 VDC Working, 13 VDC Surge | | | | | | |
| 33000 | 1.375 x 1.625 | 4.67 | 5.37 | 0.0402 | 0.0362 | EEGB1A333CAE |
| 39000 | 1.375 x 2.125 | 5.31 | 6.11 | 0.0345 | 0.0310 | EEGB1A393CCE |
| 56000 | 1.375 x 2.625 | 6.62 | 7.61 | 0.0249 | 0.0224 | EEGB1A563CEE |
| 75000 | 1.375 x 3.125 | 7.86 | 9.04 | 0.0194 | 0.0174 | EEGB1A753CGE |
| 82000 | 1.375 x 3.625 | 8.52 | 9.80 | 0.0180 | 0.0162 | EEGB1A823CHE |
| | 2.000 x 1.875 | 9.10 | 10.47 | 0.0180 | 0.0162 | EEGB1A823FBE |
| 100000 | 1.375 x 4.125 | 9.56 | 10.99 | 0.0153 | 0.0138 | EEGB1A104CKE |
| | 2.000 x 2.125 | 10.03 | 11.53 | 0.0153 | 0.0138 | EEGB1A104FCE |
| 120000 | 1.375 x 4.625 | 10.64 | 12.24 | 0.0132 | 0.0119 | EEGB1A124CLE |
| | 2.000 x 2.625 | 11.32 | 13.02 | 0.0132 | 0.0119 | EEGB1A124FEE |
| 130000 | 1.375 x 5.125 | 11.32 | 13.02 | 0.0125 | 0.0112 | EEGB1A124CNE |
| 150000 | 1.375 x 5.625 | 12.28 | 14.12 | 0.0112 | 0.0101 | EEGB1A154CPE |
| | 2.000 x 3.125 | 12.77 | 14.69 | 0.0112 | 0.0101 | EEGB1A154FGE |
| 180000 | 2.000 x 3.625 | 14.11 | 16.23 | 0.0098 | 0.0089 | EEGB1A184FHE |
| 220000 | 2.000 x 4.125 | 15.53 | 17.86 | 0.0086 | 0.0077 | EEGB1A224FKE |
| 270000 | 2.000 x 5.125 | 17.54 | 20.17 | 0.0076 | 0.0068 | EEGB1A274FNE |
| | 2.500 x 3.125 | 17.74 | 20.40 | 0.0076 | 0.0068 | EEGB1A274GGE |
| 330000 | 2.000 x 5.625 | 19.00 | 21.85 | 0.0067 | 0.0061 | EEGB1A334FPE |
| | 2.500 x 3.625 | 19.36 | 22.26 | 0.0067 | 0.0061 | EEGB1A334GHE |
| 390000 | 2.500 x 4.125 | 20.76 | 23.87 | 0.0062 | 0.0056 | EEGB1A394GKE |
| | 3.000 x 3.125 | 21.95 | 25.24 | 0.0062 | 0.0056 | EEGB1A394HGE |
| 470000 | 2.500 x 4.625 | 22.29 | 25.63 | 0.0056 | 0.0051 | EEGB1A474GLE |
| | 3.000 x 3.625 | 23.58 | 27.12 | 0.0056 | 0.0051 | EEGB1A474HHE |
| 510000 | 2.500 x 5.125 | 23.27 | 26.76 | 0.0054 | 0.0049 | EEGB1A514GNE |
| 560000 | 2.500 x 5.625 | 24.29 | 27.93 | 0.0052 | 0.0047 | EEGB1A564GPE |
| | 3.000 x 4.125 | 25.08 | 28.84 | 0.0052 | 0.0047 | EEGB1A564HKE |
| 680000 | 3.000 x 4.625 | 26.68 | 30.68 | 0.0048 | 0.0044 | EEGB1A684HLE |
| 750000 | 3.000 x 5.125 | 27.76 | 31.92 | 0.0047 | 0.0042 | EEGB1A754HNE |
| 820000 | 3.000 x 5.625 | 28.79 | 33.11 | 0.0045 | 0.0041 | EEGB1A824HPE |
| 1200000 | 3.000 x 8.625 | 34.30 | 39.45 | 0.0041 | 0.0036 | EEGB1A125HWE |
| 16 VDC Working, 20 VDC Surge | | | | | | |
| 22000 | 1.375 x 1.625 | 4.47 | 5.14 | 0.0435 | 0.0392 | EEGB1C223CAE |
| 33000 | 1.375 x 2.125 | 5.65 | 6.50 | 0.0301 | 0.0271 | EEGB1C333CCE |
| 47000 | 1.375 x 2.625 | 6.99 | 8.04 | 0.0221 | 0.0199 | EEGB1C473CEE |
| 56000 | 1.375 x 3.125 | 7.89 | 9.07 | 0.0191 | 0.0172 | EEGB1C563CGE |
| | 2.000 x 1.875 | 8.81 | 10.13 | 0.0191 | 0.0172 | EEGB1C563FBE |
| 68000 | 1.375 x 3.625 | 8.91 | 10.25 | 0.0163 | 0.0146 | EEGB1C683CHE |
| 75000 | 2.000 x 2.125 | 10.07 | 11.58 | 0.0151 | 0.0136 | EEGB1C753FCE |
| 82000 | 1.375 x 4.125 | 9.93 | 11.42 | 0.0141 | 0.0126 | EEGB1C823CKE |
| 91000 | 1.375 x 4.625 | 10.71 | 12.32 | 0.0130 | 0.0117 | EEGB1C913CLE |
| 16 VDC Working, 20 VDC Surge (continued) | | | | | | |
| 100000 | 1.375 x 5.125 | 11.44 | 13.16 | 0.0121 | 0.0109 | EEGB1C104CNE |
| | 2.000 x 2.625 | 11.78 | 13.55 | 0.0121 | 0.0109 | EEGB1C104FEE |
| 120000 | 1.375 x 5.625 | 12.55 | 14.43 | 0.0106 | 0.0096 | EEGB1C124CPE |
| | 2.000 x 3.125 | 13.06 | 15.02 | 0.0106 | 0.0096 | EEGB1C124FGE |
| 150000 | 2.000 x 3.625 | 14.56 | 16.74 | 0.0092 | 0.0082 | EEGB1C154FHE |
| 180000 | 2.000 x 4.125 | 15.87 | 18.25 | 0.0082 | 0.0073 | EEGB1C184FKE |
| | 2.500 x 3.125 | 17.09 | 19.65 | 0.0082 | 0.0073 | EEGB1C184GGE |
| 220000 | 2.000 x 5.125 | 17.83 | 20.50 | 0.0073 | 0.0065 | EEGB1C224FNE |
| | 2.500 x 3.625 | 18.67 | 21.47 | 0.0073 | 0.0065 | EEGB1C224GHE |
| 270000 | 2.000 x 5.625 | 19.26 | 22.15 | 0.0065 | 0.0059 | EEGB1C274FPE |
| | 2.500 x 4.125 | 20.21 | 23.24 | 0.0065 | 0.0059 | EEGB1C274GKE |
| 330000 | 2.500 x 4.625 | 21.76 | 25.02 | 0.0059 | 0.0053 | EEGB1C334GLE |
| | 3.000 x 3.125 | 22.32 | 25.67 | 0.0059 | 0.0053 | EEGB1C334HGE |
| 390000 | 2.500 x 5.125 | 23.08 | 26.54 | 0.0055 | 0.0050 | EEGB1C394GNE |
| | 3.000 x 3.625 | 23.79 | 27.36 | 0.0055 | 0.0050 | EEGB1C394HHE |
| 470000 | 2.500 x 5.625 | 24.46 | 28.13 | 0.0051 | 0.0046 | EEGB1C474GPE |
| | 3.000 x 4.125 | 25.25 | 29.04 | 0.0051 | 0.0046 | EEGB1C474HKE |
| 510000 | 3.000 x 4.625 | 26.29 | 30.23 | 0.0050 | 0.0045 | EEGB1C514HLE |
| 560000 | 3.000 x 5.125 | 27.32 | 31.42 | 0.0048 | 0.0043 | EEGB1C564HNE |
| 620000 | 3.000 x 5.625 | 28.36 | 32.61 | 0.0047 | 0.0042 | EEGB1C624HPE |
| 1000000 | 3.000 x 8.625 | 34.01 | 39.11 | 0.0041 | 0.0037 | EEGB1C105HWE |
| 25 VDC Working, 32 VDC Surge | | | | | | |
| 18000 | 1.375 x 1.625 | 4.52 | 5.20 | 0.0368 | 0.0313 | EEGB1E183CAE |
| 22000 | 1.375 x 2.125 | 5.21 | 5.99 | 0.0309 | 0.0263 | EEGB1E223CCE |
| 33000 | 1.375 x 2.625 | 6.62 | 7.61 | 0.0220 | 0.0187 | EEGB1E333CEE |
| 39000 | 1.375 x 3.125 | 7.46 | 8.58 | 0.0192 | 0.0163 | EEGB1E393CGE |
| 47000 | 1.375 x 3.625 | 8.41 | 9.67 | 0.0167 | 0.0142 | EEGB1E473CHE |
| | 2.000 x 1.875 | 8.96 | 10.30 | 0.0167 | 0.0142 | EEGB1E473FBE |
| 56000 | 1.375 x 4.125 | 9.35 | 10.75 | 0.0146 | 0.0124 | EEGB1E563CKE |
| | 2.000 x 2.125 | 9.78 | 11.25 | 0.0146 | 0.0124 | EEGB1E563FCE |
| 68000 | 1.375 x 4.625 | 10.43 | 11.99 | 0.0128 | 0.0109 | EEGB1E683CLE |
| | 2.000 x 2.625 | 11.08 | 12.74 | 0.0128 | 0.0109 | EEGB1E683FEE |
| 75000 | 1.375 x 5.125 | 11.17 | 12.85 | 0.0120 | 0.0102 | EEGB1E753CNE |
| 82000 | 1.375 x 5.625 | 11.88 | 13.66 | 0.0113 | 0.0096 | EEGB1E823CPE |
| 100000 | 2.000 x 3.125 | 13.18 | 15.16 | 0.0100 | 0.0085 | EEGB1E104FGE |
| 120000 | 2.000 x 3.625 | 14.49 | 16.66 | 0.0090 | 0.0077 | EEGB1E124FHE |
| | 2.500 x 3.125 | 16.11 | 18.53 | 0.0090 | 0.0077 | EEGB1E124GGE |
| 130000 | 2.000 x 4.125 | 15.33 | 17.63 | 0.0087 | 0.0074 | EEGB1E134FKE |
| 150000 | 2.000 x 5.125 | 16.99 | 19.54 | 0.0081 | 0.0068 | EEGB1E154FNE |
| | 2.500 x 3.625 | 17.76 | 20.42 | 0.0081 | 0.0068 | EEGB1E154GHE |

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

G-BA Typical Ratings (continued)

| Cap. (μ F) | Nominal Size D x L (inches) | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|-------------------------------------------------|--------------------------------|------------------------------|--------|-----------------------------|--------|--------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 25 VDC Working, 32 VDC Surge (continued) | | | | | | |
| 180000 | 2.000 x 5.625 | 18.32 | 21.07 | 0.0074 | 0.0063 | EEGB1E184FPE |
| | 2.500 x 4.125 | 19.19 | 22.07 | 0.0074 | 0.0063 | EEGB1E184GKE |
| 220000 | 2.500 x 4.625 | 20.74 | 23.85 | 0.0068 | 0.0058 | EEGB1E224GLE |
| | 3.000 x 3.125 | 21.25 | 24.44 | 0.0068 | 0.0058 | EEGB1E224HGE |
| 270000 | 2.500 x 5.125 | 22.24 | 25.58 | 0.0063 | 0.0054 | EEGB1E274GN |
| | 3.000 x 3.625 | 22.89 | 26.32 | 0.0063 | 0.0054 | EEGB1E274HHE |
| 330000 | 2.500 x 5.625 | 23.68 | 27.23 | 0.0059 | 0.0050 | EEGB1E334GPE |
| | 3.000 x 4.125 | 24.42 | 28.08 | 0.0059 | 0.0050 | EEGB1E334HKE |
| 390000 | 3.000 x 4.625 | 25.81 | 29.68 | 0.0056 | 0.0048 | EEGB1E394HLE |
| 430000 | 3.000 x 5.125 | 26.84 | 30.87 | 0.0055 | 0.0047 | EEGB1E434HNE |
| 470000 | 3.000 x 5.625 | 27.82 | 31.99 | 0.0054 | 0.0046 | EEGB1E474HPE |
| 750000 | 3.000 x 8.625 | 33.26 | 38.25 | 0.0049 | 0.0042 | EEGB1E754HWE |
| 35 VDC Working, 44 VDC Surge | | | | | | |
| 12000 | 1.375 x 1.625 | 4.36 | 5.01 | 0.0491 | 0.0418 | EEGB1V123CAE |
| 18000 | 1.375 x 2.125 | 5.51 | 6.34 | 0.0337 | 0.0287 | EEGB1V183CCE |
| 22000 | 1.375 x 2.625 | 6.41 | 7.37 | 0.0281 | 0.0239 | EEGB1V223CEE |
| 27000 | 1.375 x 3.125 | 7.33 | 8.43 | 0.0235 | 0.0200 | EEGB1V273CGE |
| 33000 | 1.375 x 3.625 | 8.32 | 9.57 | 0.0197 | 0.0168 | EEGB1V333CHE |
| | 2.000 x 1.875 | 8.76 | 10.07 | 0.0197 | 0.0168 | EEGB1V333FB |
| 39000 | 1.375 x 4.125 | 9.23 | 10.61 | 0.0172 | 0.0146 | EEGB1V393CKE |
| | 2.000 x 2.125 | 9.54 | 10.97 | 0.0172 | 0.0146 | EEGB1V393FCE |
| 47000 | 1.375 x 4.625 | 10.29 | 11.83 | 0.0147 | 0.0125 | EEGB1V473CLE |
| | 2.000 x 2.625 | 10.79 | 12.41 | 0.0147 | 0.0125 | EEGB1V473FEE |
| 51000 | 1.375 x 5.125 | 10.95 | 12.59 | 0.0138 | 0.0117 | EEGB1V513CNE |
| 56000 | 1.375 x 5.625 | 11.68 | 13.43 | 0.0129 | 0.0109 | EEGB1V563CPE |
| 68000 | 2.000 x 3.125 | 12.80 | 14.72 | 0.0111 | 0.0094 | EEGB1V683FGE |
| 82000 | 2.000 x 3.625 | 14.12 | 16.24 | 0.0097 | 0.0083 | EEGB1V823FHE |
| 100000 | 2.000 x 4.125 | 15.47 | 17.79 | 0.0085 | 0.0072 | EEGB1V104FKE |
| | 2.500 x 3.125 | 16.64 | 19.14 | 0.0085 | 0.0072 | EEGB1V104GGE |
| 120000 | 2.000 x 5.125 | 17.31 | 19.91 | 0.0076 | 0.0064 | EEGB1V124FNE |
| | 2.500 x 3.625 | 18.10 | 20.82 | 0.0076 | 0.0064 | EEGB1V124GHE |
| 150000 | 2.000 x 5.625 | 18.80 | 21.62 | 0.0067 | 0.0057 | EEGB1V154FPE |
| | 2.500 x 4.125 | 19.70 | 22.66 | 0.0067 | 0.0057 | EEGB1V154GKE |
| | 3.000 x 3.125 | 20.80 | 23.92 | 0.0067 | 0.0057 | EEGB1V154HGE |
| 180000 | 2.500 x 4.625 | 21.15 | 24.32 | 0.0060 | 0.0051 | EEGB1V184GLE |
| | 3.000 x 3.625 | 22.35 | 25.70 | 0.0060 | 0.0051 | EEGB1V184HHE |
| 220000 | 2.500 x 5.125 | 22.60 | 25.99 | 0.0055 | 0.0047 | EEGB1V224GN |
| | 3.000 x 4.125 | 23.89 | 27.47 | 0.0055 | 0.0047 | EEGB1V224HKE |
| 270000 | 2.500 x 5.625 | 24.03 | 27.63 | 0.0050 | 0.0043 | EEGB1V274GPE |
| | 3.000 x 4.625 | 25.46 | 29.28 | 0.0050 | 0.0043 | EEGB1V274HLE |
| 300000 | 3.000 x 5.125 | 26.53 | 30.51 | 0.0048 | 0.0041 | EEGB1V304HNE |
| 330000 | 3.000 x 5.625 | 27.53 | 31.66 | 0.0046 | 0.0039 | EEGB1V334HPE |
| 560000 | 3.000 x 8.625 | 33.28 | 38.27 | 0.0039 | 0.0034 | EEGB1V564HWE |
| 50 VDC Working, 63 VDC Surge | | | | | | |
| 8200 | 1.375 x 1.625 | 4.11 | 4.73 | 0.0539 | 0.0458 | EEGB1H822CAE |
| 12000 | 1.375 x 2.125 | 5.11 | 5.88 | 0.0368 | 0.0313 | EEGB1H123CCE |
| 15000 | 1.375 x 2.625 | 5.99 | 6.89 | 0.0295 | 0.0251 | EEGB1H153CEE |
| 18000 | 1.375 x 3.125 | 6.80 | 7.82 | 0.0246 | 0.0209 | EEGB1H183CGE |
| 22000 | 1.375 x 3.625 | 7.72 | 8.88 | 0.0201 | 0.0171 | EEGB1H223CBE |
| | 2.000 x 1.875 | 8.27 | 9.51 | 0.0201 | 0.0171 | EEGB1H223FB |
| 27000 | 1.375 x 4.125 | 8.69 | 9.99 | 0.0164 | 0.0139 | EEGB1H273CKE |
| | 2.000 x 2.125 | 9.13 | 10.50 | 0.0164 | 0.0139 | EEGB1H273FCE |
| 33000 | 1.375 x 4.625 | 9.73 | 11.19 | 0.0134 | 0.0114 | EEGB1H333CLE |
| | 2.000 x 2.625 | 10.38 | 11.94 | 0.0134 | 0.0114 | EEGB1H333FEE |
| 36000 | 1.375 x 5.125 | 10.38 | 11.94 | 0.0125 | 0.0106 | EEGB1H363CNE |
| 39000 | 1.375 x 5.625 | 11.01 | 12.66 | 0.0118 | 0.0100 | EEGB1H393CPE |
| | 2.000 x 3.125 | 11.49 | 13.21 | 0.0118 | 0.0100 | EEGB1H393FGE |
| 47000 | 2.000 x 3.625 | 12.72 | 14.63 | 0.0103 | 0.0087 | EEGB1H473FHE |
| 56000 | 2.000 x 4.125 | 13.91 | 16.00 | 0.0091 | 0.0077 | EEGB1H563FKE |
| 75000 | 2.500 x 3.125 | 16.26 | 18.70 | 0.0076 | 0.0064 | EEGB1H753GGE |
| 82000 | 2.000 x 5.125 | 16.51 | 18.99 | 0.0072 | 0.0061 | EEGB1H823FNE |
| | 2.500 x 3.625 | 17.23 | 19.81 | 0.0072 | 0.0061 | EEGB1H823GHE |
| 91000 | 2.000 x 5.625 | 17.43 | 20.04 | 0.0068 | 0.0057 | EEGB1H913FPE |
| 100000 | 2.500 x 4.125 | 18.65 | 21.45 | 0.0064 | 0.0055 | EEGB1H104GKE |
| | 3.000 x 3.125 | 19.66 | 22.61 | 0.0064 | 0.0055 | EEGB1H104HGE |
| 120000 | 2.500 x 4.625 | 20.03 | 23.03 | 0.0058 | 0.0050 | EEGB1H124GLE |
| | 3.000 x 3.625 | 21.13 | 24.30 | 0.0058 | 0.0050 | EEGB1H124HHE |
| 130000 | 2.500 x 5.125 | 20.92 | 24.06 | 0.0056 | 0.0048 | EEGB1H134GNE |
| 150000 | 2.500 x 5.625 | 22.06 | 25.37 | 0.0053 | 0.0045 | EEGB1H154GPE |
| | 3.000 x 4.125 | 22.71 | 26.12 | 0.0053 | 0.0045 | EEGB1H154HKE |
| 160000 | 3.000 x 4.625 | 23.63 | 27.17 | 0.0051 | 0.0044 | EEGB1H164HLE |
| 180000 | 3.000 x 5.125 | 24.71 | 28.42 | 0.0049 | 0.0042 | EEGB1H184HNE |
| 200000 | 3.000 x 5.625 | 25.72 | 29.58 | 0.0047 | 0.0040 | EEGB1H204HPE |
| 50 VDC Working, 63 VDC Surge (continued) | | | | | | |
| 330000 | 3.000 x 8.625 | 31.19 | 35.87 | 0.0040 | 0.0034 | EEGB1H334HWE |
| 63 VDC Working, 79 VDC Surge | | | | | | |
| 5600 | 1.375 x 1.625 | 3.80 | 4.37 | 0.0658 | 0.0559 | EEGB1J562CAE |
| 8200 | 1.375 x 2.125 | 4.76 | 5.47 | 0.0449 | 0.0382 | EEGB1J822CCE |
| 10000 | 1.375 x 2.625 | 5.54 | 6.37 | 0.0368 | 0.0313 | EEGB1J103CCE |
| 12000 | 1.375 x 3.125 | 6.29 | 7.23 | 0.0307 | 0.0261 | EEGB1J123CGE |
| 15000 | 1.375 x 3.625 | 7.22 | 8.30 | 0.0246 | 0.0209 | EEGB1J153CHE |
| | 2.000 x 1.875 | 7.69 | 8.84 | 0.0295 | 0.0251 | EEGB1J153FBE |
| 18000 | 1.375 x 4.125 | 8.08 | 9.29 | 0.0205 | 0.0174 | EEGB1J183CKE |
| | 2.000 x 2.125 | 8.44 | 9.71 | 0.0246 | 0.0209 | EEGB1J183FCE |
| 22000 | 1.375 x 4.625 | 9.07 | 10.43 | 0.0167 | 0.0142 | EEGB1J223CLE |
| | 2.000 x 2.625 | 9.62 | 11.06 | 0.0201 | 0.0171 | EEGB1J223FEE |
| 27000 | 1.375 x 5.125 | 10.12 | 11.64 | 0.0164 | 0.0139 | EEGB1J273CNE |
| 30000 | 1.375 x 5.625 | 10.83 | 12.45 | 0.0147 | 0.0125 | EEGB1J303CPE |
| 33000 | 2.000 x 3.125 | 11.61 | 13.35 | 0.0134 | 0.0114 | EEGB1J333FGE |
| 39000 | 2.000 x 3.625 | 12.75 | 14.66 | 0.0117 | 0.0099 | EEGB1J393FHE |
| 47000 | 2.000 x 4.125 | 13.96 | 16.05 | 0.0101 | 0.0086 | EEGB1J473FKE |
| | 2.500 x 3.125 | 14.99 | 17.24 | 0.0101 | 0.0086 | EEGB1J473GGE |
| 56000 | 2.000 x 5.125 | 15.63 | 17.97 | 0.0089 | 0.0075 | EEGB1J563FNE |
| | 2.500 x 3.625 | 16.32 | 18.77 | 0.0089 | 0.0075 | EEGB1J563GHE |
| 68000 | 2.000 x 5.625 | 16.92 | 19.46 | 0.0077 | 0.0066 | EEGB1J683FPE |
| | 2.500 x 4.125 | 17.70 | 20.36 | 0.0077 | 0.0066 | EEGB1J683GKE |
| 82000 | 2.500 x 4.625 | 19.09 | 21.95 | 0.0068 | 0.0058 | EEGB1J823GLE |
| | 3.000 x 3.125 | 19.53 | 22.46 | 0.0068 | 0.0058 | EEGB1J823HGE |
| 91000 | 3.000 x 3.625 | 20.62 | 23.71 | 0.0064 | 0.0054 | EEGB1J913HHE |
| 100000 | 2.500 x 5.125 | 20.48 | 23.55 | 0.0060 | 0.0051 | EEGB1J104GNE |
| | 3.000 x 4.125 | 21.61 | 24.85 | 0.0060 | 0.0051 | EEGB1J104HKE |
| 110000 | 2.500 x 5.625 | 21.40 | 24.61 | 0.0057 | 0.0048 | EEGB1J114HPE |
| 120000 | 3.000 x 4.625 | 23.02 | 26.47 | 0.0054 | 0.0046 | EEGB1J124HLE |
| 130000 | 3.000 x 5.125 | 23.93 | 27.52 | 0.0052 | 0.0044 | EEGB1J134HNE |
| 150000 | 3.000 x 5.625 | 25.09 | 28.85 | 0.0048 | 0.0041 | EEGB1J154HPE |
| 220000 | 3.000 x 8.625 | 30.06 | 34.57 | 0.0040 | 0.0034 | EEGB1J224HWE |
| 80 VDC Working, 100 VDC Surge | | | | | | |
| 3300 | 1.375 x 1.625 | 3.37 | 3.88 | 0.1116 | 0.0893 | EEGB1K332CAE |
| 3900 | 1.375 x 2.125 | 3.84 | 4.42 | 0.0945 | 0.0756 | EEGB1K392CCE |
| 4700 | 1.375 x 2.625 | 4.46 | 5.13 | 0.0784 | 0.0627 | EEGB1K472CEE |
| 6800 | 1.375 x 3.125 | 5.54 | 6.37 | 0.0542 | 0.0433 | EEGB1K682CGE |
| 8200 | 1.375 x 3.625 | 6.30 | 7.25 | 0.0449 | 0.0359 | EEGB1K822CHE |
| | 2.000 x 1.875 | 6.92 | 7.96 | 0.0449 | 0.0359 | EEGB1K822FBE |
| 10000 | 1.375 x 4.125 | 7.13 | 8.20 | 0.0368 | 0.0295 | EEGB1K103CKE |
| 12000 | 1.375 x 4.625 | 8.00 | 9.20 | 0.0307 | 0.0246 | EEGB1K123CLE |
| | 2.000 x 2.125 | 8.30 | 9.55 | 0.0307 | 0.0246 | EEGB1K123FCE |
| 15000 | 1.375 x 5.125 | 9.05 | 10.41 | 0.0246 | 0.0196 | EEGB1K153CNE |
| | 2.000 x 2.625 | 9.58 | 11.02 | 0.0246 | 0.0196 | EEGB1K153FEE |
| 18000 | 1.375 x 5.625 | 10.02 | 11.52 | 0.0205 | 0.0164 | EEGB1K183CPE |
| | 2.000 x 3.125 | 10.73 | 12.34 | 0.0205 | 0.0164 | EEGB1K183FGE |
| 22000 | 2.000 x 3.625 | 12.02 | 13.82 | 0.0167 | 0.0134 | EEGB1K223FHE |
| 27000 | 2.000 x 4.125 | 13.36 | 15.36 | 0.0136 | 0.0109 | EEGB1K273FKE |
| 33000 | 2.000 x 5.125 | 15.20 | 17.48 | 0.0121 | 0.0096 | EEGB1K333FNE |
| | 2.500 x 3.625 | 15.14 | 17.41 | 0.0156 | 0.0125 | EEGB1K333GHE |
| 39000 | 2.000 x 5.625 | 16.46 | 18.93 | 0.0110 | 0.0088 | EEGB1K393FPE |
| | 2.500 x 4.125 | 16.43 | 18.89 | 0.0 | | |

G-BA Typical Ratings (continued)

| Cap. (μ F) | Nominal Size D x L (inches) | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------------------|--------------------------------|------------------------------|----------------|-----------------------------|------------------|------------------------------|
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 100 VDC Working, 125 VDC Surge (continued) | | | | | | |
| 10000 | 1.375 x 5.125 2.000 x 2.625 | 6.91 7.32 | 7.95 8.42 | 0.0295 0.0295 | 0.0236 0.0236 | EEGB2A103CNE EEGB2A103FEE |
| 12000 | 1.375 x 5.625 2.000 x 3.125 | 7.71 8.26 | 8.87 9.50 | 0.0246 0.0246 | 0.0196 0.0196 | EEGB2A123CPE EEGB2A123FGE |
| 15000 | 2.000 x 3.625 | 9.43 | 10.84 | 0.0196 | 0.0157 | EEGB2A153FHE |
| 18000 | 2.000 x 4.125 2.500 x 3.125 | 10.50 11.61 | 12.08 13.35 | 0.0164 0.0205 | 0.0131 0.0164 | EEGB2A183FKE EEGB2A183GGE |
| 22000 | 2.000 x 5.125 2.500 x 3.625 | 12.09 13.00 | 13.90 14.95 | 0.0134 0.0167 | 0.0107 0.0134 | EEGB2A223FNE EEGB2A223GHE |
| 27000 | 2.000 x 5.625 2.500 x 4.125 | 13.41 14.46 | 15.42 16.63 | 0.0120 0.0136 | 0.0096 0.0109 | EEGB2A273FPE EEGB2A273GKE |
| 33000 | 2.500 x 4.625 3.000 x 3.125 | 16.00 16.84 | 18.40 19.37 | 0.0112 0.0156 | 0.0089 0.0125 | EEGB2A333GLE EEGB2A333HGE |
| 39000 | 2.500 x 5.125 3.000 x 3.625 | 17.38 18.37 | 19.99 21.13 | 0.0094 0.0132 | 0.0076 0.0106 | EEGB2A393GNE EEGB2A393HNE |
| 47000 | 2.500 x 5.625 3.000 x 4.125 | 18.89 20.01 | 21.72 23.01 | 0.0078 0.0110 | 0.0063 0.0088 | EEGB2A473GPE EEGB2A473HKE |
| 52000 | 3.000 x 4.625 | 21.20 | 24.38 | 0.0099 | 0.0079 | EEGB2A523HLE |
| 56000 | 3.000 x 5.125 | 22.18 | 25.51 | 0.0092 | 0.0074 | EEGB2A563HNE |
| 68000 | 3.000 x 5.625 | 23.93 | 27.52 | 0.0076 | 0.0061 | EEGB2A683HPE |
| 100000 | 3.000 x 8.625 | 29.74 | 34.20 | 0.0041 | 0.0033 | EEGB2A104HWE |
| 200 VDC Working, 250 VDC Surge | | | | | | |
| 820 | 1.375 x 1.625 | 1.55 | 2.17 | 0.180 | 0.135 | EEGB2D821CAE |
| 1000 | 1.375 x 2.125 | 1.81 | 2.53 | 0.147 | 0.111 | EEGB2D102CCE |
| 1500 | 1.375 x 2.625 | 2.36 | 3.30 | 0.098 | 0.074 | EEGB2D152CEE |
| 1800 | 1.375 x 3.125 | 2.71 | 3.79 | 0.082 | 0.061 | EEGB2D182CGE |
| 2200 | 1.375 x 3.625 2.000 x 1.875 | 3.13 3.33 | 4.38 4.66 | 0.067 0.067 | 0.050 0.050 | EEGB2D222CHE EEGB2D222FBE |
| 2700 | 1.375 x 4.125 2.000 x 2.125 | 3.61 3.76 | 5.05 5.26 | 0.055 0.055 | 0.041 0.041 | EEGB2D272CKE EEGB2D272FCE |
| 3000 | 1.375 x 4.625 | 3.95 | 5.53 | 0.049 | 0.037 | EEGB2D302CLE |
| 3300 | 1.375 x 5.125 2.000 x 2.625 | 4.28 4.38 | 5.99 6.13 | 0.045 0.045 | 0.033 0.033 | EEGB2D332CNE EEGB2D332FEE |
| 3900 | 1.375 x 5.625 | 4.80 | 6.72 | 0.038 | 0.028 | EEGB2D392CPE |
| 4700 | 2.000 x 3.125 | 5.45 | 7.63 | 0.031 | 0.024 | EEGB2D472FGE |
| 5100 | 2.000 x 3.625 | 5.90 | 8.26 | 0.029 | 0.022 | EEGB2D512FHE |
| 5600 | 2.000 x 4.125 | 6.39 | 8.95 | 0.026 | 0.020 | EEGB2D562FKE |
| 6800 | 2.000 x 5.125 2.500 x 3.125 | 7.49 7.79 | 10.49 10.91 | 0.022 0.022 | 0.016 0.016 | EEGB2D682FNE EEGB2D682GGE |
| 8200 | 2.000 x 5.625 2.500 x 3.625 | 8.45 8.85 | 11.83 12.39 | 0.018 0.018 | 0.013 0.013 | EEGB2D822FPE EEGB2D822GHE |
| 10000 | 2.500 x 4.125 3.000 x 3.125 | 10.06 10.57 | 14.08 14.80 | 0.015 0.016 | 0.011 0.012 | EEGB2D103GKE EEGB2D103HGE |
| 12000 | 2.500 x 4.625 3.000 x 3.625 | 11.36 11.94 | 15.90 16.72 | 0.012 0.014 | 0.009 0.010 | EEGB2D123GLE EEGB2D123HHE |
| 13000 | 2.500 x 5.125 | 12.14 | 17.00 | 0.011 | 0.009 | EEGB2D133GNE |
| 15000 | 2.500 x 5.625 3.000 x 4.125 | 13.38 13.72 | 18.73 19.21 | 0.010 0.011 | 0.007 0.008 | EEGB2D153GPE EEGB2D153HKE |
| 18000 | 3.000 x 4.625 | 15.45 | 21.63 | 0.009 | 0.007 | EEGB2D183HLE |
| 20000 | 3.000 x 5.125 | 16.68 | 23.35 | 0.008 | 0.006 | EEGB2D203HNE |
| 22000 | 3.000 x 5.625 | 17.90 | 25.06 | 0.007 | 0.006 | EEGB2D223HPE |
| 33000 | 3.000 x 8.625 | 24.90 | 34.86 | 0.005 | 0.004 | EEGB2D333HWE |
| 250 VDC Working, 300 VDC Surge | | | | | | |
| 560 | 1.375 x 1.625 | 1.39 | 1.95 | 0.263 | 0.197 | EEGB2E561CAE |
| 820 | 1.375 x 2.125 | 1.77 | 2.48 | 0.180 | 0.135 | EEGB2E821CCE |
| 1000 | 1.375 x 2.625 | 2.08 | 2.91 | 0.147 | 0.111 | EEGB2E102CEE |
| 1200 | 1.375 x 3.125 | 2.39 | 3.35 | 0.123 | 0.092 | EEGB2E122CGE |
| 1500 | 1.375 x 3.625 2.000 x 1.875 | 2.80 2.95 | 3.92 4.13 | 0.098 0.098 | 0.074 0.074 | EEGB2E152CHE EEGB2E152FBE |
| 1800 | 1.375 x 4.125 2.000 x 2.125 | 3.18 3.30 | 4.45 4.62 | 0.082 0.082 | 0.061 0.061 | EEGB2E182CKE EEGB2E182FCE |
| 2200 | 1.375 x 4.625 2.000 x 2.625 | 3.65 3.84 | 5.11 5.38 | 0.067 0.067 | 0.050 0.050 | EEGB2E222CLE EEGB2E222FEE |
| 2400 | 1.375 x 5.125 | 3.94 | 5.52 | 0.061 | 0.046 | EEGB2E242CNE |
| 2700 | 1.375 x 5.625 2.000 x 3.125 | 4.31 4.44 | 6.03 6.22 | 0.055 0.055 | 0.041 0.041 | EEGB2E272CPE EEGB2E272FGE |
| 3300 | 2.000 x 3.625 | 5.09 | 7.13 | 0.045 | 0.033 | EEGB2E332FHE |
| 3900 | 2.000 x 4.125 | 5.72 | 8.01 | 0.038 | 0.028 | EEGB2E392FKE |
| 4700 | 2.000 x 5.125 2.500 x 3.125 | 6.69 6.70 | 9.37 9.38 | 0.031 0.031 | 0.024 0.024 | EEGB2E472FNE EEGB2E472GGE |
| 5600 | 2.000 x 5.625 2.500 x 3.625 | 7.50 7.57 | 10.50 10.60 | 0.026 0.026 | 0.020 0.020 | EEGB2E562FPE EEGB2E562GHE |
| 6800 | 2.500 x 4.125 | 8.59 | 12.03 | 0.022 | 0.016 | EEGB2E682GKE |
| 250 VDC Working, 300 VDC Surge (continued) | | | | | | |
| Cap. (μ F) | Nominal Size D x L (inches) | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
| | | 120Hz | 10kHz~ | 120Hz | 20kHz | |
| 250 VDC Working, 300 VDC Surge (continued) | | | | | | |
| 7500 | 3.000 x 3.125 | 9.46 | 13.24 | 0.022 | 0.016 | EEGB2E752HGE |
| 8200 | 2.500 x 4.625 3.000 x 3.625 | 9.72 10.20 | 13.61 14.28 | 0.018 0.020 | 0.013 0.015 | EEGB2E822GLE EEGB2E822HHE |
| 9100 | 2.500 x 5.125 | 10.52 | 14.73 | 0.016 | 0.012 | EEGB2E912GNE |
| 10000 | 2.500 x 5.625 3.000 x 4.125 | 11.30 11.57 | 15.82 16.20 | 0.015 0.016 | 0.011 0.012 | EEGB2E103GPE EEGB2E103HKE |
| 12000 | 3.000 x 4.625 | 13.03 | 18.24 | 0.014 | 0.010 | EEGB2E123HLE |
| 13000 | 3.000 x 5.125 | 13.89 | 19.45 | 0.012 | 0.009 | EEGB2E133HNE |
| 15000 | 3.000 x 5.625 | 15.27 | 21.38 | 0.011 | 0.008 | EEGB2E153HPE |
| 22000 | 3.000 x 8.625 | 21.00 | 29.40 | 0.008 | 0.006 | EEGB2E223HWE |
| 300 VDC Working, 350 VDC Surge | | | | | | |
| 390 | 1.375 x 1.625 | 1.11 | 1.55 | 0.378 | 0.283 | EEGB2U391CAE |
| 470 | 1.375 x 2.125 | 1.29 | 1.81 | 0.314 | 0.235 | EEGB2U471CCE |
| 680 | 1.375 x 2.625 | 1.65 | 2.31 | 0.217 | 0.163 | EEGB2U681CEE |
| 820 | 1.375 x 3.125 | 1.90 | 2.66 | 0.180 | 0.135 | EEGB2U821CGE |
| 1000 | 1.375 x 3.625 2.000 x 1.875 | 2.19 2.32 | 3.07 3.25 | 0.147 | 0.111 | EEGB2U102CHE EEGB2U102FBE |
| 1200 | 1.375 x 4.125 2.000 x 2.125 | 2.50 2.59 | 3.50 3.63 | 0.123 | 0.092 | EEGB2U122CKE EEGB2U122FCE |
| 1500 | 1.375 x 4.625 2.000 x 2.625 | 2.90 3.06 | 4.06 4.28 | 0.098 | 0.074 | EEGB2U152CLE EEGB2U152FEE |
| 1600 | 1.375 x 5.125 | 3.09 | 4.33 | 0.092 | 0.069 | EEGB2U162CNE |
| 1800 | 1.375 x 5.625 | 3.38 | 4.73 | 0.082 | 0.061 | EEGB2U182CPE |
| 2200 | 2.000 x 3.125 | 3.86 | 5.40 | 0.067 | 0.050 | EEGB2U222FGE |
| 2700 | 2.000 x 3.625 | 4.44 | 6.22 | 0.055 | 0.041 | EEGB2U272FHE |
| 3300 | 2.000 x 4.125 2.500 x 3.125 | 5.07 5.61 | 7.10 7.85 | 0.045 | 0.033 | EEGB2U332FKE EEGB2U332GGE |
| 3900 | 2.000 x 5.125 2.500 x 3.625 | 5.87 6.32 | 8.22 8.85 | 0.038 | 0.028 | EEGB2U392FNE EEGB2U392GHE |
| 4700 | 2.000 x 5.625 2.500 x 4.125 | 6.62 7.14 | 9.27 10.00 | 0.031 | 0.024 | EEGB2U472FPE |
| 5100 | 3.000 x 3.125 | 7.80 | 10.92 | 0.032 | 0.024 | EEGB2U512HGE |
| 5600 | 2.500 x 4.625 | 8.04 | 11.26 | 0.026 | 0.020 | EEGB2U562GLE |
| 6200 | 2.500 x 5.125 3.000 x 3.625 | 8.68 8.87 | 12.15 12.42 | 0.024 | 0.020 | EEGB2U622GNE |
| 6800 | 2.500 x 5.625 3.000 x 4.125 | 9.32 9.54 | 13.05 13.36 | 0.022 | 0.016 | EEGB2U682GPE |
| 8200 | 3.000 x 4.625 | 10.77 | 15.08 | 0.020 | 0.015 | EEGB2U822HLE |
| 9100 | 3.000 x 5.125 | 11.62 | 16.27 | 0.018 | 0.013 | EEGB2U912HNE |
| 10000 | 3.000 x 5.625 | 12.47 | 17.46 | 0.016 | 0.012 | EEGB2U103HPE |
| 18000 | 3.000 x 8.625 | 18.99 | 26.59 | 0.010 | 0.007 | EEGB2U183HWE |
| 350 VDC Working, 400 VDC Surge | | | | | | |
| 330 | 1.375 x 1.625 | 0.99 | 1.39 | 0.447 | 0.313 | EEGB2V331CAE |
| 390 | 1.375 x 2.125 | 1.13 | 1.58 | 0.378 | 0.264 | EEGB2V391CCE |
| 560 | 1.375 x 2.625 | 1.44 | 2.02 | 0.263 | 0.184 | EEGB2V561CEE |
| 680 | 1.375 x 3.125 | 1.67 | 2.34 | 0.217 | 0.152 | EEGB2V681CGE |
| 820 | 1.375 x 3.625 2.000 x 1.875 | 1.91 2.10 | 2.67 2.94 | 0.180 | 0.126 | EEGB2V821CHE EEGB2V821FBE |
| 1000 | 1.375 x 4.125 2.000 x 2.125 | 2.19 2.37 | 3.07 3.32 | 0.147 | 0.103 | EEGB2V102FCE |
| 1200 | 1.375 x 4.625 2.000 x 2.625 | 2.50 2.73 | 3.50 3.82 | 0.123 | 0.086 | EEGB2V122CLE EEGB2V122FEE |
| 1300 | 1.375 x 5.125 | 2.69 | 3.77 | 0.113 | 0.079 | EEGB2V132CNE |
| 1500 | 1.375 x 5.625 2.000 x 3.125 | 2.98 3.19 | 4.17 4.47 | 0.098 | 0.069 | EEGB2V152CPE EEGB2V152FGE |
| 1800 | 2.000 x 3.625 | 3.63 | 5.08 | 0.082 | 0.057 | EEGB2V182FHE |
| 2200 | 2.000 x 4.125 | 4.14 | 5.80 | 0.067 | 0.047 | EEGB2V222FKE |
| 2700 | 2.000 x 5.125 2.500 x 3.125 | 4.89 4.91 | 6.85 6.87 | 0.055 | 0.038 | EEGB2V272FNE EEGB2V272GGE |
| 3300 | 2.000 x 5.625 | 5.55 | 7.77 | 0.045 | 0.031 | EEGB2V332FPE |
| 3900 | 2.500 x 4.125 3.000 x 3.125 | 5.61 | 7.85 | 0.045 | 0.031 | EEGB2V332GHE |
| 4700 | 2.500 x 4.625 3.000 x 3.625 | 6.29 7.72 | 8.81 10.81 | 0.038 | 0.026 | EEGB2V392GKE |
| 5100 | 2.500 x 5.125 | 7.61 | 10.65 | 0.029 | 0.020 | EEGB2V512GNE |
| 5600 | 2.500 x 5.625 | 8.17 | 11.44 | 0.026 | 0.018 | EEGB2V562GPE |
| 6800 | 3.000 x 4.625 | 8.66 | 12.12 | 0.029 | 0.020 | EEGB2V562HKE |
| 7500 | 3.000 x 5.125 | 10.55 | 14.77 | 0.022 | 0.015 | EEGB2V752HNE |
| 8200 | 3.000 x 5.625 | 11.29 | 15.81 | 0.020 | 0.014 | EEGB2V822HPE |
| 12000 | 3.000 x 8.625 | | | | | |

LARGE CAN ALUMINUM ELECTROLYTIC CAPACITORS

G-BA Typical Ratings (continued)

| Cap. (μ F) | Nominal Size D x L (inches) | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------|--------------------------------|------------------------------|--------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10KHz~ | 120Hz | 20kHz | |
| 400 VDC Working, 450 VDC Surge | | | | | | |
| 270 | 1.375 x 1.625 | 0.97 | 1.36 | 0.546 | 0.355 | EEGB2G271CAE |
| 330 | 1.375 x 2.125 | 1.13 | 1.58 | 0.447 | 0.290 | EEGB2G331CCE |
| 390 | 1.375 x 2.625 | 1.31 | 1.83 | 0.378 | 0.246 | EEGB2G391CEE |
| 560 | 1.375 x 3.125 | 1.65 | 2.31 | 0.263 | 0.171 | EEGB2G561CGE |
| | 2.000 x 1.875 | 1.82 | 2.55 | 0.263 | 0.171 | EEGB2G561FBE |
| 680 | 1.375 x 3.625 | 1.90 | 2.66 | 0.217 | 0.141 | EEGB2G681CHE |
| | 2.000 x 2.125 | 2.04 | 2.86 | 0.217 | 0.141 | EEGB2G681FCE |
| 820 | 1.375 x 4.125 | 2.17 | 3.04 | 0.180 | 0.117 | EEGB2G821CKE |
| 910 | 1.375 x 4.625 | 2.38 | 3.33 | 0.162 | 0.105 | EEGB2G911CLE |
| 1000 | 1.375 x 5.125 | 2.57 | 3.60 | 0.147 | 0.096 | EEGB2G102CNE |
| | 2.000 x 2.625 | 2.61 | 3.65 | 0.147 | 0.096 | EEGB2G102FEE |
| 1200 | 1.375 x 5.625 | 2.91 | 4.07 | 0.123 | 0.080 | EEGB2G122CP |
| | 2.000 x 3.125 | 2.98 | 4.17 | 0.123 | 0.080 | EEGB2G122FGE |
| 1500 | 2.000 x 3.625 | 3.46 | 4.84 | 0.098 | 0.064 | EEGB2G152FHE |
| 1800 | 2.000 x 4.125 | 3.92 | 5.49 | 0.082 | 0.053 | EEGB2G182FKE |
| 2200 | 2.000 x 5.125 | 4.61 | 6.45 | 0.067 | 0.044 | EEGB2G222FNE |
| | 2.500 x 3.125 | 4.61 | 6.45 | 0.067 | 0.044 | EEGB2G222GGE |
| 2700 | 2.000 x 5.625 | 5.25 | 7.35 | 0.055 | 0.035 | EEGB2G272FPE |
| | 2.500 x 3.625 | 5.28 | 7.39 | 0.055 | 0.035 | EEGB2G272GHE |
| 3300 | 2.500 x 4.125 | 6.01 | 8.41 | 0.045 | 0.029 | EEGB2G332GKE |
| | 3.000 x 3.125 | 6.29 | 8.81 | 0.049 | 0.032 | EEGB2G332HGE |
| 3600 | 2.500 x 4.625 | 6.47 | 9.06 | 0.041 | 0.027 | EEGB2G362GLE |
| 3900 | 2.500 x 5.125 | 6.92 | 9.69 | 0.038 | 0.025 | EEGB2G392GNE |
| | 3.000 x 3.625 | 7.05 | 9.87 | 0.042 | 0.027 | EEGB2G392HHE |
| 4700 | 2.500 x 5.625 | 7.79 | 10.91 | 0.031 | 0.020 | EEGB2G472GPE |
| | 3.000 x 4.125 | 7.95 | 11.13 | 0.034 | 0.022 | EEGB2G472HKE |
| 5200 | 3.000 x 4.625 | 8.59 | 12.03 | 0.031 | 0.020 | EEGB2G522HLE |
| 5600 | 3.000 x 5.125 | 9.14 | 12.80 | 0.029 | 0.019 | EEGB2G562HNE |
| 6800 | 3.000 x 5.625 | 10.30 | 14.42 | 0.024 | 0.015 | EEGB2G682HPE |
| 10000 | 3.000 x 8.625 | 14.19 | 19.87 | 0.018 | 0.011 | EEGB2G103HWE |
| 450 VDC Working, 500 VDC Surge | | | | | | |
| 220 | 1.375 x 1.625 | 0.88 | 1.23 | 0.670 | 0.435 | EEGB2W221CAE |
| 270 | 1.375 x 2.125 | 1.03 | 1.44 | 0.546 | 0.355 | EEGB2W271CCE |
| 330 | 1.375 x 2.625 | 1.21 | 1.69 | 0.447 | 0.290 | EEGB2W331CEE |
| 470 | 1.375 x 3.125 | 1.51 | 2.11 | 0.314 | 0.204 | EEGB2W471CGE |
| | 2.000 x 1.875 | 1.67 | 2.34 | 0.314 | 0.204 | EEGB2W471FBE |
| 560 | 1.375 x 3.625 | 1.73 | 2.42 | 0.263 | 0.171 | EEGB2W561CHE |
| | 2.000 x 2.125 | 1.85 | 2.59 | 0.263 | 0.171 | EEGB2W561FCE |
| 680 | 1.375 x 4.125 | 1.98 | 2.77 | 0.217 | 0.141 | EEGB2W681CKE |
| 750 | 1.375 x 4.625 | 2.16 | 3.02 | 0.196 | 0.128 | EEGB2W751CLE |
| 820 | 1.375 x 5.125 | 2.33 | 3.26 | 0.180 | 0.117 | EEGB2W821CNE |
| | 2.000 x 2.625 | 2.38 | 3.30 | 0.180 | 0.117 | EEGB2W821FEE |
| 1000 | 1.375 x 5.625 | 2.65 | 3.71 | 0.147 | 0.096 | EEGB2W102CP |
| | 2.000 x 3.125 | 2.72 | 3.81 | 0.147 | 0.096 | EEGB2W102FGE |
| 1200 | 2.000 x 3.625 | 3.10 | 4.34 | 0.123 | 0.080 | EEGB2W122FHE |
| 1500 | 2.000 x 4.125 | 3.58 | 5.01 | 0.098 | 0.064 | EEGB2W152FKE |
| | 2.500 x 3.125 | 3.80 | 5.32 | 0.098 | 0.064 | EEGB2W152GGE |
| 1800 | 2.000 x 5.125 | 4.17 | 5.84 | 0.082 | 0.053 | EEGB2W182FNE |
| | 2.500 x 3.625 | 4.31 | 6.03 | 0.082 | 0.053 | EEGB2W182GHE |
| 2200 | 2.000 x 5.625 | 4.74 | 6.64 | 0.067 | 0.044 | EEGB2W222FPE |
| | 2.500 x 4.125 | 4.91 | 6.87 | 0.067 | 0.044 | EEGB2W222GKE |
| 2700 | 2.500 x 4.625 | 5.61 | 7.85 | 0.055 | 0.035 | EEGB2W272GLE |
| | 3.000 x 3.125 | 5.69 | 7.97 | 0.060 | 0.039 | EEGB2W272HGE |
| 3300 | 2.500 x 5.125 | 6.36 | 8.90 | 0.045 | 0.029 | EEGB2W332GNE |
| | 3.000 x 3.625 | 6.48 | 9.07 | 0.049 | 0.032 | EEGB2W332HHE |
| 3900 | 2.500 x 5.625 | 7.09 | 9.93 | 0.038 | 0.025 | EEGB2W392GPE |
| | 3.000 x 4.125 | 7.24 | 10.14 | 0.042 | 0.027 | EEGB2W392HKE |
| 4300 | 3.000 x 4.625 | 7.82 | 10.95 | 0.038 | 0.025 | EEGB2W432HLE |
| 4700 | 3.000 x 5.125 | 8.37 | 11.72 | 0.034 | 0.022 | EEGB2W472HNE |
| 5600 | 3.000 x 5.625 | 9.35 | 13.09 | 0.029 | 0.019 | EEGB2W562HPE |
| 9100 | 3.000 x 8.625 | 13.54 | 18.96 | 0.019 | 0.013 | EEGB2W912HWE |

Panasonic

Electronic Components

R E G I O N A L S A L E S O F F I C E S

**WESTERN REGION:**

Panasonic Industrial Co.
6550 Katella Ave.
Cypress, CA 90630

WESTERN REGION:

Panasonic Industrial Co.
9444 Balboa Ave.
Suite 185
San Diego, CA 92123

CENTRAL REGION:

Panasonic Industrial Co.
1707 North Randall Rd.
Elgin, IL 60123-7847

EASTERN REGION:

Panasonic Industrial Co.
Two Panasonic Way
Secaucus, NJ 07094

Panasonic Industrial Company

2 Panasonic Way
Secaucus, NJ 07094
1-800-344-2112
<http://www.panasonic.com/pic>

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