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: $\frac{(\text{rated cap. [µF]} - 33000)}{1000}$

Leakage Current: $3\sqrt{CV}$ (µA) max. after 5 minutes; *C = Capacitance in µF, V = WV*

Ripple Current Multipliers:

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

Ripple Current Ambient Temperature Factors**

Temperature (°C):	85°C	70°C	60°C	≤45°C
Multiplier:	1.0	1.3	1.4	1.5

Endurance: 3000 hours at +85°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

E C □ □ — □ □ — P — □ □ □ — □ — □

Voltage Code — Series — Capacitance Code

Common Code / Terminal Type	
ECOS	2 pin, 6.3mm Length Terminal (Standard)
ECEC	2 pin, 4.0mm Length "Short" Terminal
ECE3	3 Pin, 4.0mm Length Terminal
(Please see page 10 for details)	

Case Diameter	
B	22mm
C	25mm
D	30mm
E	35mm

Insulation Options	
25 ~ 50mm lengths	
A	PVC with top plate
B	PVC without top plate
20mm length	
L	PVC with top plate
G	PVC without top plate
Extended Capacitance Ratings	
X	PVC with top plate

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}) 120Hz	Max 85°C R.C. (A_{rms}) 10kHz~	Max. 20°C ESR (Ω) 120Hz	Max. 20°C ESR (Ω) 20kHz	Panasonic Part Number
16 VDC Working, 20 VDC Surge						
4700	22 x 20	1.60	1.84	0.159	0.135	ECOS1CP472BL
	22 x 25	1.77	2.04	0.159	0.135	ECOS1CP472BA
6800	22 x 25	2.57	2.96	0.110	0.093	ECOS1CP682BA
	25 x 20	1.80	2.07	0.110	0.093	ECOS1CP682CL
8200	22 x 25	3.10	3.57	0.091	0.077	ECOS1CP822BA
10000	22 x 30	3.78	4.35	0.075	0.063	ECOS1CP103BA
	25 x 25	3.78	4.35	0.075	0.063	ECOS1CP103CA
	30 x 20	2.40	2.76	0.083	0.070	ECOS1CP103DL
12000	22 x 30	4.52	5.20	0.062	0.053	ECOS1CP123BA
	25 x 25	4.52	5.20	0.062	0.053	ECOS1CP123CA
15000	22 x 35	5.26	6.05	0.053	0.045	ECOS1CP153BA
	25 x 30	5.26	6.05	0.053	0.045	ECOS1CP153CA
	35 x 20	3.20	3.68	0.055	0.047	ECOS1CP153EL
18000	22 x 40	5.57	6.41	0.046	0.039	ECOS1CP183BA
	25 x 30	5.57	6.41	0.046	0.039	ECOS1CP183CA
22000	22 x 45	6.10	7.02	0.038	0.032	ECOS1CP223BA
	25 x 35	6.10	7.02	0.038	0.032	ECOS1CP223CA
	30 x 30	6.10	7.02	0.038	0.032	ECOS1CP223DA
27000	25 x 45	6.31	7.26	0.031	0.026	ECOS1CP273CA
	30 x 35	6.31	7.26	0.031	0.026	ECOS1CP273DA
33000	25 x 50	6.84	7.87	0.025	0.021	ECOS1CP333CA
	30 x 40	6.84	7.87	0.025	0.021	ECOS1CP333DA
	35 x 30	6.84	7.87	0.025	0.021	ECOS1CP333EA
39000	30 x 45	6.94	7.98	0.021	0.018	ECOS1CP393DA
	35 x 35	6.94	7.98	0.021	0.018	ECOS1CP393EA
47000	30 x 50	7.47	8.59	0.019	0.017	ECOS1CP473DA
	35 x 40	7.47	8.59	0.021	0.019	ECOS1CP473EA
56000	35 x 45	8.73	10.04	0.019	0.018	ECOS1CP563EA
68000	35 x 50	9.05	10.41	0.018	0.017	ECOS1CP683EA
25 VDC Working, 32 VDC Surge						
3300	22 x 20	1.60	1.84	0.176	0.141	ECOS1EP332BL
	22 x 25	1.68	1.93	0.161	0.129	ECOS1EP332BA
4700	22 x 25	2.39	2.75	0.113	0.090	ECOS1EP472BA
	25 x 20	1.80	2.07	0.123	0.099	ECOS1EP472CL
5600	22 x 25	2.86	3.29	0.095	0.076	ECOS1EP562BA

Cap. (µF)	Size (mm) D x L	Max 85°C R.C. (A_{rms}) 120Hz	Max 85°C R.C. (A_{rms}) 10kHz~	Max. 20°C ESR (Ω) 120Hz	Max. 20°C ESR (Ω) 20kHz	Panasonic Part Number
25 VDC Working, 32 VDC Surge (continued)						
6800	22 x 30	3.47	3.99	0.078	0.062	ECOS1EP682BA
	25 x 25	3.47	3.99	0.078	0.062	ECOS1EP682CA
	30 x 20	2.30	2.65	0.078	0.062	ECOS1EP682DL
8200	22 x 30	3.57	4.11	0.065	0.052	ECOS1EP822BA
	25 x 25	3.57	4.11	0.065	0.052	ECOS1EP822CA
10000	22 x 35	3.78	4.35	0.058	0.046	ECOS1EP103BA
	25 x 30	3.78	4.35	0.058	0.046	ECOS1EP103CA
	30 x 25	3.78	4.35	0.058	0.046	ECOS1EP103DA
	35 x 20	2.70	3.11	0.061	0.049	ECOS1EP103EL
12000	22 x 40	4.10	4.72	0.048	0.039	ECOS1EP123BA
	25 x 35	4.10	4.72	0.048	0.039	ECOS1EP123CA
	30 x 30	4.10	4.72	0.048	0.039	ECOS1EP123DA
15000	22 x 50	4.63	5.32	0.039	0.031	ECOS1EP153BA
	25 x 40	4.63	5.32	0.039	0.031	ECOS1EP153CA
	30 x 30	4.63	5.32	0.039	0.031	ECOS1EP153DA
18000	25 x 45	5.47	6.29	0.035	0.028	ECOS1EP183CA
	30 x 35	5.47	6.29	0.035	0.028	ECOS1EP183DA
22000	25 x 50	6.10	7.02	0.029	0.023	ECOS1EP223CA
	30 x 40	6.10	7.02	0.029	0.023	ECOS1EP223DA
27000	30 x 45	6.21	7.14	0.023	0.019	ECOS1EP273DA
	35 x 35	6.21	7.14	0.025	0.020	ECOS1EP273EA
33000	30 x 50	6.84	7.87	0.020	0.017	ECOS1EP333DA
	35 x 40	6.84	7.87	0.020	0.017	ECOS1EP333EA
39000	35 x 45	7.36	8.46	0.019	0.017	ECOS1EP393EA
47000	35 x 50	8.00	9.20	0.017	0.015	ECOS1EP473EA
35 VDC Working, 44 VDC Surge						
2200	22 x 20	1.40	1.61	0.181	0.136	ECOS1VP222BL
	22 x 25	1.52	1.75	0.166	0.124	ECOS1VP222BA
3300	22 x 25	2.29	2.63	0.111	0.083	ECOS1VP332BA
	25 x 20	1.70	1.96	0.121	0.090	ECOS1VP332CL
3900	22 x 25	2.71	3.12	0.094	0.070	ECOS1VP392BA
4700	22 x 30	3.26	3.75	0.078	0.058	ECOS1VP472BA
	25 x 25	3.26	3.75	0.078	0.058	ECOS1VP472CA
	30 x 20	2.00	2.30	0.088	0.066	ECOS1VP472DL
5600	22 x 30	3.36	3.86	0.080	0.060	ECOS1VP562BA

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TS-UP Standard Ratings (continued)

Cap. (μF)	Size (mm) D x L	Max 85°C R.C. (A_{rms}) 120Hz	Max 85°C R.C. (A_{rms}) 10kHz~	Max. 20°C ESR (Ω) 120Hz	Max. 20°C ESR (Ω) 20kHz	Panasonic Part Number
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	ECOS1HP103CA
	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
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	0.180	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	3.61	0.121	0.078	ECOS2AP222EA
2700	25 x 45	3.71	4.27	0.104	0.068	ECOS2AP272CA
	30 x 35	3.71	4.27	0.104	0.068	ECOS2AP272DA
	35 x 30	3.71	4.27	0.104	0.068	ECOS2AP272EA
3300	25 x 50	4.06	4.67	0.090	0.059	ECOS2AP332CA
	30 x 40	4.06	4.67	0.090	0.059	ECOS2AP332DA
3900	30 x 45	4.54	5.22	0.077	0.050	ECOS2AP392DA
	35 x 35	4.54	5.22	0.081	0.052	ECOS2AP392EA
4700	30 x 50	5.13	5.90	0.071	0.049	ECOS2AP472DA
	35 x 40	5.13	5.90	0.071	0.049	ECOS2AP472EA
5600	35 x 45	5.75	6.61	0.059	0.041	ECOS2AP562EA
6800	35 x 50	6.60	7.59	0.049	0.037	ECOS2AP682EA

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TS-UP Standard Ratings (continued)

Cap. (µF)	Size (mm) D x L	Max 85°C R.C. (A_{rms}) 120Hz	Max 85°C R.C. (A_{rms}) 10kHz~	Max. 20°C ESR (Ω) 120Hz	Max. 20°C ESR (Ω) 20kHz	Panasonic Part Number
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
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	ECOS2EP391BA
	25 x 30	1.91	2.67	0.468	0.187	ECOS2EP391CX
	25 x 35	1.91	2.67	0.468	0.187	ECOS2EP391CA
	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	0.099	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	1.40	1.382	0.484	ECOS2VP121BA
	25 x 25	1.00	1.40	1.382	0.484	ECOS2VP121CA
150	22 x 35	1.12	1.57	1.105	0.387	ECOS2VP151BA
	25 x 25	1.12	1.57	1.105	0.387	ECOS2VP151CX
	25 x 30	1.12	1.57	1.105	0.387	ECOS2VP151CA
	30 x 25	1.12	1.57	1.105	0.387	ECOS2VP151DA
180	22 x 40	1.22	1.71	0.921	0.322	ECOS2VP181BA
	25 x 30	1.22	1.71	0.921	0.322	ECOS2VP181CX
	25 x 35	1.22	1.71	0.921	0.322	ECOS2VP181CA
	30 x 25	1.22	1.71	0.921	0.322	ECOS2VP181DA
220	22 x 45	1.44	2.02	0.754	0.264	ECOS2VP221BA
	25 x 35	1.44	2.02	0.754	0.264	ECOS2VP221CX
	25 x 40	1.44	2.02	0.754	0.264	ECOS2VP221CA
	30 x 25	1.44	2.02	0.754	0.264	ECOS2VP221DX
	30 x 30	1.44	2.02	0.754	0.264	ECOS2VP221DA
	35 x 25	1.44	2.02	0.754	0.264	ECOS2VP221EA
270	25 x 40	1.66	2.32	0.614	0.215	ECOS2VP271CX
	30 x 30	1.66	2.32	0.614	0.215	ECOS2VP271DX
	30 x 35	1.66	2.32	0.614	0.215	ECOS2VP271DA
	35 x 25	1.66	2.32	0.614	0.215	ECOS2VP271EX

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Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

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TS-UP Standard Ratings (continued)

Cap. (µF)	Size (mm) D x L	Max. 85°C R.C. (A_{rms}) 120Hz	Max. 85°C R.C. (A_{rms}) 10kHz~	Max. 20°C ESR (Ω) 120Hz	Max. 20°C ESR (Ω) 20kHz	Panasonic Part Number
350 VDC Working, 400 VDC Surge (continued)						
	35 x 30	1.66	2.32	0.614	0.215	ECOS2VP271EA
330	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
	35 x 30	1.88	2.63	0.502	0.176	ECOS2VP331EA
390	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
	35 x 30	2.06	2.88	0.425	0.149	ECOS2VP391EX
	35 x 35	2.06	2.88	0.425	0.149	ECOS2VP391EA
470	30 x 50	2.40	3.36	0.388	0.136	ECOS2VP471DA
	35 x 35	2.40	3.36	0.353	0.123	ECOS2VP471EX
	35 x 40	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
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
180	22 x 45	1.44	2.02	0.921	0.322	ECOS2GP181BA
	25 x 30	1.44	2.02	0.921	0.322	ECOS2GP181CX
	25 x 35	1.44	2.02	0.921	0.322	ECOS2GP181CA
220	22 x 50	1.49	2.09	0.754	0.264	ECOS2GP221BA
	25 x 40	1.49	2.09	0.754	0.264	ECOS2GP221CA
	30 x 30	1.49	2.09	0.754	0.264	ECOS2GP221DA
270	25 x 45	1.67	2.34	0.675	0.236	ECOS2GP271CA
	30 x 35	1.67	2.34	0.675	0.236	ECOS2GP271DA
	35 x 30	1.67	2.34	0.675	0.236	ECOS2GP271EA
330	30 x 40	1.90	2.66	0.553	0.193	ECOS2GP331DA
	35 x 30	1.90	2.66	0.553	0.193	ECOS2GP331EX
	35 x 35	1.90	2.66	0.553	0.193	ECOS2GP331EA
390	30 x 45	2.13	2.98	0.468	0.164	ECOS2GP391DA
	35 x 35	2.13	2.98	0.468	0.164	ECOS2GP391EX
	35 x 40	2.13	2.98	0.468	0.164	ECOS2GP391EA
470	35 x 40	2.39	3.35	0.388	0.136	ECOS2GP471EX
	35 x 45	2.39	3.35	0.388	0.136	ECOS2GP471EA
560	35 x 45	2.69	3.77	0.326	0.114	ECOS2GP561EX
	35 x 50	2.69	3.77	0.326	0.114	ECOS2GP561EA
680	35 x 50	3.00	4.20	0.268	0.094	ECOS2GP681EX
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
180	22 x 45	1.44	2.02	1.105	0.387	ECOS2SP181BA
	25 x 35	1.44	2.02	1.105	0.387	ECOS2SP181CA
	30 x 30	1.44	2.02	1.105	0.387	ECOS2SP181DA
220	25 x 45	1.49	2.09	0.904	0.316	ECOS2SP221CA
	30 x 30	1.49	2.09	0.904	0.316	ECOS2SP221DA
	35 x 25	1.49	2.09	0.904	0.316	ECOS2SP221EA
270	25 x 50	1.67	2.34	0.737	0.258	ECOS2SP271CA
	30 x 35	1.67	2.34	0.737	0.258	ECOS2SP271DA
	35 x 30	1.67	2.34	0.737	0.258	ECOS2SP271EA
330	30 x 45	1.90	2.66	0.603	0.211	ECOS2SP331DA
	35 x 35	1.90	2.66	0.603	0.211	ECOS2SP331EA
390	30 x 50	2.13	2.98	0.510	0.179	ECOS2SP391DA
	35 x 40	2.13	2.98	0.510	0.179	ECOS2SP391EA
470	35 x 45	2.39	3.35	0.423	0.148	ECOS2SP471EA
560	35 x 50	2.69	3.77	0.355	0.124	ECOS2SP561EA
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
68	30 x 20	0.38	0.53	2.926	1.170	ECOS2WP680DL
82	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
	30 x 25	1.04	1.46	1.382	0.553	ECOS2WP121DA
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
	30 x 35	1.35	1.89	0.921	0.368	ECOS2WP181DA
	35 x 25	1.35	1.89	0.921	0.368	ECOS2WP181EA
220	25 x 45	1.55	2.17	0.754	0.301	ECOS2WP221CX
	25 x 50	1.55	2.17	0.754	0.301	ECOS2WP221CA
	30 x 35	1.55	2.17	0.754	0.301	ECOS2WP221DX
	30 x 40	1.55	2.17	0.754	0.301	ECOS2WP221DA
	35 x 30	1.55	2.17	0.754	0.301	ECOS2WP221EA
270	30 x 45	1.78	2.49	0.675	0.270	ECOS2WP271DA
	35 x 30	1.78	2.49	0.614	0.246	ECOS2WP271EX

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TS-UP Standard Ratings (continued)

Cap. (µF)	Size (mm) D x L	Max. 85°C R.C. (A_{rms}) 120Hz	Max. 85°C R.C. (A_{rms}) 10kHz~	Max. 20°C ESR (Ω) 120Hz	Max. 20°C ESR (Ω) 20kHz	Panasonic Part Number
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	**ECOS2HP331EA**
390	35 x 50	2.22	3.11	0.425	0.234	**ECOS2HP391EA**

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