

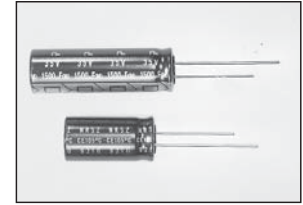
LOW IMPEDANCE AT HIGH FREQUENCY RADIAL LEADS, POLARIZED ALUMINUM ELECTROLYTIC CAPACITORS

FEATURES

- VERY LOW IMPEDANCE
- LONG LIFE AT 105°C (2000 ~ 10,000 hrs.)
- HIGH STABILITY AT LOW TEMPERATURE
- IDEALLY FOR USE IN SWITCHING POWER SUPPLIES AND CONVERTORS

RoHS Compliant
includes all homogeneous materials

*See Part Number System for Details



CHARACTERISTICS

| | | | | | | | | | |
|---|--------------------|---|------|------|------|------|------|------|------|
| Rated Voltage Range | | 6.3 ~ 100VDC | | | | | | | |
| Capacitance Range | | 0.47 ~ 12,000µF | | | | | | | |
| Operating Temperature Range | | -55 ~ +105°C | | | | | | | |
| Capacitance Tolerance | | ±20% (M) | | | | | | | |
| Max. Leakage Current @ 20°C | After 1 min. | 0.03CV or 4µA, whichever is greater | | | | | | | |
| | After 2 min. | 0.01CV or 3µA, whichever is greater | | | | | | | |
| Max. Tanδ ~ 120Hz/20°C | W.V. (VDC) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| | S.V. (VDC) | 8 | 13 | 20 | 32 | 44 | 63 | 79 | 125 |
| | C < 1,200µF | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 | 0.07 |
| | C = 1,500µF | 0.23 | 0.20 | 0.17 | 0.15 | 0.13 | 0.11 | - | - |
| | C = 1,800µF | 0.23 | 0.20 | 0.17 | 0.15 | 0.13 | 0.11 | - | - |
| | C = 2,200µF | 0.24 | 0.21 | 0.18 | 0.16 | 0.14 | - | - | - |
| | C = 2,700µF | 0.25 | 0.22 | 0.19 | 0.17 | 0.15 | - | - | - |
| | C = 3,300µF | 0.26 | 0.23 | 0.20 | 0.18 | 0.16 | - | - | - |
| | C = 3,900µF | 0.28 | 0.25 | 0.22 | 0.20 | - | - | - | - |
| | C = 4,700µF | 0.29 | 0.26 | 0.23 | 0.21 | - | - | - | - |
| | C = 5,600µF | 0.31 | 0.28 | 0.25 | - | - | - | - | - |
| | C = 6,800µF | 0.33 | 0.30 | 0.27 | - | - | - | - | - |
| | C = 8,200µF | 0.36 | 0.33 | - | - | - | - | - | - |
| C = 10,000µF | 0.40 | - | - | - | - | - | - | - | |
| C = 12,000µF | 0.44 | - | - | - | - | - | - | - | |
| Low Temperature Stability Impedance Ratio @ 120Hz | Z-25°C/Z+20°C | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z-40°C/Z+20°C | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Load Life Test at Rated W.V. & 105°C (See Standard Products and Specifications Tables) | Capacitance Change | Within ±20% of initial measured value | | | | | | | |
| | Tanδ | Less than 200% of specified maximum value | | | | | | | |
| | Leakage Current | Less than specified maximum value | | | | | | | |
| Shelf Life Test 105°C for 1,000 hours No Load | Capacitance Change | Within ±20% of initial measured value | | | | | | | |
| | Tanδ | Less than 200% of specified maximum value | | | | | | | |
| | Leakage Current | Less than specified maximum value | | | | | | | |

LOW IMPEDANCE
NRSZ ► **NRSY**
(today's standard) (reduced sizes)

*NRSZ102M6.3V8X20 is 4,500 Hours @ 105°C

Unless otherwise specified here, capacitor shall meet JIS C-5141 Characteristics W.

RIPPLE CURRENT CORRECTION FACTORS

| Frequency (Hz) | Cap. (µF) | 120 | 1K | 10K | 100K |
|----------------|--------------|------|------|------|------|
| Multiplier | 0.47 ~ 4.7 | 0.40 | 0.68 | 0.78 | 1.00 |
| | 5.6 ~ 47 | 0.50 | 0.76 | 0.87 | 1.00 |
| | 56 ~ 270 | 0.70 | 0.85 | 0.90 | 1.00 |
| | 330 ~ 1000 | 0.80 | 0.93 | 0.98 | 1.00 |
| | 1200 ~ 12000 | 0.90 | 0.95 | 1.0 | 1.0 |

PRECAUTIONS

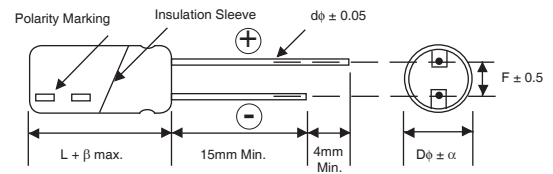
Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.
Also found at www.niccomp.com/precautions
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com



LEAD SPACING AND DIAMETER (mm)

| | | | | | | | |
|-----------------------|-----|-----|-----|-----|------|-----|-----|
| Case Dia. (D ϕ) | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
| Lead Dia. (d ϕ) | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| Lead Spacing (F) | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| Dim. α | | | | 0.5 | | | |
| Dim. β | 1.0 | | | 2.0 | | | |

DIMENSIONS (mm)



Drawing is representative of parts as supplied in bulk or straight lead format, please see taping specification for details on taped format packaging.

STANDARD PRODUCTS, CASE SIZES AND SPECIFICATIONS

| Part Number | Cap. (μ F) | W.V. (Vdc) | Max. Tan δ | Max. LC (μ A) | Max. Impedance | | Max. Ripple Current at 100KHz/105°C (mA rms) | Load Life Hours @ +105°C |
|----------------------|-----------------|------------|-------------------|--------------------|----------------|--------------|--|--------------------------|
| | | | | | 100KHz/20°C | 100KHz/-10°C | | |
| NRSZ101M6.3V5x11F | 100 | 6.3 | 0.22 | 6.3 | 0.90 | 1.8 | 100 | 2,500 |
| NRSZ221M6.3V6.3x11F | 220 | | 0.22 | 13.9 | 0.30 | 0.60 | 280 | 3,000 |
| NRSZ331M6.3V6.3x11F | 330 | | 0.22 | 20.8 | 0.22 | 0.44 | 300 | 2,000 |
| NRSZ331M6.3V8x11.5F | | | 0.22 | 20.8 | 0.19 | 0.38 | 410 | 3,500 |
| NRSZ471M6.3V8x11.5F | 470 | | 0.22 | 296 | 0.11 | 0.22 | 560 | 3,500 |
| NRSZ681M6.3V8x15F | 680 | | 0.22 | 42.8 | 0.985 | 0.17 | 730 | 4,500 |
| NRSZ821M6.3V10x12.5F | 820 | | 0.22 | 51.7 | 0.085 | 0.17 | 800 | 5,000 |
| NRSZ102M6.3V8x20F | 1000 | | 0.22 | 63.0 | 0.069 | 0.14 | 800 | 4,500 |
| NRSZ122M6.3V10x16F | 1200 | | 0.22 | 75.6 | 0.062 | 0.13 | 1050 | 5,000 |
| NRSZ152M6.3V10x20F | 1500 | | 0.23 | 94.5 | 0.044 | 0.088 | 1250 | 5,000 |
| NRSZ152M6.3V12.5x16F | | | 0.23 | 94.5 | 0.063 | 0.14 | 1150 | 5,000 |
| NRSZ222M6.3V12.5x20F | 2200 | | 0.24 | 138 | 0.048 | 0.096 | 1400 | 7,000 |
| NRSZ272M6.3V12.5x20F | 2700 | | 0.25 | 170 | 0.038 | 0.076 | 1600 | 7,000 |
| NRSZ392M6.3V12.5x25F | 3900 | | 0.28 | 245 | 0.029 | 0.058 | 1800 | 7,000 |
| NRSZ472M6.3V12.5x25F | 4700 | | 0.29 | 296 | 0.029 | 0.058 | 1800 | 5,000 |
| NRSZ562M6.3V16x25F | 5600 | | 0.31 | 353 | 0.022 | 0.044 | 2100 | 10,000 |
| NRSZ123M6.3V18x35.5F | 12000 | | 0.44 | 756 | 0.018 | 0.036 | 2800 | 10,000 |
| NRSZ680M10V5x11F | 68 | | 10 | 0.19 | 6.8 | 0.90 | 1.8 | 160 |
| NRSZ820M10V5x11F | 82 | 0.19 | | 8.2 | 0.65 | 1.3 | 175 | 2,500 |
| NRSZ101M10V5x11F | 100 | 0.19 | | 10.0 | 0.42 | 0.84 | 190 | 2,500 |
| NRSZ151M10V6.3x11F | 150 | 0.19 | | 150.0 | 0.31 | 0.62 | 280 | 3,000 |
| NRSZ181M10V6.3x11F | 180 | 0.19 | | 18.0 | 0.31 | 0.62 | 280 | 3,000 |
| NRSZ221M10V6.3x11F | 220 | 0.19 | | 22.0 | 0.22 | 0.44 | 300 | 3,000 |
| NRSZ331M10V8x11.5F | 330 | 0.19 | | 33.0 | 0.11 | 0.28 | 560 | 3,500 |
| NRSZ471M10V8x15F | 470 | 0.19 | | 47.0 | 0.085 | 0.17 | 610 | 4,500 |
| NRSZ471M10V10x12.5F | | 0.19 | | 47.0 | 0.12 | 0.24 | 730 | 5,000 |
| NRSZ561M10V10x16F | 560 | 0.19 | | 56.0 | 0.095 | 0.19 | 735 | 5,000 |
| NRSZ681M10V8x20F | 680 | 0.19 | | 68.0 | 0.069 | 0.14 | 800 | 4,500 |
| NRSZ681M10V10x12.5F | | 0.19 | | 68.0 | 0.085 | 0.17 | 800 | 5,000 |
| NRSZ102M10V10x20F | 1000 | 0.19 | | 100 | 0.050 | 0.10 | 1200 | 5,000 |
| NRSZ102M10V12.5x16F | | 0.19 | | 100 | 0.063 | 0.14 | 1150 | 5,000 |
| NRSZ122M10V10x20F | 1200 | 0.19 | | 120 | 0.044 | 0.088 | 1250 | 5,000 |
| NRSZ152M10V10x22F | 1500 | 0.20 | | 150 | 0.039 | 0.078 | 1450 | 5,000 |
| NRSZ222M10V12.5x20F | 2200 | 0.22 | | 220 | 0.038 | 0.076 | 1400 | 7,000 |
| NRSZ222M10V12.5x25F | | 0.22 | | 220 | 0.037 | 0.074 | 1700 | 7,000 |
| NRSZ272M10V12.5x25F | 2700 | 0.22 | | 270 | 0.029 | 0.058 | 1800 | 7,000 |
| NRSZ332M10V12.5x25F | 3300 | 0.23 | | 330 | 0.035 | 0.070 | 1700 | 5,000 |
| NRSZ392M10V16x25F | 3900 | 0.25 | | 390 | 0.028 | 0.056 | 2070 | 10,000 |
| NRSZ472M10V16x31.5F | 4700 | 0.26 | | 470 | 0.024 | 0.048 | 2350 | 10,000 |
| NRSZ562M10V16x31.5F | 5600 | 0.18 | | 560 | 0.024 | 0.048 | 2350 | 10,000 |
| NRSZ682M10V16x35.5F | 6800 | 0.30 | | 680 | 0.022 | 0.044 | 2550 | 10,000 |
| NRSZ822M10V18x35.5F | 8200 | 0.33 | | 820 | 0.020 | 0.040 | 2800 | 10,000 |



STANDARD PRODUCTS, CASE SIZES AND SPECIFICATIONS

| Part Number | Cap. (μF) | W.V. (Vdc) | Max. Tanδ | Max. LC (μA) | Max. Impedance | | Max. Ripple Current at 100KHz/105°C (mA rms) | Load Life Hours @ +105°C |
|---------------------|-----------|------------|-----------|--------------|----------------|--------------|--|--------------------------|
| | | | | | 100KHz/20°C | 100KHz/-10°C | | |
| NRSZ470M16V5x11F | 47 | 16 | 0.16 | 7.5 | 0.90 | 1.8 | 180 | 2,500 |
| NRSZ560M16V5x11F | 56 | | 0.16 | 9.0 | 0.90 | 1.8 | 180 | 2,500 |
| NRSZ101M16V6.3x11F | 100 | | 0.16 | 16.0 | 0.32 | 0.64 | 280 | 3,000 |
| NRSZ121M16V6.3x11F | 120 | | 0.16 | 19.2 | 0.31 | 0.62 | 290 | 3,000 |
| NRSZ151M16V6.3x11F | 150 | | 0.16 | 24.0 | 0.22 | 0.44 | 300 | 3,000 |
| NRSZ181M16V6.3x11F | 180 | | 0.16 | 28.8 | 0.24 | 0.48 | 280 | 2,000 |
| NRSZ221M16V8x11.5F | 220 | | 0.16 | 35.2 | 0.11 | 0.32 | 560 | 3,500 |
| NRSZ271M16V8x12.5F | 270 | | 0.16 | 43.2 | 0.11 | 0.28 | 570 | 3,500 |
| NRSZ331M16V8x15F | 330 | | 0.16 | 52.8 | 0.085 | 0.17 | 730 | 4,500 |
| NRSZ331M16V10x12.5F | | | 0.16 | 52.8 | 0.10 | 0.20 | 650 | 5,000 |
| NRSZ471M16V8x20F | 470 | | 0.16 | 75.2 | 0.069 | 0.14 | 800 | 4,500 |
| NRSZ471M16V10x16F | | | 0.16 | 75.2 | 0.90 | 0.18 | 950 | 5,000 |
| NRSZ681M16V10x20F | 680 | | 0.16 | 108 | 0.054 | 0.11 | 1250 | 5,000 |
| NRSZ681M16V12.5X16F | | | 0.16 | 108 | 0.063 | 0.14 | 1150 | 5,000 |
| NRSZ821M16V10x20F | 820 | | 0.16 | 131 | 0.044 | 0.90 | 1250 | 5,000 |
| NRSZ102M16V10x22F | 1000 | | 0.16 | 160 | 0.039 | 0.078 | 1450 | 5,000 |
| NRSZ122M16V12.5x20F | 1200 | | 0.16 | 192 | 0.038 | 0.076 | 1600 | 7,000 |
| NRSZ152M16V12.5X25F | 1500 | | 0.17 | 240 | 0.029 | 0.058 | 1800 | 7,000 |
| NRSZ182M16V12.5x25F | 1800 | | 0.17 | 288 | 0.029 | 0.058 | 1800 | 7,000 |
| NRSZ222M16V12.5x25F | 2200 | | 0.18 | 352 | 0.037 | 0.074 | 1700 | 5,000 |
| NRSZ222M16V16x21F | | | 0.18 | 352 | 0.040 | 0.080 | 1700 | 5,000 |
| NRSZ272M16V16x25F | 2700 | | 0.19 | 432 | 0.022 | 0.044 | 2100 | 10,000 |
| NRSZ392M16V16x31.5F | 3900 | | 0.22 | 624 | 0.018 | 0.036 | 2350 | 10,000 |
| NRSZ472M16V16x35.5F | 4700 | | 0.23 | 752 | 0.018 | 0.036 | 2550 | 10,000 |
| NRSZ562M16V18x35.5F | 5600 | 0.25 | 896 | 0.018 | 0.036 | 2800 | 10,000 | |
| NRSZ330M25V5x11F | 33 | 25 | 0.14 | 8.3 | 0.90 | 1.8 | 160 | 2,500 |
| NRSZ470M25V5x11F | 47 | | 0.14 | 11.7 | 0.42 | 0.84 | 190 | 2,500 |
| NRSZ680M25V6.3x11F | 68 | | 0.14 | 17.0 | 0.32 | 0.64 | 280 | 3,000 |
| NRSZ101M25V6.3x11F | 100 | | 0.14 | 25.0 | 0.22 | 0.48 | 300 | 3,000 |
| NRSZ151M25V8x11.5F | 150 | | 0.14 | 37.5 | 0.11 | 0.22 | 560 | 3,500 |
| NRSZ181M25V8x12.5F | 180 | | 0.14 | 45.0 | 0.11 | 0.22 | 570 | 3,500 |
| NRSZ221M25V8x15F | 220 | | 0.14 | 55.0 | 0.085 | 0.18 | 730 | 4,500 |
| NRSZ221M25V10x12.5F | | | 0.14 | 55.0 | 0.12 | 0.24 | 630 | 5,000 |
| NRSZ271M25V10x12.5F | 270 | | 0.14 | 67.5 | 0.085 | 0.18 | 800 | 5,000 |
| NRSZ331M25V8x20F | 330 | | 0.14 | 82.5 | 0.069 | 0.16 | 800 | 4,500 |
| NRSZ331M25V10x16F | | | 0.14 | 82.5 | 0.090 | 0.18 | 830 | 5,000 |
| NRSZ471M25V10x16F | 470 | | 0.14 | 117 | 0.065 | 0.13 | 1010 | 4,000 |
| NRSZ471M25V12.5X16F | | | 0.14 | 117 | 0.063 | 0.14 | 1150 | 5,000 |
| NRSZ561M25V10x20F | 560 | | 0.14 | 140 | 0.044 | 0.088 | 1250 | 5,000 |
| NRSZ681M25V10x22F | 680 | | 0.14 | 170 | 0.039 | 0.078 | 1450 | 5,000 |
| NRSZ821M25V12.5X20F | 820 | | 0.14 | 205 | 0.038 | 0.076 | 1600 | 7,000 |
| NRSZ102M25V12.5x20F | 1000 | | 0.14 | 250 | 0.038 | 0.076 | 1600 | 7,000 |
| NRSZ102M25V16x16F | | | 0.14 | 250 | 0.038 | 0.076 | 1600 | 5,000 |
| NRSZ122M25V12.5x25F | 1200 | | 0.14 | 300 | 0.029 | 0.058 | 1800 | 7,000 |
| NRSZ182M25V16x25F | 1800 | | 0.15 | 450 | 0.022 | 0.044 | 2100 | 10,000 |
| NRSZ222M25V16x25F | 2200 | | 0.16 | 550 | 0.029 | 0.058 | 2000 | 7,000 |
| NRSZ272M25V16x31.5F | 2700 | | 0.17 | 675 | 0.018 | 0.038 | 2350 | 10,000 |
| NRSZ332M25V18x35.5F | 3300 | | 0.18 | 825 | 0.018 | 0.038 | 2550 | 10,000 |
| NRSZ392M25V18x31.5F | 3900 | | 0.20 | 975 | 0.018 | 0.046 | 2800 | 7,000 |
| NRSZ472M25V18x35.5F | 4700 | 0.21 | 1175 | 0.021 | 0.042 | 2700 | 7,000 | |



STANDARD PRODUCTS, CASE SIZES AND SPECIFICATIONS

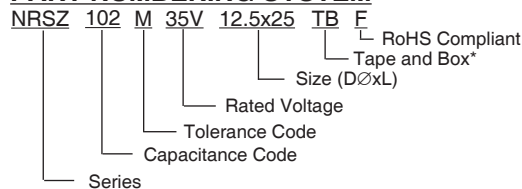
| Part Number | Cap. (μF) | W.V. (Vdc) | Max. Tanδ | Max. LC (μA) | Max. Impedance | | Max. Ripple Current at 100KHz/105°C (mA rms) | Load Life Hours @ +105°C | |
|---------------------|-----------|------------|-----------|--------------|----------------|--------------|--|--------------------------|-------|
| | | | | | 100KHz/20°C | 100KHz/-10°C | | | |
| NRSZ220M35V5x11F | 22 | 35 | 0.12 | 7.7 | 0.42 | 0.84 | 190 | 2,500 | |
| NRSZ330M35V6.3x11F | 33 | | 0.12 | 11.6 | 0.42 | 0.84 | 190 | 3,000 | |
| NRSZ470M35V6.3x11F | 47 | | 0.12 | 16.5 | 0.32 | 0.64 | 280 | 3,000 | |
| NRSZ680M35V6.3x11F | 68 | | 0.12 | 19.6 | 0.22 | 0.44 | 300 | 3,000 | |
| NRSZ820M35V6.3x11F | 82 | | 0.12 | 28.7 | 0.24 | 0.48 | 280 | 2,000 | |
| NRSZ101M35V8x11.5F | 100 | | 0.12 | 35.0 | 0.11 | 0.22 | 560 | 3,500 | |
| NRSZ121M35V8x12.5F | 120 | | 0.12 | 42.0 | 0.11 | 0.22 | 570 | 3,500 | |
| NRSZ121M35V10x12.5F | | | 0.14 | 42.0 | 0.14 | 0.28 | 560 | 5,000 | |
| NRSZ151M35V8x15F | 150 | | 0.12 | 52.5 | 0.085 | 0.17 | 730 | 4,500 | |
| NRSZ151M35V10x12.5F | | | 0.12 | 52.5 | 0.12 | 0.24 | 635 | 5,000 | |
| NRSZ221M35V8x20F | 220 | | 0.12 | 77.0 | 0.069 | 0.14 | 800 | 4,500 | |
| NRSZ221M35V10x16F | | | 0.12 | 77.0 | 0.085 | 0.17 | 950 | 5,000 | |
| NRSZ331M35V10x20F | 330 | | 0.12 | 115 | 0.044 | 0.088 | 1250 | 5,000 | |
| NRSZ331M35V12.5X16F | | | 0.12 | 115 | 0.063 | 0.14 | 1150 | 5,000 | |
| NRSZ391M35V10x20F | 390 | | 0.12 | 136 | 0.054 | 0.11 | 1190 | 4,000 | |
| NRSZ471M35V10x20F | 470 | | 0.12 | 164 | 0.054 | 0.11 | 1250 | 4,000 | |
| NRSZ561M35V12.5x20F | 560 | | 0.12 | 196 | 0.042 | 0.084 | 1400 | 7,000 | |
| NRSZ681M35V12.5x20F | 680 | | 0.12 | 238 | 0.038 | 0.076 | 1600 | 7,000 | |
| NRSZ102M35V12.5x25F | 1000 | | 0.12 | 350 | 0.029 | 0.058 | 1800 | 7,000 | |
| NRSZ102M35V16x21F | | | 0.12 | 350 | 0.037 | 0.074 | 1700 | 5,000 | |
| NRSZ122M35V16x25F | 1200 | | 0.12 | 420 | 0.029 | 0.058 | 2000 | 10,000 | |
| NRSZ152M35V16x25F | 1500 | | 0.13 | 525 | 0.022 | 0.044 | 2100 | 10,000 | |
| NRSZ182M35V16X25F | 1800 | | 0.13 | 630 | 0.029 | 0.058 | 2000 | 10,000 | |
| NRSZ182M35V16X31.5F | | | 0.13 | 630 | 0.018 | 0.036 | 2350 | 10,000 | |
| NRSZ222M35V16x31.5F | 2200 | | 0.14 | 770 | 0.018 | 0.036 | 2350 | 10,000 | |
| NRSZ222M35V16x35.5F | | | 0.14 | 770 | 0.018 | 0.036 | 2550 | 10,000 | |
| NRSZ272M35V18x35.5F | | | 0.15 | 945 | 0.018 | 0.036 | 2800 | 10,000 | |
| NRSZ332M35V18x35.5F | 3300 | | 0.16 | 1155 | 0.022 | 0.044 | 2700 | 5,000 | |
| NRSZ1R0M50V5x11F | 1.0 | | 50 | 0.10 | 3.0 | 3.3 | 6.6 | 30 | 2,500 |
| NRSZ2R2M50V5x11F | 2.2 | | | 0.10 | 3.0 | 3.0 | 6.0 | 45 | 2,500 |
| NRSZ4R7M50V5x11F | 4.7 | | | 0.10 | 3.0 | 2.0 | 4.0 | 90 | 2,500 |
| NRSZ100M50V5x11F | 10 | | | 0.10 | 5.0 | 1.7 | 3.4 | 110 | 2,500 |
| NRSZ150M50V5x11F | 15 | | | 0.10 | 7.5 | 1.2 | 2.4 | 130 | 2,500 |
| NRSZ180M50V5x11F | 18 | 0.10 | | 9.0 | 1.0 | 2.0 | 150 | 2,500 | |
| NRSZ220M50V5x11F | 22 | 0.10 | | 11.0 | 0.70 | 1.4 | 160 | 2,500 | |
| NRSZ330M50V6.3x11F | 33 | 0.10 | | 16.5 | 0.55 | 1.1 | 200 | 3,000 | |
| NRSZ390M50V6.3x11F | 39 | 0.10 | | 19.5 | 0.55 | 1.1 | 200 | 3,000 | |
| NRSZ470M50V6.3x11F | 47 | 0.10 | | 23.5 | 0.43 | 0.86 | 220 | 3,000 | |
| NRSZ680M50V8x11.5F | 68 | 0.10 | | 34.0 | 0.26 | 0.52 | 360 | 3,500 | |
| NRSZ820M50V8x12.5F | 82 | 0.10 | | 41.0 | 0.24 | 0.48 | 400 | 3,500 | |
| NRSZ101M50V8x15F | 100 | 0.10 | | 50.0 | 0.18 | 0.36 | 500 | 4,500 | |
| NRSZ101M50V10x12.5F | | 0.10 | | 50.0 | 0.25 | 0.50 | 520 | 5,000 | |
| NRSZ121M50V8x20F | 120 | 0.10 | | 60.0 | 0.16 | 0.32 | 650 | 4,500 | |
| NRSZ121M50V10x12.5F | | 0.10 | | 60.0 | 0.16 | 0.32 | 550 | 5,000 | |
| NRSZ151M50V8x20F | 150 | 0.10 | | 75.0 | 0.16 | 0.32 | 650 | 4,500 | |
| NRSZ181M50V10x16F | 180 | 0.10 | | 90.0 | 0.12 | 0.24 | 760 | 5,000 | |
| NRSZ221M50V10x20F | 220 | 0.10 | | 110 | 0.10 | 0.20 | 850 | 5,000 | |
| NRSZ221M50V12.5X16F | 220 | 0.10 | | 110 | 0.12 | 0.24 | 800 | 5,000 | |
| NRSZ331M50V10x22F | 330 | 0.10 | | 165 | 0.072 | 0.16 | 1000 | 5,000 | |
| NRSZ391M50V12.5x20F | 390 | 0.10 | | 195 | 0.059 | 0.12 | 1200 | 7,000 | |
| NRSZ391M50V16x16F | | 0.10 | | 195 | 0.08 | 0.16 | 1610 | 5,000 | |
| NRSZ471M50V12.5x20F | 470 | 0.10 | | 235 | 0.059 | 0.12 | 1200 | 7,000 | |
| NRSZ471M50V16X16F | | 0.10 | | 235 | 0.07 | 0.14 | 1200 | 5,000 | |
| NRSZ561M50V12.5x25F | 560 | 0.10 | | 280 | 0.045 | 0.092 | 1400 | 7,000 | |
| NRSZ681M50V16X21F | 680 | 0.10 | | 340 | 0.068 | 0.14 | 1300 | 5,000 | |
| NRSZ102M50V16x25F | 1000 | 0.10 | | 500 | 0.039 | 0.078 | 1750 | 10,000 | |
| NRSZ122M50V16x31.5F | 1200 | 0.10 | | 600 | 0.025 | 0.058 | 2100 | 10,000 | |
| NRSZ152M50V16x35.5F | 1500 | 0.11 | | 750 | 0.025 | 0.058 | 2300 | 10,000 | |
| NRSZ182M50V18x35.5F | 1800 | 0.11 | | 900 | 0.024 | 0.048 | 2400 | 10,000 | |



STANDARD PRODUCTS, CASE SIZES AND SPECIFICATIONS

| Part Number | Cap. (µF) | W.V. (Vdc) | Max. Tanδ | Max. LC (µA) | Max. Impedance | | Max. Ripple Current at 100KHz/105°C (mA rms) | Load Life Hours @ +105°C |
|----------------------|-----------|------------|-----------|--------------|----------------|--------------|--|--------------------------|
| | | | | | 100KHz/20°C | 100KHz/-10°C | | |
| NRSZ180M63V5x11F | 18 | 63 | 0.08 | 7.6 | 1.6 | 3.2 | 140 | 2,500 |
| NRSZ330M63V6.3x11F | 33 | | 0.08 | 17.0 | 0.90 | 1.8 | 200 | 3,000 |
| NRSZ390M63V6.3x11F | 39 | | 0.08 | 24.6 | 0.90 | 1.8 | 200 | 2,000 |
| NRSZ470M63V8x11.5F | 47 | | 0.08 | 29.6 | 0.52 | 1.04 | 275 | 3,500 |
| NRSZ560M63V8x11.5F | 56 | | 0.08 | 35.3 | 0.52 | 1.04 | 275 | 3,500 |
| NRSZ680M63V8x11.5F | 68 | | 0.08 | 42.8 | 0.52 | 1.04 | 275 | 3,500 |
| NRSZ820M63V8x15F | 82 | | 0.08 | 51.7 | 0.34 | 0.68 | 360 | 4,500 |
| NRSZ101M63V10x12.5F | 100 | | 0.08 | 63.0 | 0.26 | 0.52 | 420 | 5,000 |
| NRSZ121M63V8x20F | 120 | | 0.08 | 75.6 | 0.21 | 0.42 | 510 | 4,500 |
| NRSZ121M63V10x12.5F | | | 0.08 | 75.6 | 0.26 | 0.52 | 420 | 5,000 |
| NRSZ151M63V8x20F | 150 | | 0.08 | 94.5 | 0.18 | 0.36 | 690 | 2,000 |
| NRSZ151M63V10x16F | | | 0.08 | 91.5 | 0.20 | 0.40 | 525 | 5,000 |
| NRSZ221M63V10x20F | 220 | | 0.08 | 138 | 0.15 | 0.30 | 765 | 5,000 |
| NRSZ271M63V10x22F | 270 | | 0.08 | 170 | 0.12 | 0.24 | 840 | 5,000 |
| NRSZ331M63V12.5x20F | 330 | | 0.08 | 208 | 0.10 | 0.20 | 960 | 7,000 |
| NRSZ391M63V12.5x25F | 390 | | 0.08 | 245 | 0.064 | 0.13 | 1200 | 7,000 |
| NRSZ471M63V12.5x25F | 470 | | 0.08 | 296 | 0.064 | 0.13 | 1200 | 7,000 |
| NRSZ681M63V16x25F | 680 | | 0.08 | 428 | 0.052 | 0.11 | 1500 | 10,000 |
| NRSZ102M63V16x31.5F | 1000 | | 0.08 | 630 | 0.042 | 0.09 | 1750 | 10,000 |
| NRSZ1R0M100V5x11F | 1.0 | | 100 | 0.07 | 3.0 | 4.1 | 8.2 | 97 |
| NRSZ5R6M100V5x11F | 5.6 | 0.07 | | 5.6 | 2.7 | 5.4 | 120 | 2,500 |
| NRSZ100M100V6.3x11F | 10 | 0.07 | | 10 | 1.4 | 2.8 | 120 | 3,000 |
| NRSZ120M100V6.3x11F | 12 | 0.07 | | 12 | 1.4 | 2.8 | 170 | 3,000 |
| NRSZ150M100V8x11.5F | 15 | 0.07 | | 15 | 0.81 | 1.62 | 230 | 3,500 |
| NRSZ220M100V8x11.5F | 22 | 0.07 | | 22 | 0.81 | 1.62 | 230 | 3,500 |
| NRSZ270M100V8x15F | 27 | 0.07 | | 27 | 0.64 | 1.3 | 295 | 4,500 |
| NRSZ390M100V8x20F | 39 | 0.07 | | 39 | 0.36 | 0.72 | 400 | 4,500 |
| NRSZ470M100V10x16F | 47 | 0.07 | | 47 | 0.35 | 0.70 | 420 | 5,000 |
| NRSZ680M100V10x20F | 68 | 0.07 | | 68 | 0.24 | 0.48 | 630 | 5,000 |
| NRSZ101M100V12.5x20F | 100 | 0.07 | | 100 | 0.15 | 0.30 | 800 | 7,000 |
| NRSZ151M100V12.5x25F | 150 | 0.07 | | 150 | 0.11 | 0.22 | 920 | 7,000 |
| NRSZ221M100V16x25F | 220 | 0.07 | | 220 | 0.071 | 0.15 | 1100 | 10,000 |
| NRSZ331M100V16x31.5F | 330 | 0.07 | | 330 | 0.049 | 0.10 | 1490 | 10,000 |
| NRSZ391M100V16x35.5F | 390 | 0.07 | | 390 | 0.043 | 0.09 | 1630 | 10,000 |
| NRSZ471M100V18x35.5F | 470 | 0.07 | | 470 | 0.038 | 0.08 | 1700 | 10,000 |

PART NUMBERING SYSTEM



*see tape specification for details

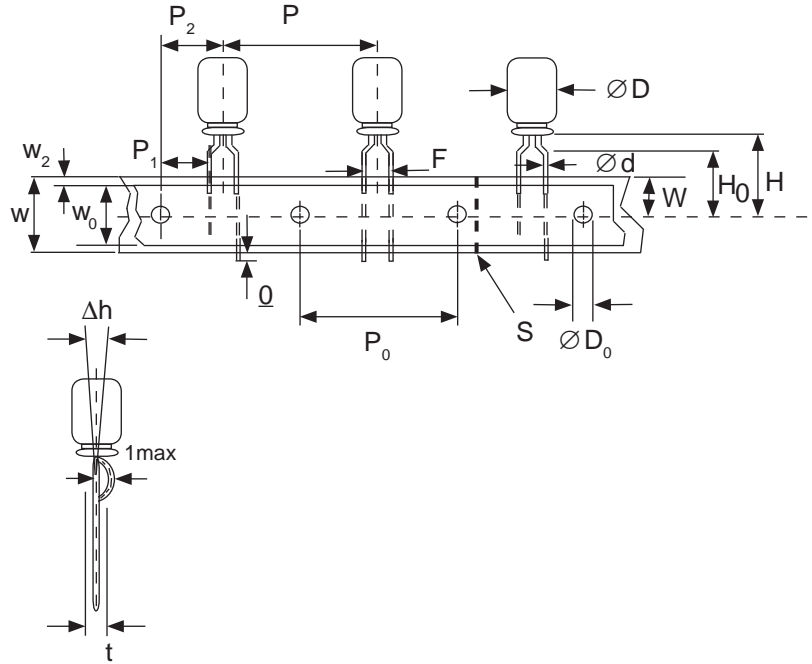


Miniature Aluminum Electrolytic Capacitors Taping Specifications

STANDARD RADIAL TAPING (5mm LEAD SPACING, FORMED LEADS) TB

Taping Dimensions (mm)

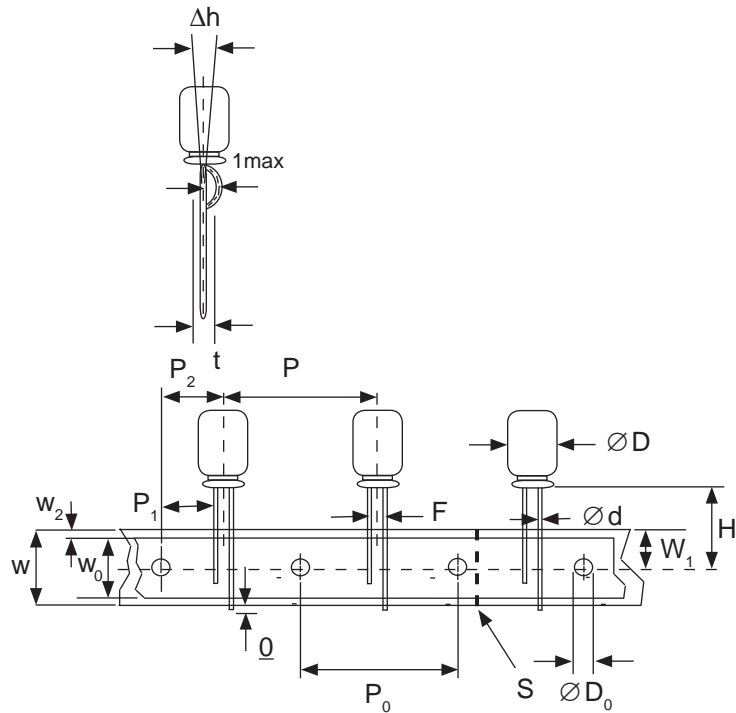
| Case Dia. (D ϕ) | 4 | | | 5 | | | 6.3 | | | 8 | | |
|-----------------------|------|------|------|------------------------------------|--------|--------|--------|--|--|---|--|--|
| Case Size | 4x5 | 5x5 | 5x11 | 6.3x5 | 6.3x7 | 6.3x11 | 8x11.5 | | | | | |
| Dim. | 4x7 | 5x7 | 5x11 | 6.3x7 | 6.3x11 | 6.3x11 | 8x11.5 | | | | | |
| d ϕ \pm 0.05 | 0.45 | 0.45 | 0.5 | 0.45 | 0.5 | 0.5 | 0.6 | | | | | |
| H \pm 0.75 | 17.5 | 17.5 | 18.5 | 17.5 | 18.5 | 18.5 | 20.0 | | | | | |
| F +0.8 ~ -0.2 | | | | 5.0 -0.2 ~ +0.8 | | | | | | | | |
| P | | | | 12.7 \pm 1.0 | | | | | | | | |
| P ₀ | | | | 12.7 \pm 0.2 | | | | | | | | |
| P ₁ | | | | 3.85 \pm 0.5 (at end of tape) | | | | | | | | |
| P ₂ | | | | 6.35 \pm 1.0 | | | | | | | | |
| W | | | | 18.0 \pm 0.5 | | | | | | | | |
| W ₀ | | | | 11.5 min. | | | | | | | | |
| W ₁ | | | | 9.0 \pm 0.5 | | | | | | | | |
| W ₂ | | | | 0 ~ 2.5 | | | | | | | | |
| H ₀ | | | | 16.0 \pm 0.5 | | | | | | | | |
| l | | | | 1.0 max. | | | | | | | | |
| D ₀ ϕ | | | | 4.0 \pm 0.2 | | | | | | | | |
| Δ h | | | | 0 \pm 1.0 (at top of can) | | | | | | | | |
| t | | | | 0.7 \pm 0.2 (not including lead) | | | | | | | | |



STANDARD RADIAL TAPING (5mm LEAD SPACING, STRAIGHT LEADS) TB

Taping Dimensions (mm)

| Case Dia. (D ϕ) | 10 | 12.5 |
|--|------------------------------------|------|
| Case Size | All | All |
| Dim. | All | All |
| d ϕ \pm 0.05 | 0.6 | 0.6 |
| H \pm 0.75 | 19.0 | 19.0 |
| F +0.8 ~ -0.2 | 5.0 | 5.0 |
| P \pm 1.0 | 25.4* | |
| P ₀ | 12.7 \pm 0.2 | |
| P ₁ | 3.85 | |
| P ₂ | 6.35 \pm 1.0 | |
| W | 18.0 \pm 0.5 | |
| W ₀ | 11.5 min | |
| W ₁ | 9.0 \pm 0.5 | |
| W ₂ | 0 ~ 2.5 | |
| H ₀ | 16.0 \pm 0.5 | |
| l | 1.0 max. | |
| D ₀ ϕ | 4.0 \pm 0.2 | |
| Δ h | 0 \pm 1.0 (at top of can) | |
| t | 0.7 \pm 0.2 (not including lead) | |
| *Optional Taping Specifications | | |
| 10mm diameter available with P dim. = 12.7mm (P/N Suffix: TB12.7MMP) | | |
| 12.5mm diameter available with P dim. = 15mm, P ₁ = 5.0mm, P ₀ = 15.0mm & P ₂ = 7.5mm (P/N Suffix: TB15MMP) | | |



NOTE: ANODE (+) LEAD FEEDS OFF FIRST. FOR OPTION OF NEGATIVE (-) LEAD FIRST, SPECIFY "TBN".

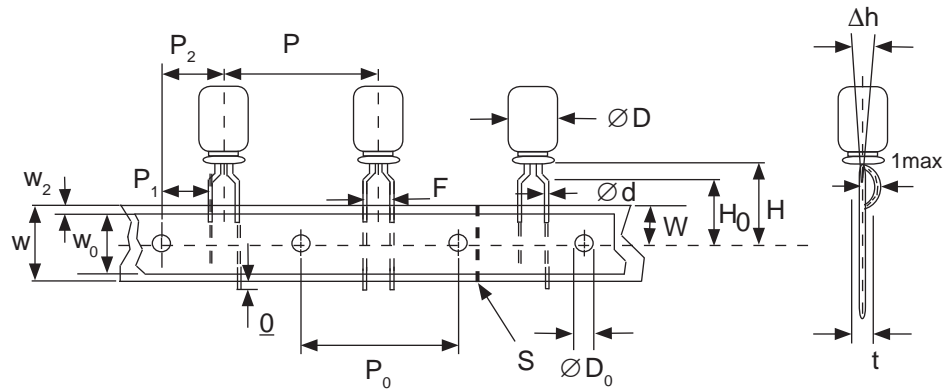


Miniature Aluminum Electrolytic Capacitors Taping Specifications

SPECIAL RADIAL TAPING (2.5mm LEAD SPACING, FORMED LEADS) TBF1

Taping Dimensions (mm)

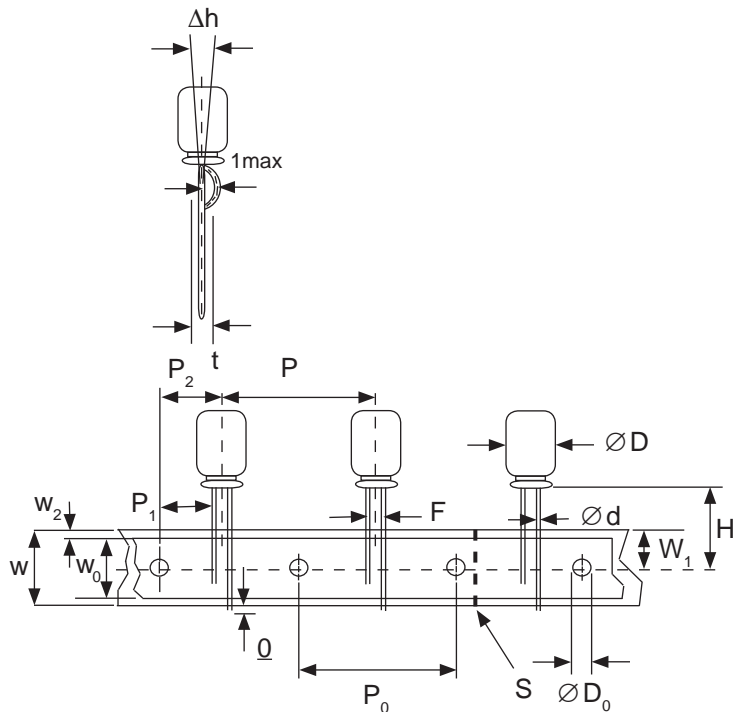
| Case Dia. (D ϕ) | 4 | | 5 | |
|--------------------------|-----------------|------------|------|--|
| Case Size Dim. | 4x5 4x7 | 5x5 5x7 | 5x11 | |
| d ϕ \pm 0.05 | 0.45 | 0.45 | 0.5 | |
| H \pm 0.75 | 17.5 | 17.5 | 18.5 | |
| H ₀ \pm 0.5 | 16.0 | - | - | |
| F | 2.5 -0.2 ~ +0.8 | | | |
| P | 12.7 \pm 1.0 | | | |
| P ₀ | 12.7 \pm 0.2 | | | |
| P ₁ | 5.1 \pm 0.5 | | | |
| P ₂ | 6.35 \pm 1.0 | | | |
| W | 18.0 \pm 0.5 | | | |
| W ₀ | 11.5 min. | | | |
| W ₁ | 9.0 \pm 0.5 | | | |
| W ₂ | 0 ~ 1.5 | | | |
| l | 1.0 max. | | | |
| D ₀ ϕ | 4.0 \pm 0.2 | | | |
| Δ h | 0 \pm 1.0 | | | |
| t | 0.7 \pm 0.2 | | | |



SPECIAL STRAIGHT LEAD TAPING TBST

Taping Dimensions (mm)

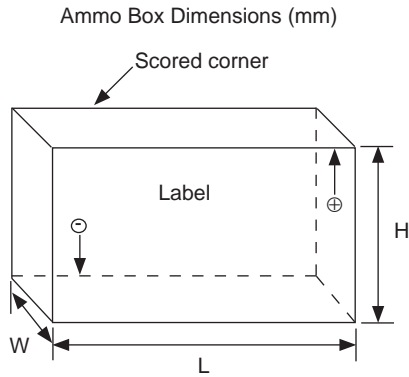
| Case Dia. (D ϕ) | 4 | | | 5 | | | 6.3 | | 8 | |
|-----------------------|------------------------------------|------------|------|-----|----------------|--------|--------|--|---|--|
| Case Size Dim. | 4x5 4x7 | 5x5 5x7 | 5x11 | | 6.3x5 6.3x7 | 6.3x11 | 8x11.5 | | | |
| d ϕ \pm 0.05 | 0.45 | 0.45 | 0.5 | | 0.45 | 0.5 | 0.6 | | | |
| H \pm 0.75 | 17.5 | 17.5 | 18.5 | | 17.5 | 18.5 | 20.0 | | | |
| F \pm 0.8 ~ -0.2 | 2.0* | 2.0 | 2.0 | | 2.5 | 2.5 | 3.5 | | | |
| P \pm 1.0 | 12.7 \pm 0.2 | | | | | | | | | |
| P ₀ | 12.7 \pm 0.2 | | | | | | | | | |
| P ₁ | 5.1 | 5.1 | 5.1 | 5.1 | 5.1 | 5.1 | 4.6 | | | |
| P ₂ | 6.35 \pm 1.0 | | | | | | | | | |
| W | 18.0 \pm 0.5 | | | | | | | | | |
| W ₀ | 11.5 min. | | | | | | | | | |
| W ₁ | 9.0 \pm 0.5 | | | | | | | | | |
| W ₂ | 0 ~ 2.5 | | | | | | | | | |
| H ₀ | 16.0 \pm 0.5 | | | | | | | | | |
| l | 1.0 max. | | | | | | | | | |
| D ₀ ϕ | 4.0 \pm 0.2 | | | | | | | | | |
| Δ h | 0 \pm 1.0 (at top of can) | | | | | | | | | |
| t | 0.7 \pm 0.2 (not including lead) | | | | | | | | | |



* Parts with 4mm diameter are taped with a slight flare in the lead and a 2.0mm lead-space.



RADIAL TAPED PACKAGING



Ammo Box (Tape & Box) TB, TBF1, TBST

Size of box and component quantity

| Case Dia (D ϕ) or Case Size | Q'ty per Box (pcs) | Dim. L | Dim. H | Dim. W |
|-----------------------------------|--------------------|--------|--------|--------|
| 4x5, 4x7 | 2,000 | 331 | 175 | 43 |
| 5x5, 5x7 | 2,000 | 331 | 220 | 43 |
| 5x11 | 2,000 | 340 | 255 | 55 |
| 6.3x5, 6.3x7 | 2,000 | 331 | 280 | 43 |
| 6.3x11 | 2,000 | 331 | 280 | 48 |
| 8x11.5, 8x12.5 | 1,000 | 335 | 235 | 53 |
| 10x12.5* | 500 | 335 | 190 | 53 |
| 10x16* | 500 | 335 | 300 | 53 |
| 10x20* | 500 | 335 | 300 | 55 |
| 12.x20* | 500 | 335 | 300 | 55 |
| 12.5x25* | 500 | 335 | 300 | 61 |

*Special Taping Consult Factory For Availability