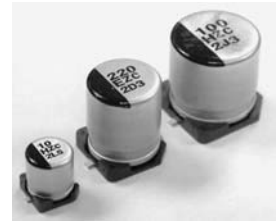


- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- HIGH TEMPERATURE RANGE (+125°C)
- LONG LIFE (UP to 3,000 HOURS)
- LOW ESR, HIGH RIPPLE CURRENT & LOW LEAKAGE
- 6.3x6.3 ~ 10x12.8mm CASE SIZES
- REFLOW SOLDERING RATED TO +260°C (ALL SIZES)
- MEETS THE REQUIREMENTS OF AEC-Q200*

**NEW
HIGH TEMPERATURE
&
LONG LIFE**



*Contact NIC for supporting test data

CHARACTERISTICS

| | | | | | |
|--|--|--|------------------------------|----|----|
| Rated Voltage Range | 16 ~ 40Vdc | | | | |
| Rated Capacitance Range | 18 ~ 560μF | | | | |
| Operating Temp. Range | -55 ~ +125°C | | | | |
| Capacitance Tolerance | ±20% (M) | | | | |
| Max. Leakage Current After 2 Minutes @ 20°C | Less than 0.01CV or 3μA whichever is greater | | | | |
| Working and Surge Voltage Ratings | W.V. (Vdc) | 16 | 25 | 35 | 40 |
| | S.V. (Vdc) | 20 | 32 | 44 | 50 |
| Tan δ @ 120Hz/20°C | | 0.16 | | | |
| Low Temperature Stability Impedance Ratio @ 100KHz | Z-55°C/Z+25°C | 0.75 ~ 1.25 | | | |
| | Z+125°C/Z+20°C | 0.75 ~ 1.25 | | | |
| Load Life Test @ +125°C and Rated Voltage | W.V. (Ved) | 16 | 25 | 35 | 40 |
| | φ6.3 Dia. | 1500 | φ6.3X6.3: 1500, φ6.3X8: 2000 | | |
| | φ8 & φ10 Dia. | 2500 | 3000 | | |
| | Capacitance Change | Within ±30% of initial measured value | | | |
| | Tan δ | Less than 200% of specified max. value | | | |
| | ESR | Less than 200% of specified max. value | | | |
| | Leakage Current | Less than specified max. value | | | |

STANDARD PRODUCTS AND CASE SIZES Dφ x L (mm)

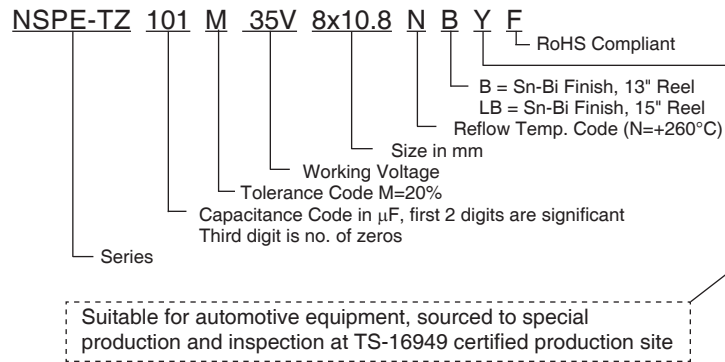
| PART NUMBER | Case Size (D X L) mm | Cap. (μF) | Working Voltage | Max. Tan δ 120Hz/20°C | Max. ESR (mΩ) @ 100KHz/20°C | Max. Ripple Current (mA rms) @ 100KHz/125°C | Load Life Hours (+125°C) |
|---------------------------|----------------------|-----------|-----------------|-----------------------|-----------------------------|---|--------------------------|
| NSPE-TZ820M16V6.3X6.3NBYF | 6.3X6.3 | 82 | 16 | 0.16 | 38 | 1320 | 1500 |
| NSPE-TZ121M16V6.3X8NBYF | 6.3X8 | 120 | | 0.16 | 32 | 1440 | 1500 |
| NSPE-TZ271M16V8X10.8NBYF | 8X10.8 | 270 | | 0.16 | 23 | 1970 | 2500 |
| NSPE-TZ471M16V10X10.8NBYF | 10X10.8 | 470 | | 0.16 | 18 | 2620 | 2500 |
| NSPE-TZ561M16V10X12.8NBYF | 10X12.8 | 560 | | 0.16 | 14 | 3030 | 2500 |
| NSPE-TZ470M25V6.3X6.3NBYF | 6.3X6.3 | 47 | 25 | 0.16 | 40 | 1260 | 1500 |
| NSPE-TZ680M25V6.3X8NBYF | 6.3X8 | 68 | | 0.16 | 35 | 1380 | 2000 |
| NSPE-TZ151M25V8X10.8NBYF | 8X10.8 | 150 | | 0.16 | 25 | 1880 | 3000 |
| NSPE-TZ271M25V10X10.8NBYF | 10X10.8 | 270 | | 0.16 | 19 | 2500 | 3000 |
| NSPE-TZ331M25V10X12.8NBYF | 10X12.8 | 330 | | 0.16 | 14 | 2890 | 3000 |
| NSPE-TZ270M35V6.3X6.3NBYF | 6.3X6.3 | 27 | 35 | 0.16 | 50 | 1070 | 1500 |
| NSPE-TZ470M35V6.3X8NBYF | 6.3X8 | 47 | | 0.16 | 45 | 1280 | 2000 |
| NSPE-TZ101M35V8X10.8NBYF | 8X10.8 | 100 | | 0.16 | 28 | 1780 | 3000 |
| NSPE-TZ151M35V10X10.8NBYF | 10X10.8 | 150 | | 0.16 | 20 | 2440 | 3000 |
| NSPE-TZ221M35V10X12.8NBYF | 10X12.8 | 220 | | 0.16 | 15 | 2800 | 3000 |
| NSPE-TZ180M40V6.3X6.3NBYF | 6.3X6.3 | 18 | 40 | 0.16 | 55 | 1050 | 1500 |
| NSPE-TZ270M40V6.3X8NBYF | 6.3X8 | 27 | | 0.16 | 48 | 1230 | 2000 |
| NSPE-TZ560M40V8X10.8NBYF | 8X10.8 | 56 | | 0.16 | 30 | 1710 | 3000 |
| NSPE-TZ101M40V10X10.8NBYF | 10X10.8 | 100 | | 0.16 | 21 | 2360 | 3000 |
| NSPE-TZ121M40V10X12.8NBYF | 10X12.8 | 120 | | 0.16 | 16 | 2700 | 3000 |

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

| Frequency | 120Hz | 1KHz | 10KHz | ≥100KHz |
|--------------|-------|------|-------|---------|
| C ≤ 4.7 | 0.03 | 0.30 | 0.65 | 1.00 |
| 4.7 < C ≤ 33 | 0.05 | 0.32 | 0.67 | 1.00 |
| 33 < C | 0.10 | 0.35 | 0.70 | 1.00 |

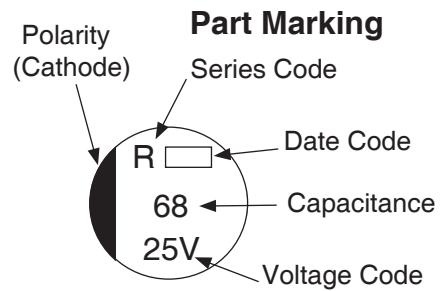
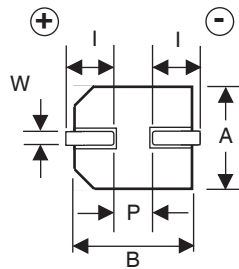
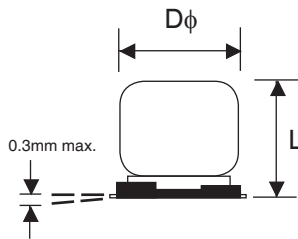


PART NUMBER SYSTEM



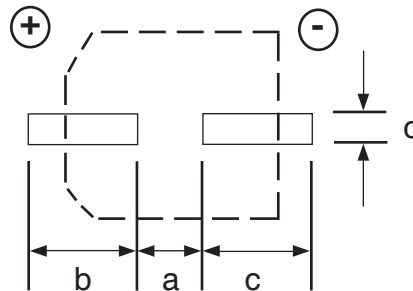
DIMENSIONS (mm)

| Case Size | $D\phi \pm 0.5$ | L max. | A, B ± 0.2 | W | $l \pm 0.3$ | $P \pm 0.2$ |
|-----------|-----------------|--------|----------------|-----------|-------------|-------------|
| 6.3x6.3 | 6.3 | 6.3 | 6.6 | 0.5 ~ 0.8 | 2.5 | 2.2 |
| 6.3x8 | 6.3 | 8 | 6.6 | 0.5 ~ 0.8 | 2.5 | 2.2 |
| 8x10.8 | 8 | 10.8 | 8.3 | 0.7 ~ 1.0 | 2.9 | 3.2 |
| 10x10.8 | 10 | 10.8 | 10.3 | 1.0 ~ 1.4 | 3.2 | 4.6 |
| 10x12.8 | 10 | 12.8 | 10.3 | 1.0 ~ 1.4 | 3.2 | 4.6 |

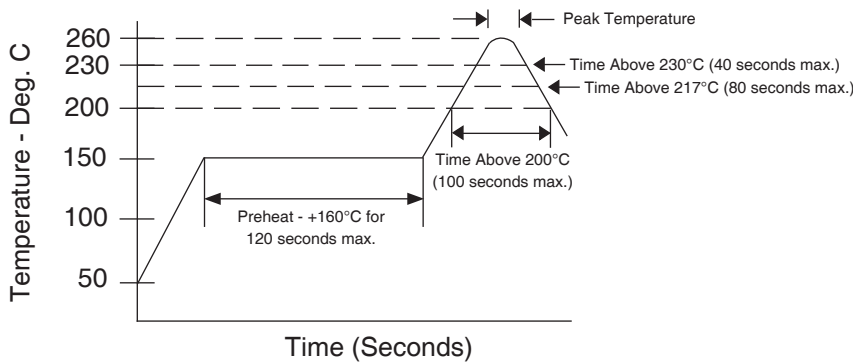


LAND PATTERN DIM. (mm)

| Case Dia. | a | b | c |
|-----------|-----|-----|-----|
| 6.3 | 1.8 | 3.6 | 1.8 |
| 8 | 2.8 | 4.1 | 2.1 |
| 10 | 4.3 | 4.4 | 2.5 |



RECOMMENDED REFLOW SOLDERING PROFILE*



PEAK TEMPERATURE AND DURATION

| Diameter | Peak Temperature (5 seconds max.) | Time above 230°C | Time above 217°C | Time above 200°C |
|-------------|-----------------------------------|------------------|------------------|------------------|
| φ6.3 ~ 10mm | +260°C | 40 sec. max. | 80 sec. max. | 100 sec. max. |

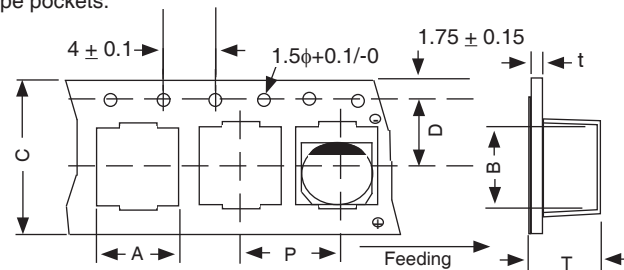
*Two reflow passes are permissible with a cool down to room temperature required between the first and second pass. Acceptable soldering methods are IR or IR & heated air.

| Resistance to Soldering Heat | Capacitors placed on a +250°C hot plate for 30 seconds with their electrode terminals facing downward will fulfill the following conditions after being cooled to room temperature | |
|------------------------------|--|--|
| | Capacitance Change | Within ± 10% of the initial measured value |
| | Dissipation Factor | Less than maximum specified value |
| | Leakage Current | Less than maximum specified value |
| | ESR | Less than 130% of maximum specified value |

TAPING SPECIFICATIONS (mm)

- Both Leader and Trailer tape: Minimum 40mm (1.57") empty carrier tape pockets.
- Leader tape: Approximately 20cm of cover tape at leader.
- Connection: Maximum 3 connections (slices) per reel.

| Case Size | A | B | C | D | P | T | t |
|-----------|------|------|------|------|------|------|------|
| | ±0.5 | ±0.5 | ±0.3 | ±0.1 | ±0.1 | ±0.2 | max. |
| 6.3x6.3 | 7.0 | 7.0 | 16.0 | 7.5 | 12.0 | 6.5 | 0.6 |
| 6.3x8 | 7.0 | 7.0 | 16.0 | 7.5 | 12.0 | 8.2 | 0.6 |
| 8x10.8 | 8.7 | 8.7 | 24.0 | 11.5 | 16.0 | 11.1 | 0.6 |
| 10x10.8 | 10.7 | 10.7 | 24.0 | 11.5 | 16.0 | 11.2 | 0.6 |
| 10x12.8 | 10.7 | 10.7 | 24.0 | 11.5 | 16.0 | 13.3 | 0.6 |



REEL DIMENSIONS (mm)

| Case Size | W | Qty per Reel | |
|-----------|----|--------------|-------------|
| | | 13" (330mm) | 15" (380mm) |
| 6.3x6.3 | 18 | 800 | 1,000 |
| 6.3x8 | 18 | 500 | 900 |
| 8x10.8 | 26 | 300 | 500 |
| 10x10.8 | 26 | 300 | 500 |
| 10x12.8 | 26 | 300 | 400 |

