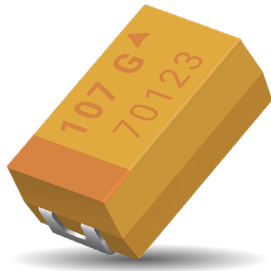


TLJ Series

Tantalum Solid Electrolytic Chip Capacitors - High CV Consumer Series



FEATURES

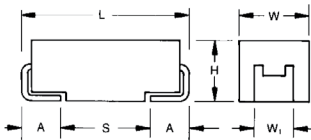
- High Volumetric Efficiency
- 3x Reflow 260°C Compatible
- 100% Surge Current Tested
- 14 Case Sizes Available Including Low Profile Codes
- Environmentally Friendly
- Consumer Applications (e.g. Mobiles Phones, PDA etc.)
- CV Range: 10-1500µF / 2.5-20V

APPLICATIONS

- Mobile Phones
- MP3/4 Players

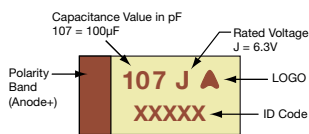


LEAD-FREE COMPATIBLE COMPONENT

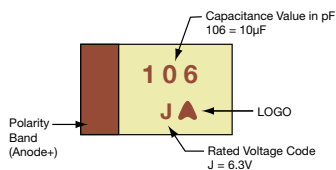


MARKING

A, B, F, G, H, K, S, T, V, W, Y CASE



N, P, R CASE



STANDARD CASE DIMENSIONS:

millimeters (inches)

| Code | EIA Code | EIA Metric | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|----------|------------|----------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| A | 1206 | 3216-18 | 3.20 (0.126) | 1.60 (0.063) | 1.60 (0.063) | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| B | 1210 | 3528-21 | 3.50 (0.138) | 2.80 (0.110) | 1.90 (0.075) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| F | 2312 | 6032-20 | 6.00 (0.236) | 3.20 (0.126) | 2.00 (0.079) max. | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| G | 1206 | 3216-15 | 3.20 (0.126) | 1.60 (0.063) | 1.50 (0.059) max | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| H | 1210 | 3528-15 | 3.50 (0.138) | 2.80 (0.110) | 1.50 (0.059) max | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| K | 1206 | 3216-10 | 3.20 (0.126) | 1.60 (0.063) | 1.00 (0.039) max | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| N | 0805 | 2012-10 | 2.05 (0.081) | 1.30 (0.051) | 1.00 (0.039) max | 1.00 (0.039) | 0.50 (0.020) | 0.85 (0.033) |
| P | 0805 | 2012-15 | 2.05 (0.081) | 1.35 (0.053) | 1.50 (0.059) max | 1.00±0.10 (0.039±0.004) | 0.50 (0.020) | 0.85 (0.033) |
| R | 0805 | 2012-12 | 2.05 (0.081) | 1.30 (0.051) | 1.20 (0.047) max | 1.00±0.10 (0.039±0.004) | 0.50 (0.020) | 0.85 (0.033) |
| S | 1206 | 3216-12 | 3.20 (0.126) | 1.60 (0.063) | 1.20 (0.047) max | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| T | 1210 | 3528-12 | 3.50 (0.138) | 2.80 (0.110) | 1.20 (0.047) max | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.033) |
| V | 2924 | 7361-38 | 7.30 (0.287) | 6.10 (0.240) | 3.55 (0.140) | 3.10 (0.122) | 1.30 (0.051) | 4.40 (0.173) |
| W | 2312 | 6032-15 | 6.00 (0.236) | 3.20 (0.126) | 1.50 (0.059) max | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| Y | 2917 | 7343-20 | 7.30 (0.287) | 4.30 (0.169) | 2.00 (0.079) max | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.

HOW TO ORDER

TLJ
Type

W
Case Size
See table above

157
Capacitance Code
pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

M
Tolerance
M = ±20%

010
Rated DC Voltage
002 = 2.5Vdc
004 = 4Vdc
006 = 6.3Vdc
010 = 10Vdc
016 = 16Vdc
020 = 20Vdc

R
Packaging
R = Pure Tin 7" Reel
S = Pure Tin 13" Reel

0200
ESR in mΩ

TECHNICAL SPECIFICATIONS

| | | | | | | | | |
|------------------------------------|--|-----|-----|-----|----|-----|----|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | |
| Capacitance Range: | 10 µF to 1500 µF | | | | | | | |
| Capacitance Tolerance: | ±20% | | | | | | | |
| Rated Voltage (V _R) | -55°C ≤ +40°C: | 2.5 | 4 | 6.3 | 10 | 16 | 20 | |
| Category Voltage (V _C) | at 85°C: | 1.3 | 2 | 3.2 | 5 | 8 | 10 | |
| Category Voltage (V _C) | at 125°C: | 0.5 | 0.8 | 1.3 | 2 | 3.2 | 4 | |
| Temperature Range: | -55°C to +125°C with category voltage | | | | | | | |
| Reliability: | 0.2% per 1000 hours at 85°C, 0.5xV _R with 0.1Ω/V series impedance with 60% confidence level | | | | | | | |

TLJ Series

Tantalum Solid Electrolytic Chip Capacitors - High CV Consumer Series

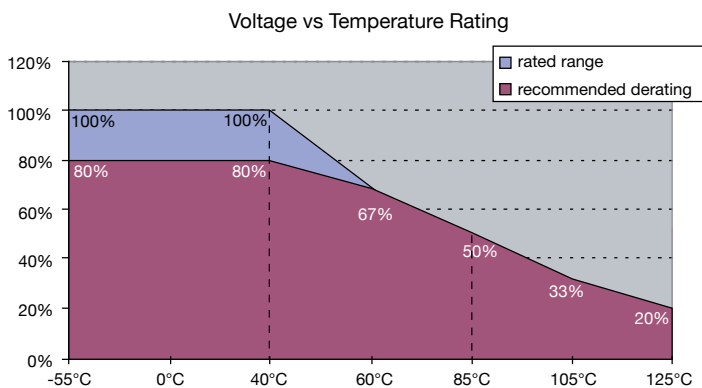


CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC to 40°C / 0.5DC to 85°C / 0.2DC to 125°C | | | | | |
|-------------|------|---|---|--|---|---------|---------|
| µF | Code | 2.5V (e) | 4V (G) | 6.3V (J) | 10V (A) | 16V (C) | 20V (D) |
| 6.8 | 685 | | | | | | |
| 10 | 106 | | | | N(2500) R(2000,3000) | S(2200) | T(1000) |
| 15 | 156 | | | | R(2000) | | |
| 22 | 226 | | | N(5400)/R(3500) | K(1800)/N(3800) R(3800) | T(1000) | |
| 33 | 336 | | N(8000) R(3000) | K(1700)/N(8000) P(3000)/R(3000) | K(1500)/N(9600) P(3500)/R(3500) S(1500) | T(1000) | |
| 47 | 476 | | K(1500)/N(4000) P(3000)/R(3000) | K(1500)/N(8300) P(700,900,1800,2500) R(3200)/S(1500) | A(600)/G(1500) P(3200)/R(3200) S(1500)/T(600) | | |
| 68 | 686 | | K(1200)/N(8000) P(3000)/R(2900) S(1500) | A(500)/G(800) K(2000)/S(1500) T(600) | A(1500) | | |
| 100 | 107 | | A(500)/G(800) K(2000)/P(2700) S(1400) | A(500,800)/G(800) K(2000)/ P(5400)/T(800) | A(1400)/H(900) T(900) | | |
| 150 | 157 | | A(800)/T(800) | A(900)/H(900) T(1200) | B(500)/W(150,200) | | |
| 220 | 227 | T(1100) | A(1100)/G(3000) H(900)/T(1100) | B(500)/T(2000) W(200) | F(300) | | |
| 330 | 337 | | T(2700)/W(200) | F(300) | | | |
| 470 | 477 | | | | | | |
| 680 | 687 | | | Y(100,150) | | | |
| 1000 | 108 | | | | | | |
| 1500 | 158 | | | V(100) | | | |

Released ratings, (ESR ratings in mOhms in parentheses)

Note: Voltage ratings are minimum values. KYOCERA AVX reserves the right to supply higher voltage ratings in the same case size, to the same reliability standards.



TLJ Series

Tantalum Solid Electrolytic Chip Capacitors - High CV Consumer Series



RATINGS & PART NUMBER REFERENCE

| Part Number | Case Size | Capacitance (µF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | Maximum Surge Current (A) | DCL Max. (µA) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (mA) | | | Product Category | MSL |
|-----------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------------------|---------------|------------------------|-------------------------|------|-------|------------------|-----|
| | | | | | | | | | | 25°C | 85°C | 125°C | | |
| 10 Volt @ 40°C | | | | | | | | | | | | | | |
| TLJN106M010#2500 | N | 10 | 10 | 40 | 2 | 125 | 1.7 | 1.0 | 2500 | 141 | 127 | 57 | 1 | 3 |
| TLJR106M010#2000 | R | 10 | 10 | 40 | 2 | 125 | 2.0 | 1.0 | 2000 | 166 | 149 | 66 | 1 | 3 |
| TLJR106M010#3000 | R | 10 | 10 | 40 | 2 | 125 | 1.4 | 1.0 | 3000 | 135 | 122 | 54 | 1 | 3 |
| TLJR156M010#2000 | R | 15 | 10 | 40 | 2 | 125 | 2.0 | 1.5 | 2000 | 166 | 149 | 66 | 1 | 3 |
| TLJK226M010#1800 | K | 22 | 10 | 40 | 2 | 125 | 2.2 | 2.2 | 1800 | 167 | 150 | 67 | 2 | 3 |
| TLJN226M010#3800 | N | 22 | 10 | 40 | 2 | 125 | 1.2 | 2.2 | 3800 | 115 | 103 | 46 | 1 | 3 |
| TLJR226M010#3800 | R | 22 | 10 | 40 | 2 | 125 | 1.2 | 2.2 | 3800 | 120 | 108 | 48 | 2 | 3 |
| TLJK336M010#1500 | K | 33 | 10 | 40 | 2 | 125 | 2.6 | 3.3 | 1500 | 208 | 187 | 83 | 2 | 3 |
| TLJN336M010#9600 | N | 33 | 10 | 40 | 2 | 125 | 0.5 | 6.6 | 9600 | 72 | 65 | 29 | 1 | 3 |
| TLJP336M010#3500 | P | 33 | 10 | 40 | 2 | 125 | 1.3 | 3.3 | 3500 | 131 | 118 | 52 | 2 | 3 |
| TLJR336M010#3500 | R | 33 | 10 | 40 | 2 | 125 | 1.3 | 3.3 | 3500 | 125 | 113 | 50 | 2 | 3 |
| TLJS336M010#1500 | S | 33 | 10 | 40 | 2 | 125 | 2.6 | 3.3 | 1500 | 208 | 187 | 83 | 2 | 3 |
| TLJA476M010#0600 | A | 47 | 10 | 40 | 2 | 125 | 4.8 | 4.7 | 600 | 354 | 318 | 141 | 1 | 3 |
| TLJG476M010#1500 | G | 47 | 10 | 40 | 2 | 125 | 2.6 | 4.7 | 1500 | 216 | 194 | 86 | 2 | 3 |
| TLJP476M010#3200 | P | 47 | 10 | 40 | 2 | 125 | 1.4 | 4.7 | 3200 | 137 | 123 | 55 | 2 | 3 |
| TLJR476M010#3200 | R | 47 | 10 | 40 | 2 | 125 | 1.4 | 9.4 | 3200 | 131 | 118 | 52 | 2 | 3 |
| TLJS476M010#1500 | S | 47 | 10 | 40 | 2 | 125 | 2.6 | 4.7 | 1500 | 208 | 187 | 83 | 2 | 3 |
| TLJT476M010#0600 | T | 47 | 10 | 40 | 2 | 125 | 4.8 | 4.7 | 600 | 365 | 329 | 146 | 1 | 3 |
| TLJA686M010#1500 | A | 68 | 10 | 40 | 2 | 125 | 2.6 | 6.8 | 1500 | 224 | 201 | 89 | 2 | 3 |
| TLJA107M010#1400 | A | 100 | 10 | 40 | 2 | 125 | 2.7 | 10.0 | 1400 | 231 | 208 | 93 | 2 | 3 |
| TLJH107M010#0900 | H | 100 | 10 | 40 | 2 | 125 | 3.7 | 10.0 | 900 | 298 | 268 | 119 | 2 | 3 |
| TLJT107M010#0900 | T | 100 | 10 | 40 | 2 | 125 | 3.7 | 10.0 | 900 | 298 | 268 | 119 | 2 | 3 |
| TLJB157M010#0500 | B | 150 | 10 | 40 | 2 | 125 | 5.3 | 15.0 | 500 | 412 | 371 | 165 | 1 | 3 |
| TLJW157M010#0150 | W | 150 | 10 | 40 | 2 | 125 | 8.3 | 15.0 | 150 | 775 | 697 | 310 | 1 | 3 |
| TLJW157M010#0200 | W | 150 | 10 | 40 | 2 | 125 | 7.7 | 15.0 | 200 | 671 | 604 | 268 | 1 | 3 |
| TLJF227M010#0300 | F | 220 | 10 | 40 | 2 | 125 | 6.7 | 22.0 | 300 | 577 | 520 | 231 | 1 | 3 |
| 16 Volt @ 40°C | | | | | | | | | | | | | | |
| TLJS106M016#2200 | S | 10 | 16 | 40 | 3.2 | 125 | 3.0 | 1.6 | 2200 | 172 | 155 | 69 | 1 | 3 |
| TLJT226M016#1000 | T | 22 | 16 | 40 | 3.2 | 125 | 5.5 | 3.5 | 1000 | 283 | 255 | 113 | 1 | 3 |
| TLJT336M016#1000 | T | 33 | 16 | 40 | 3.2 | 125 | 5.5 | 5.3 | 1000 | 283 | 255 | 113 | 1 | 3 |
| 20 Volt @ 40°C | | | | | | | | | | | | | | |
| TLJT106M020#1000 | T | 10 | 20 | 40 | 4 | 125 | 6.9 | 2.0 | 1000 | 283 | 255 | 113 | 1 | 3 |

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance is measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

ESR allowed to move up to 1.25 times catalogue limit post mounting

DCL allowed to move up to 2.00 times catalogue limit post mounting

For typical weight and composition, see page 253.

NOTE: KYOCERA AVX reserves the right to supply higher voltage ratings or tighter tolerance part in the same case size, to the same reliability standards.

TLJ Series

Tantalum Solid Electrolytic Chip Capacitors - High CV Consumer Series



QUALIFICATION TABLE – CATEGORY 1

| TEST | TLJ series (Temperature range -55°C to +125°C) | | | | | | | | | |
|-----------------------|--|---------------|---------------|--------------------|------------------------------------|-----------|------------|------------|------------|------------|
| | Condition | | | Characteristics | | | | | | |
| Endurance | Apply rated voltage (Ur) at 40°C and / or category voltage (Uc) at 85°C for 2000 hours through a circuit impedance of $\leq 0.1\Omega/V$. Stabilize at room temperature for 1-2 hours before measuring. | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 2 x initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 10\%$ of initial value | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Humidity | Store at 65°C and 90-95% relative humidity for 500 hours, with no applied voltage. Stabilize at room temperature and humidity for 1-2 hours before measuring. | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 2 x initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 10\%$ of initial value | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Temperature Stability | Step | Temperature°C | Duration(min) | | | | | | | |
| | 1 | +20 | 15 | +20°C | -55°C | +20°C | +85°C | +125°C | +20°C | |
| | 2 | -55 | 15 | DCL | 2 x IL* | n/a | 2 x IL* | 20 x IL* | 25 x IL* | IL* |
| | 3 | +20 | 15 | $\Delta C/C$ | n/a | +0/-20% | $\pm 5\%$ | +20/-0% | +25/-0% | $\pm 5\%$ |
| | 4 | +85 | 15 | ESR | 1.25 x IL* | 2.5 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* |
| | 5 | +125 | 15 | | | | | | | |
| | 6 | +20 | 15 | | | | | | | |
| Surge Voltage | Apply 1.3x rated voltage (Ur) at 40°C for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000 Ω | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 2 x initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 5\%$ of initial value | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Mechanical Shock | MIL-STD-202, Method 213, Condition C | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 5\%$ of initial value | | | | | |
| | | | | ESR | initial limit | | | | | |
| Vibration | MIL-STD-202, Method 204, Condition D | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 5\%$ of initial value | | | | | |
| | | | | ESR | initial limit | | | | | |

*Initial Limit

QUALIFICATION TABLE – CATEGORY 2

| TEST | TLJ series (Temperature range -55°C to +125°C) | | | | | | | | | |
|-----------------------|--|---------------|---------------|--------------------|------------------------------------|-----------|------------|------------|------------|------------|
| | Condition | | | Characteristics | | | | | | |
| Endurance | Apply rated voltage (Ur) at 40°C and / or category voltage (Uc) at 85°C for 2000 hours through a circuit impedance of $\leq 0.1\Omega/V$. Stabilize at room temperature for 1-2 hours before measuring. | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 2 x initial limit | | | | | |
| | | | | $\Delta C/C$ | within +5/-30% of initial value | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Humidity | Store at 65°C and 90-95% relative humidity for 500 hours, with no applied voltage. Stabilize at room temperature and humidity for 1-2 hours before measuring. | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 2 x initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 10\%$ of initial value | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Temperature Stability | Step | Temperature°C | Duration(min) | | | | | | | |
| | 1 | +20 | 15 | +20°C | -55°C | +20°C | +85°C | +125°C | +20°C | |
| | 2 | -55 | 15 | DCL | 2 x IL* | n/a | 2 x IL* | 20 x IL* | 25 x IL* | 2 x IL* |
| | 3 | +20 | 15 | $\Delta C/C$ | n/a | +5/-20% | $\pm 10\%$ | +20/-0% | +25/-0% | $\pm 10\%$ |
| | 4 | +85 | 15 | ESR | 1.25 x IL* | 2.5 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* |
| | 5 | +125 | 15 | | | | | | | |
| | 6 | +20 | 15 | | | | | | | |
| Surge Voltage | Apply 1.3x rated voltage (Ur) at 40°C for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000 Ω | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 2 x initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 5\%$ of initial value | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Mechanical Shock | MIL-STD-202, Method 213, Condition C | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 5\%$ of initial value | | | | | |
| | | | | ESR | initial limit | | | | | |
| Vibration | MIL-STD-202, Method 204, Condition D | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 5\%$ of initial value | | | | | |
| | | | | ESR | initial limit | | | | | |

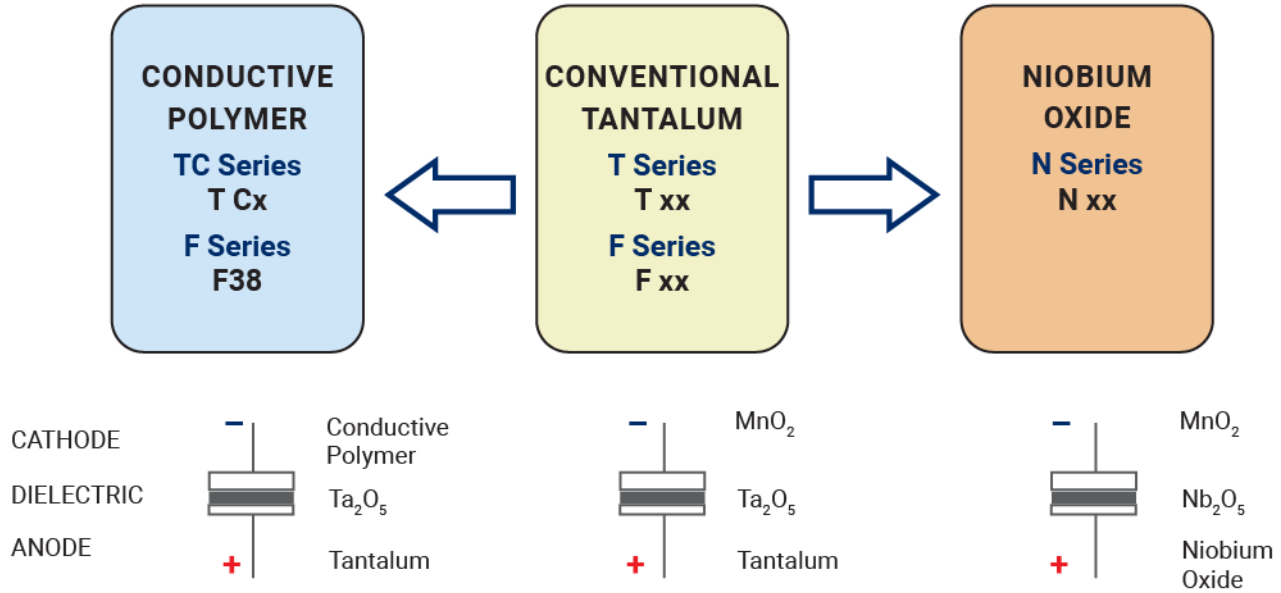
*Initial Limit

TLJ Series

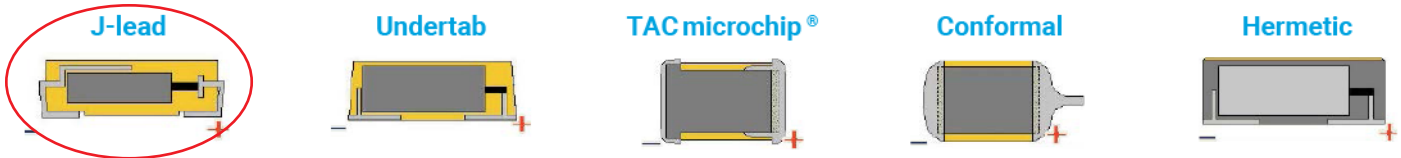
Tantalum Solid Electrolytic Chip Capacitors - High CV Consumer Series



SOLID ELECTROLYTIC CAPACITOR ROADMAP



FIVE CAPACITOR CONSTRUCTION STYLES



SERIES LINE UP : CONVENTIONAL SMD MnO₂

