

TCJ Series



Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode



FEATURES

- Conductive polymer electrode reduces ignition failure mode
- Lower ESR
- 3x reflow 260°C compatible
- CV range: 0.47-470µF / 2.5-125V
- 17 case sizes available

APPLICATIONS

- Smart phone, Tablets, Notebook, LCD TV, Power supplies



Elektra Award 2010



LEAD-FREE
LEAD-FREE COMPATIBLE
COMPONENT



RoHS
COMPLIANT



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) |
| C | 2312 | 6032-28 | 6.00 (0.236) | 3.20 (0.126) | 2.60 (0.102) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 2917 | 7343-31 | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 2917 | 7343-43 | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| 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 (0.050) | 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 (0.055) |
| V | 2924 | 7361-38 | 7.30 (0.287) | 6.10 (0.240) | 3.55 (0.140) | 3.10 (0.120) | 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) |
| X | 2917 | 7343-15 | 7.30 (0.287) | 4.30 (0.169) | 1.50 (0.059) max | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| 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.

MARKING

A, B, C, D, E, G, H, K, S, T, V, W, X, Y CASE



N, P, R CASE



HOW TO ORDER

| TCJ | A | 226 | M | 004 | R | 0300 |
|------|-----------------|--|-----------|--|---|-----------|
| Type | Case Size | Capacitance Code | Tolerance | Rated DC Voltage | Packaging | ESR in mΩ |
| | See table above | pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow) | M = ±20% | 002 = 2.5Vdc 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc 063 = 63Vdc 075 = 75Vdc 100 = 100Vdc 125 = 125Vdc | R = Pure Tin 7" Reel S = Pure Tin 13" Reel | |

TECHNICAL SPECIFICATIONS (Common for all TCJ series)

| | |
|-------------------------------|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C |
| Capacitance Tolerance: | ±20% |
| Leakage Current DCL: | 0.1CV |
| Reliability: | 1% per 1000 hours at 85°C, V _R with 0.1Ω/V series impedance, 60% confidence level |
| Resistance to soldering heat: | 3x260°C peak for max. 10s reflow |



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CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

| Cap | | Rated Voltage DC (V _R) to 85°C | | | | | | | | | | | | |
|------|------|--|---|--|----------------------------------|--------------------------------|----------------------------|--|--|---------------------|----------------------|---------|----------|----------|
| µF | Code | 2.5V (e) | 4V (G) | 6.3V (J) | 10V (A) | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) | 63V (J) | 75V (P) | 100V (A) | 125V (B) |
| 0.47 | 474 | | | | | | | | | | | | | B(400) |
| 0.68 | 684 | | | | | | | | | B(400) | B(300) | | | |
| 1.0 | 105 | | | | | | | P(500) | | B(300) | B(300) C(300) | | | |
| 1.5 | 155 | | | | | | | | B(200) | B(300) C(300) | C(300) | | | |
| 2.2 | 225 | | | | | | | | B(200) | C(300) | C(200) | | | |
| 3.3 | 335 | | | | | | | | B(200) | C(200) | C(200) | | | D(250) |
| 4.7 | 475 | | | | K(500) R(500) | | | B(100,150) | B(200) C(200) | C(200) | C(200) D(120) | D(150) | D(250) | |
| 6.8 | 685 | | | | | A(200) | | B(90,150) T(100,150) | C(200) | C(200) D(120) | D(120) E(100,150) | D(120) | | |
| 10 | 106 | | | A(300) N(250,500) R(500) | A(300) | A(200) B(200) T(150,200) | | B(90,100,150) | B(200) C(200) Y(70) | D(120) E(70,100) | E(100,150) | U* | U* | |
| 15 | 156 | | A(300) | A(300) | A(200) | B(150) | | B(100,150) Y(90) | B(200), C(200) D(70,100) Y(70,100) | E(70,100) | | | | |
| 22 | 226 | | A(300) | A(300), K(400) N(500), R(500) S(400), T(150) | B(300) T(70,150) | B(150) | B(90,150) Y(70) | B(100,150), C(100) D(60,100) Y(70) | D(70,100) Y* | | | | | |
| 33 | 336 | | A(300) | A(200) B(70,200) T(150) | B(70,200) C(100) T(70,150) | Y(45,60,70) | Y(70) | D(60,100) X(70,100) Y(60,70,100) | D(70,100) E(55,70) | | | | | |
| 47 | 476 | | A(200) T(80) | A(70,100,200), B(70) K(150,200,400) P(500), R(500) T(55,69,70,80,120) | B(70) C(100) | X(45,70) Y(45,70) | D(55) X(55,70) Y(70) | D(60,100) E(50) | E(55) | | | | | |
| 68 | 686 | A(250) | A(250) B(70) T(80) | B(55,70) C(100) T(200), W(70) | D(45,55) Y(45,55) | D(50) Y(50) | D(55) E(45) | D(70) E(50) | | | | | | |
| 100 | 107 | A(200), B(70) | A(200) B(40,70) G(300) T(150) | A(100,150) B(45,55,69,70) T(70,200) | D(45,55,80) Y(25,45,55) | D(50), E(40) Y(50) | D(55) E(45) | D(55,70) E(80) | | | | | | |
| 150 | 157 | B(70) | B(70), Y(25,45) | B(25,35,45,55,69,70) D(15,25,40) H(70,200), W(40,70) Y(15,25,40) | D(25,40,45,55) Y(25,40,45,55) | D(40,50) E(40) Y(40,50) | | | | | | | | |
| 220 | 227 | B(35,45,70) | B(35,45,55,60,70) D(15,25,40) Y(15,25,40) | B(70,200) D(25,35,40,50) Y(15,25,35,40,50) | D(15,18,25,40,50) Y(25,40,50) | | | | | | | | | |
| 330 | 337 | B(35,45,70) Y(25,40) | D(25,40,50) Y(25,40,50) | D(25,40,50) Y(25,40,50) | | E* | | | | | | | | |
| 470 | 477 | D(15,25,40,50) Y(15,25,40,50) | D(15,25,40,50) Y(15,25,40,50) | X(55,100) | | | | | | | | | | |
| 3300 | 208 | | | U* | | | | | | | | | | |

Available Ratings, (ESR ratings in mOhms in brackets)

Engineering samples - please contact manufacturer

*Codes under development – subject to change

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



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RATINGS & PART NUMBER REFERENCE

| AVX Part No. | Case Size | Cap (µF) | Rated Voltage (V) | Rated Temp. (°C) | Category Voltage (V) | Category Temp. (°C) | DCL (µA) Max. | DF % Max. | ESR Max. (mΩ) @ 100kHz | MSL | 100kHz RMS Current (mA) | | | | Product Category |
|------------------------|-----------|----------|-------------------|------------------|----------------------|---------------------|---------------|-----------|------------------------|-----|-------------------------|------|-------|-------|------------------|
| | | | | | | | | | | | 25°C | 85°C | 105°C | 125°C | |
| TCJE685M063#0100 | E | 6.8 | 63 | 85 | 50 | 105 | 42.8 | 6 | 100 | 3 | 1600 | 1100 | 700 | – | 105°C |
| TCJE685M063#0150 | E | 6.8 | 63 | 85 | 50 | 105 | 42.8 | 6 | 150 | 3 | 1300 | 900 | 600 | – | 105°C |
| TCJE106M063#0100 | E | 10 | 63 | 85 | 50 | 105 | 63 | 6 | 100 | 3 | 1600 | 1100 | 700 | – | 105°C |
| TCJE106M063#0150 | E | 10 | 63 | 85 | 50 | 105 | 63 | 6 | 150 | 3 | 1300 | 900 | 600 | – | 105°C |
| 75 Volt @ 85°C | | | | | | | | | | | | | | | |
| TCJD475M075#0150 | D | 4.7 | 75 | 85 | 60 | 105 | 35.3 | 6 | 150 | 3 | 1200 | 800 | 500 | – | 105°C |
| TCJD685M075#0120 | D | 6.8 | 75 | 85 | 60 | 105 | 51 | 6 | 120 | 3 | 1400 | 1000 | 600 | – | 105°C |
| 100 Volt @ 85°C | | | | | | | | | | | | | | | |
| TCJD475M100#0250 | D | 4.7 | 100 | 85 | 80 | 105 | 47 | 8 | 250 | 3 | 900 | 600 | 400 | – | 105°C |
| 125 Volt @ 85°C | | | | | | | | | | | | | | | |
| TCJD335M125#0250 | D | 3.3 | 125 | 85 | 100 | 105 | 41.2 | 8 | 250 | 3 | 900 | 600 | 400 | – | 105°C |

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

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

ESR allowed to move up to 1.25 times catalog limit post mounting.

For typical weight and composition see page 214.

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

PRODUCT CATEGORY 125°C

| TEST | 125°C series (Temperature range -55°C to +125°C) | | | | | | | | | |
|------------------------------|--|---------------|---------------|--------------------|----------------------------------|-----------|-------|-----------|------------|-------|
| | Condition | | | Characteristics | | | | | | |
| Endurance | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V. | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | |
| | | | | ΔC/C | within +20/-30% of initial value | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | |
| | | | | ESR | 2 x initial limit | | | | | |
| Storage Life | 125°C, 0V, 2000h | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 2 x initial limit | | | | | |
| | | | | ΔC/C | within ±20% of initial value | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | |
| | | | | ESR | 2 x initial limit | | | | | |
| Humidity | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature. | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 3 x initial limit | | | | | |
| | | | | ΔC/C | within +30/-20% of initial value | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | |
| | | | | ESR | 2 x initial limit | | | | | |
| Temperature Stability | Step | Temperature°C | Duration(min) | | +20°C | -55°C | +20°C | +85°C | +125°C | +20°C |
| | 1 | +20±2 | 15 | DCL | IL* | n/a | IL* | 10 x IL* | 12.5 x IL* | IL* |
| | 2 | -55+0/-3 | 15 | | | | | | | |
| | 3 | +20±2 | 15 | ΔC/C | n/a | +0/-20% | ±5% | +20/-0% | +30/-0% | ±5% |
| | 4 | +85+3/-0 | 15 | | | | | | | |
| | 5 | +125+3/-0 | 15 | DF | IL* | 1.5 x IL* | IL* | 1.5 x IL* | 2 x IL* | IL* |
| | 6 | +20±2 | 15 | | | | | | | |
| Surge Voltage | Test temperature: 125°C+3/0°C Test voltage: Category voltage at 125°C Surge voltage: 1.3 x category voltage at 125°C Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | initial limit | | | | | |
| | | | | ΔC/C | within +20/-30% of initial value | | | | | |
| | | | | DF | 1.25 x initial limit | | | | | |

*Initial Limit

Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

PRODUCT CATEGORY 105°C

| TEST | 105°C series (Temperature range -55°C to +105°C) | | | | | | | |
|-----------------------|--|---------------|---------------|----------------------------|----------------------------------|--|--|--|
| | Condition | | | Characteristics | | | | |
| Endurance | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine after application of 105°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V. | | | Visual examination | no visible damage | | | |
| | | | | DCL | 1.25 x initial limit | | | |
| | | | | ΔC/C | within +20/-30% of initial value | | | |
| | | | | DF | 1.5 x initial limit | | | |
| | | | | ESR | 2 x initial limit | | | |
| Storage Life | 105°C, 0V, 2000h | | | Visual examination | no visible damage | | | |
| | | | | DCL (V _R ≤ 75V) | 1.25 x initial limit | | | |
| | | | | DCL (V _R > 75V) | 2 x initial limit | | | |
| | | | | ΔC/C | within ±20% of initial value | | | |
| | | | | DF | 1.5 x initial limit | | | |
| | | | | ESR | 2 x initial limit | | | |
| Humidity | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature. | | | Visual examination | no visible damage | | | |
| | | | | DCL | 3 x initial limit | | | |
| | | | | ΔC/C | within +30/-20% of initial value | | | |
| | | | | DF | 1.5 x initial limit | | | |
| | | | | ESR | 2 x initial limit | | | |
| Temperature Stability | Step | Temperature°C | Duration(min) | | | | | |
| | 1 | +20±2 | 15 | | | | | |
| | 2 | -55+0/-3 | 15 | | | | | |
| | 3 | +20±2 | 15 | | | | | |
| | 4 | +85+3/-0 | 15 | | | | | |
| | 5 | +105+3/-0 | 15 | | | | | |
| | 6 | +20±2 | 15 | | | | | |
| Surge Voltage | Test temperature: 105°C+3/0°C Test voltage: Category voltage at 105°C Surge voltage: 1.3 x category voltage at 105°C Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge | | | Visual examination | no visible damage | | | |
| | | | | DCL | initial limit | | | |
| | | | | ΔC/C | within +20/-30% of initial value | | | |
| | | | | DF | 1.25 x initial limit | | | |

*Initial Limit

PRODUCT CATEGORY 85°C

| TEST | 85°C series (Temperature range -55°C to +85°C) | | | | | | | |
|-----------------------|--|---------------|---------------|--------------------|--|--|--|--------------------|
| | Condition | | | Characteristics | | | | |
| Endurance | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V. | | | Visual examination | no visible damage | | | |
| | | | | DCL | 1.25 x initial limit | | | |
| | | | | ΔC/C | within +20/-30% of initial value | | | |
| | | | | DF | 1.5 x initial limit | | | |
| | | | | ESR | 2 x initial limit | | | |
| Storage Life | 85°C, 0V, 2000h | | | Visual examination | no visible damage | | | |
| | | | | DCL | 1.25 x initial limit | | | |
| | | | | ΔC/C | within ±20% of initial value | | | |
| | | | | DF | 1.5 x initial limit | | | |
| | | | | ESR | 2 x initial limit | | | |
| | | | | Humidity | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature. | | | Visual examination |
| DCL | 5 x initial limit | | | | | | | |
| ΔC/C | within +40/-20% of initial value | | | | | | | |
| DF | 1.5 x initial limit | | | | | | | |
| ESR | 2 x initial limit | | | | | | | |
| Temperature Stability | Step | Temperature°C | Duration(min) | | | | | |
| | 1 | +20±2 | 15 | | | | | |
| | 2 | -55+0/-3 | 15 | | | | | |
| | 3 | +20±2 | 15 | | | | | |
| | 4 | +85+3/-0 | 15 | | | | | |
| | 5 | +20±2 | 15 | | | | | |
| Surge Voltage | Test temperature: 85+3/0°C Test voltage: Rated voltage Surge voltage: 1.3 x rated voltage Series protection resistance 1000±100Ω. Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge | | | Visual examination | no visible damage | | | |
| | | | | DCL | initial limit | | | |
| | | | | ΔC/C | within +20/-30% of initial value | | | |
| | | | | DF | 1.25 x initial limit | | | |

*Initial Limit

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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