

TRJ Series



Professional Tantalum Chip Capacitor



- Improved reliability – 2x standard
- DCL reduced by 25% to 0.0075 CV
- Robust against higher thermo-mechanical stresses during assembly process
- CV range: 0.10-470µF / 4-50V
- 5 case sizes available
- 123 low ESR parts released
- Automotive, medical, aerospace, military and other high-end applications



SnPb termination option is not RoHS compliant.



For part marking see page 127

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) -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) |

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

HOW TO ORDER

| | | | | | | | |
|-------------|-------------------------------------|---|--------------------------------------|---|--|--|---|
| TRJ | B | 105 | * | 035 | R | RJ | - |
| Type | Case Size See table above | Capacitance Code pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow) | Tolerance K=±10% M=±20% | Rated DC Voltage 004 = 4V 006 = 6.3V 010 = 10V 016 = 16V 020 = 20V 025 = 25V 035 = 35V 050 = 50V | Packaging R = Pure Tin 7" Reel S = Pure Tin 13" Reel A = Gold Plating 7" Reel B = Gold Plating 13" Reel H = Tin Lead 7" Reel (Contact Manufacturer) K = Tin Lead 13" Reel (Contact Manufacturer) H, K = Non RoHS | Standard Suffix OR 0100 Low ESR in mΩ | Additional characters may be added for special requirements V = Dry pack Option (selected codes only) |

TECHNICAL SPECIFICATIONS

| | | | | | | | | | | |
|------------------------------------|--|-----|-----|----|----|----|----|----|----|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | | | |
| Capacitance Range: | 0.10 µF to 470 µF | | | | | | | | | |
| Capacitance Tolerance: | ±10%; ±20% | | | | | | | | | |
| Leakage Current DCL: | 0.0075CV | | | | | | | | | |
| Rated Voltage (V _R) | ≤ +85°C: | 4 | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 | |
| Category Voltage (V _C) | ≤ +125°C: | 2.7 | 4 | 7 | 10 | 13 | 17 | 23 | 33 | |
| Surge Voltage (V _S) | ≤ +85°C: | 5.2 | 8 | 13 | 20 | 26 | 32 | 46 | 65 | |
| Surge Voltage (V _S) | ≤ +125°C: | 3.4 | 5 | 8 | 13 | 16 | 20 | 28 | 40 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | |
| Reliability: | 0.5% per 1000 hours at 85°C, V _R with 0.1Ω/V series impedance, 60% confidence level | | | | | | | | | |
| Termination Plating: | Sn Plating (standard), Gold and SnPb Plating upon request Meets requirements of AEC-Q200 | | | | | | | | | |



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CAPACITANCE AND RATED VOLTAGE, VR (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V _R) to 85°C | | | | | | | |
|-------------|------|--|-------------------------|---------------------------------|---------------------------|--------------------------|------------------------|--------------------------|------------------------|
| μF | Code | 4V (G) | 6.3V (J) | 10V (A) | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) |
| 0.10 | 104 | | | | | | | A | |
| 0.15 | 154 | | | | | | | A, A(6000) | |
| 0.22 | 224 | | | | | | | A, A(6000) | A, A(7000) |
| 0.33 | 334 | | | | | | | A, A(6000) | A |
| 0.47 | 474 | | | | | | A, A(7000) | A, A(4000) | B |
| 0.68 | 684 | | | | | | A, A(6000) | A, A(6000) | B, B(2000) |
| 1.0 | 105 | | | | A | A, A(3000) | A, A(3000) | A, B, A(3000), B(2000) | C, B, B(2000) |
| 1.5 | 155 | | | A | | A, A(3000) | A, B, A(3000) | A, B, A(2000), B(2500) | C, C(1500) |
| 2.2 | 225 | | | A | A, A(3500) | A, A(3000) | A, B, A(1600), B(1200) | B, B(2000) | C, D, C(1000), D(1200) |
| 3.3 | 335 | | | | A, B, A(3500) | A, B, A(2500), B(1300) | B, B(2000) | B, C, D, B(1000), C(800) | C, D, C(1000), D(800) |
| 4.7 | 475 | | | A, A(2000) | A, B, A(2000), B(1500) | A, B, A(1800), B(1000) | B, B(1000) | B, C, D, B(1500), C(600) | D, D(600) |
| 6.8 | 685 | | | A, B, A(1800) | A, B, C, A(1500), B(1200) | B, C, B(1000) | B, C, B(1000), C(600) | C, D, C(600) | D |
| 10 | 106 | | A, B, A(1500) | A, B, A(1800), B(800) | B, C, B(800) | B, C, B(1000), C(500) | C, D, C(600) | C, D, C(600), D(250,400) | E, E(300,400) |
| 15 | 156 | B | A, B, A(1500), B(700) | A, B, C, A(1000), B(600) | B, B(800) | B, C, D, B(500), C(400) | C, D, C(500), D(300) | D, D(225) | |
| 22 | 226 | | A, B, C, A(900), B(600) | B, B(700) | B, C, D, B(600), C(350) | C, D, C(400), D(150,300) | D, D(300) | D, D(200,400) | |
| 33 | 336 | C | B, C, B(600) | B, C, D, B(650), C(300) | C, C(300) | C, D, C(300), D(250) | D, D(400) | E, E(250) | |
| 47 | 476 | | B, C, B(500), C(250) | C, D, C(300) | C, D, C(350), D(200) | D, D(200) | D, E, D(250), E(150) | | |
| 68 | 686 | | C, C(200) | C, C(300) | D, D(150) | D, E, D(200), E(120,200) | | | |
| 100 | 107 | | C, C(300) | C, D, E, C(200), D(150), E(100) | D, E, D(150), E(150) | E, E(150) | | | |
| 150 | 157 | | C, D, C(300), D(150) | D, E, D(150), E(150) | E, E(150) | | | | |
| 220 | 227 | | D, D(150) | D, E, E(150) | | | | | |
| 330 | 337 | | D, E, E(150) | E, E(100) | | | | | |
| 470 | 477 | | E, E(200) | | | | | | |

Not recommended for new designs, higher voltage or smaller case size substitution are offered.

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.

TRJ Series



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RATINGS & PART NUMBER REFERENCE

| AVX Part No. | Case Size | Capacitance (µF) | Rated Voltage (V) | DCL (µA) Max. | DF % Max. | ESR Max. (mΩ) @100kHz | MSL | 100kHz RMS Current (mA) | | | 100kHz RMS Voltage (mV) | | |
|---|-----------|------------------|-------------------|---------------|-----------|-----------------------|-----------------|-------------------------|------|-------|-------------------------|------|-------|
| | | | | | | | | 25°C | 85°C | 125°C | 25°C | 85°C | 125°C |
| TRJA474*035#RJ | A | 0.47 | 35 | 0.30 | 4 | 9530 | 1 | 89 | 80 | 35 | 845 | 761 | 338 |
| TRJA474*035#4000 | A | 0.47 | 35 | 0.30 | 4 | 4000 | 1 | 137 | 123 | 55 | 548 | 493 | 219 |
| TRJA684*035#RJ | A | 0.68 | 35 | 0.30 | 4 | 7980 | 1 | 97 | 87 | 39 | 774 | 696 | 309 |
| TRJA684*035#6000 | A | 0.68 | 35 | 0.30 | 4 | 6000 | 1 | 112 | 101 | 45 | 671 | 604 | 268 |
| TRJA105*035#RJ | A | 1 | 35 | 0.30 | 4 | 6630 | 1 | 106 | 96 | 43 | 705 | 635 | 282 |
| TRJA105*035#3000 | A | 1 | 35 | 0.30 | 4 | 3000 | 1 | 158 | 142 | 63 | 474 | 427 | 190 |
| TRJB105*035#RJ | B | 1 | 35 | 0.30 | 4 | 3400 | 1 | 158 | 142 | 63 | 538 | 484 | 215 |
| TRJB105*035#2000 | B | 1 | 35 | 0.30 | 4 | 2000 | 1 | 206 | 186 | 82 | 412 | 371 | 165 |
| TRJA155*035#RJ | A | 1.5 | 35 | 0.39 | 6 | 3100 | 1 | 166 | 149 | 66 | 513 | 462 | 205 |
| TRJA155*035#2000 | A | 1.5 | 35 | 0.39 | 6 | 2000 | 1 | 206 | 186 | 82 | 412 | 371 | 165 |
| TRJB155*035#RJ | B | 1.5 | 35 | 0.39 | 6 | 5460 | 1 | 125 | 112 | 50 | 681 | 613 | 272 |
| TRJB155*035#2500 | B | 1.5 | 35 | 0.39 | 6 | 2500 | 1 | 184 | 166 | 74 | 461 | 415 | 184 |
| TRJB225*035#RJ | B | 2.2 | 35 | 0.58 | 6 | 4550 | 1 | 137 | 123 | 55 | 622 | 560 | 249 |
| TRJB225*035#2000 | B | 2.2 | 35 | 0.58 | 6 | 2000 | 1 | 206 | 186 | 82 | 412 | 371 | 165 |
| TRJB335*035#RJ | B | 3.3 | 35 | 0.87 | 6 | 3740 | 1 | 151 | 136 | 60 | 564 | 507 | 226 |
| TRJB335*035#1000 | B | 3.3 | 35 | 0.87 | 6 | 1000 | 1 | 292 | 262 | 117 | 292 | 262 | 117 |
| TRJC335*035#RJ | C | 3.3 | 35 | 0.87 | 6 | 1840 | 1 | 245 | 220 | 98 | 450 | 405 | 180 |
| TRJC335*035#0800 | C | 3.3 | 35 | 0.87 | 6 | 800 | 1 | 371 | 334 | 148 | 297 | 267 | 119 |
| TRJD335*035#RJ | D | 3.3 | 35 | 0.87 | 6 | 2000 | 1 | 274 | 246 | 110 | 548 | 493 | 219 |
| TRJB475*035#RJ | B | 4.7 | 35 | 1.20 | 6 | 2200 | 1 | 224 | 201 | 89 | 492 | 443 | 197 |
| TRJB475*035#1500 | B | 4.7 | 35 | 1.20 | 6 | 1500 | 1 | 271 | 244 | 108 | 406 | 366 | 162 |
| TRJC475*035#RJ | C | 4.7 | 35 | 1.2 | 6 | 1410 | 1 | 279 | 251 | 112 | 394 | 354 | 158 |
| TRJC475*035#0600 | C | 4.7 | 35 | 1.2 | 6 | 600 | 1 | 428 | 385 | 171 | 257 | 231 | 103 |
| TRJD475*035#RJ | D | 4.7 | 35 | 1.2 | 6 | 1500 | 1 | 316 | 285 | 126 | 474 | 427 | 190 |
| TRJC685*035#RJ | C | 6.8 | 35 | 1.8 | 6 | 1070 | 1 | 321 | 289 | 128 | 343 | 309 | 137 |
| TRJC685*035#0600 | C | 6.8 | 35 | 1.8 | 6 | 600 | 1 | 428 | 385 | 171 | 257 | 231 | 103 |
| TRJD685*035#RJ | D | 6.8 | 35 | 1.8 | 6 | 1300 | 1 | 340 | 306 | 136 | 442 | 397 | 177 |
| TRJC106*035#RJ | C | 10 | 35 | 2.6 | 6 | 800 | 1 | 371 | 334 | 148 | 297 | 267 | 119 |
| TRJC106*035#0600 | C | 10 | 35 | 2.6 | 6 | 600 | 1 | 428 | 385 | 171 | 257 | 231 | 103 |
| TRJD106*035#RJ | D | 10 | 35 | 2.6 | 6 | 800 | 1 | 433 | 390 | 173 | 346 | 312 | 139 |
| TRJD106*035#0250 | D | 10 | 35 | 2.6 | 6 | 250 | 1 | 775 | 697 | 310 | 194 | 174 | 77 |
| TRJD106*035#0400 | D | 10 | 35 | 2.6 | 6 | 400 | 1 | 612 | 551 | 245 | 245 | 220 | 98 |
| TRJD156*035#RJ | D | 15 | 35 | 3.9 | 6 | 720 | 1 | 456 | 411 | 183 | 329 | 296 | 131 |
| TRJD156*035#0225 | D | 15 | 35 | 3.9 | 6 | 225 | 1 | 816 | 735 | 327 | 184 | 165 | 73 |
| TRJD226*035#RJ | D | 22 | 35 | 5.8 | 6 | 650 | 1 | 480 | 432 | 192 | 312 | 281 | 125 |
| TRJD226*035#0200 | D | 22 | 35 | 5.8 | 6 | 200 | 1 | 866 | 779 | 346 | 173 | 156 | 69 |
| TRJD226*035#0400 | D | 22 | 35 | 5.8 | 6 | 400 | 1 | 612 | 551 | 245 | 245 | 220 | 98 |
| TRJE336*035#RJ | E | 33 | 35 | 8.7 | 6 | 590 | 1 ¹⁾ | 529 | 476 | 212 | 312 | 281 | 125 |
| TRJE336*035#0250 | E | 33 | 35 | 8.7 | 6 | 250 | 1 ¹⁾ | 812 | 731 | 325 | 203 | 183 | 81 |
| 50 Volt @ 85°C (33 Volt @ 125°C) | | | | | | | | | | | | | |
| TRJA224*050#RJ | A | 0.22 | 50 | 0.3 | 4 | 7500 | 1 | 100 | 90 | 40 | 750 | 675 | 300 |
| TRJA224*050#7000 | A | 0.22 | 50 | 0.3 | 4 | 7000 | 1 | 104 | 93 | 41 | 725 | 652 | 290 |
| TRJA334*050#RJ | A | 0.33 | 50 | 0.3 | 4 | 7000 | 1 | 104 | 93 | 41 | 725 | 652 | 290 |
| TRJB474*050#RJ | B | 0.47 | 50 | 0.3 | 4 | 5000 | 1 | 130 | 117 | 52 | 652 | 587 | 261 |
| TRJB684*050#RJ | B | 0.68 | 50 | 0.3 | 4 | 4000 | 1 | 146 | 131 | 58 | 583 | 525 | 233 |
| TRJB684*050#2000 | B | 0.68 | 50 | 0.3 | 4 | 2000 | 1 | 206 | 186 | 82 | 412 | 371 | 165 |
| TRJB105*050#RJ | B | 1 | 50 | 0.4 | 4 | 3400 | 1 | 158 | 142 | 63 | 538 | 484 | 215 |
| TRJB105*050#2000 | B | 1 | 50 | 0.4 | 4 | 2000 | 1 | 206 | 186 | 82 | 412 | 371 | 165 |
| TRJC105*050#RJ | C | 1 | 50 | 0.4 | 4 | 3000 | 1 | 191 | 172 | 77 | 574 | 517 | 230 |
| TRJC155*050#RJ | C | 1.5 | 50 | 0.6 | 6 | 2500 | 1 | 210 | 189 | 84 | 524 | 472 | 210 |
| TRJC155*050#1500 | C | 1.5 | 50 | 0.6 | 6 | 1500 | 1 | 271 | 244 | 108 | 406 | 366 | 162 |
| TRJC225*050#RJ | C | 2.2 | 50 | 0.8 | 6 | 1700 | 1 | 254 | 229 | 102 | 432 | 389 | 173 |
| TRJC225*050#1000 | C | 2.2 | 50 | 0.8 | 6 | 1000 | 1 | 332 | 298 | 133 | 332 | 298 | 133 |
| TRJD225*050#RJ | D | 2.2 | 50 | 0.8 | 4.5 | 2000 | 1 | 274 | 246 | 110 | 548 | 493 | 219 |
| TRJD225*050#1200 | D | 2.2 | 50 | 0.8 | 4.5 | 1200 | 1 | 354 | 318 | 141 | 424 | 382 | 170 |
| TRJC335*050#RJ | C | 3.3 | 50 | 1.2 | 6 | 1400 | 1 | 280 | 252 | 112 | 392 | 353 | 157 |
| TRJC335*050#1000 | C | 3.3 | 50 | 1.2 | 6 | 1000 | 1 | 332 | 298 | 133 | 332 | 298 | 133 |
| TRJD335*050#RJ | D | 3.3 | 50 | 1.20 | 4.5 | 1100 | 1 | 369 | 332 | 148 | 406 | 366 | 162 |
| TRJD335*050#0800 | D | 3.3 | 50 | 1.20 | 4.5 | 800 | 1 | 433 | 390 | 173 | 346 | 312 | 139 |
| TRJD475*050#RJ | D | 4.7 | 50 | 1.80 | 4.5 | 900 | 1 | 408 | 367 | 163 | 367 | 331 | 147 |
| TRJD475*050#0600 | D | 4.7 | 50 | 1.80 | 4.5 | 600 | 1 | 500 | 450 | 200 | 300 | 270 | 120 |
| TRJD685*050#RJ | D | 6.8 | 50 | 2.60 | 4.5 | 700 | 1 | 463 | 417 | 185 | 324 | 292 | 130 |
| TRJE106*050#RJ | E | 10 | 50 | 3.80 | 4.5 | 700 | 1 ¹⁾ | 486 | 437 | 194 | 340 | 306 | 136 |
| TRJE106*050#0300 | E | 10 | 50 | 3.80 | 4.5 | 300 | 1 ¹⁾ | 742 | 667 | 297 | 222 | 200 | 89 |
| TRJE106*050#0400 | E | 10 | 50 | 3.80 | 4.5 | 400 | 1 ¹⁾ | 642 | 578 | 257 | 257 | 231 | 103 |

¹⁾ Dry pack option (see How to order) recommended for reduction of stress during soldering. Dry pack parts should be treated as MSL 3.

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, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

The EIA & CECC standards for low ESR Solid Tantalum Capacitors allow an ESR movement to 1.25 times catalogue limit post mounting.

For typical weight and composition see page 120.

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.



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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