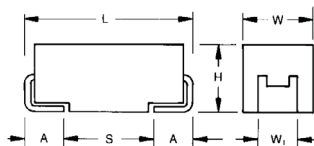
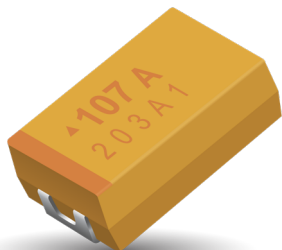


TPS Automotive Range

Low ESR - Automotive Product Range



FEATURES

- Low ESR Series of Robust MnO₂ Solid Electrolyte Capacitors
- 100% Surge Current Tested
- CV Range: 0.22-680µF / 6.3-50V
- 5 Case Sizes Available
- Power Supply Applications

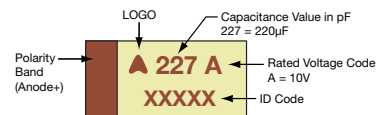
APPLICATIONS

- Power Supply
- Electric Window Control
- Battery Management Systems
- DC / DC Converter



MARKING

A, B, C, D, E CASE



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) |

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

HOW TO ORDER

| | | | | | | | |
|------------|------------------------------|--|-----------------------------------|--|--|-------------|---|
| TPS | C | 107 | M | 010 | T | 0150 | V |
| 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 006 = 6.3Vdc 025 = 25Vdc 010 = 10Vdc 035 = 35Vdc 016 = 16Vdc 050 = 50Vdc 020 = 20Vdc | Packaging T = Automotive Lead Free 7" Reel U = Automotive Lead Free 13" Reel | ESR in mΩ | Dry Pack Option (D,E case sizes mandatory) |

TECHNICAL SPECIFICATIONS

| | | | | | | | | | |
|------------------------------------|--|-----|----|----|----|----|----|----|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | | |
| Capacitance Range: | 0.22 µF to 680 µF | | | | | | | | |
| Capacitance Tolerance: | ±10%; ±20% | | | | | | | | |
| Rated Voltage (V _R) | ≤ +85°C: | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 | |
| Category Voltage (V _C) | ≤ +125°C: | 4 | 7 | 10 | 13 | 17 | 23 | 33 | |
| Surge Voltage (V _S) | ≤ +85°C: | 8 | 13 | 20 | 26 | 32 | 46 | 65 | |
| Surge Voltage (V _S) | ≤ +125°C: | 5 | 8 | 13 | 16 | 20 | 28 | 40 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | |
| Environmental Classification: | 55/125/56 (IEC 68-2) | | | | | | | | |
| Reliability: | 1% per 1000 hours at 85°C, V _R with 0.1Ω/V series impedance, 60% confidence level | | | | | | | | |
| Termination Finished: | Sn Plating (standard), Gold and SnPb Plating upon request | | | | | | | | |
| | Meets requirements of AEC-Q200 | | | | | | | | |

TPS Automotive Range

Low ESR - Automotive Product Range



TPS AUTOMOTIVE RANGE CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (VR) to 85°C | | | | | | |
|-------------|------|---|--|---|----------------------------------|-------------------------------|-------------------------------|------------------------------|
| µF | Code | 6.3V (J) | 10V (A) | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) |
| 0.15 | 154 | | | | | | | |
| 0.22 | 224 | | | | | | | A(7000) |
| 0.33 | 334 | | | | | | A(6000) | A(7000) |
| 0.47 | 474 | | | | | A(7000) | A(6000) | A(6500), B(6000) |
| 0.68 | 684 | | | | | A(6000) | A(6000) | B(4000) |
| 1.0 | 105 | | | A(6200) | A(3000) | A(4000) | A(3000), B(2000) | B(3000), C(2500) |
| 1.5 | 155 | | | | A(3000) | A(3000) | A(3000), B(2500) | C(1500,2000) |
| 2.2 | 225 | | A(1800) | A(1800,3500) | A(3000) B(1700) | A(2500) B(900,1200,2500) | B(750,1500,2000) C(1000) | C(1500) D(1200) |
| 3.3 | 335 | A(2100) | | A(3500), B(2500) | A(2500), B(1300) | B(750,1500,2000) | B(1000), C(700) | C(1000), D(800) |
| 4.7 | 475 | | A(1400) B(1400) | A(2000) B(800,1500) | A(1800) B(750,1000) | B(700,900) C(700) | B(700,1500), C(600) D(700) | C(800) D(250,500,700) |
| 6.8 | 685 | | A(1800), B(1300) | A(1500), B(600,1200) | B(600,1000), C(700) | B(700), C(500,600,700) | C(350), D(400,500) | D(500,600) |
| 10 | 106 | A(1500), B(1500) | A(900,1800), B(1000) | A(1000), B(500,800) C(500) | B(500,1000) C(500,700) | B(1800), C(300,500) D(500) | C(600) D(300) E(250) | D(500) E(250,300,400,500) |
| 15 | 156 | A(700,1500) | A(1000), B(450,600) C(700) | B(500,800) C(300,700) | B(500) C(400,450) | C(220,300) D(300) | D(300) | E(250) |
| 22 | 226 | A(300,500,900) B(375,600), C(500) | A(900), B(400,500,700) C(180,300) | B(400,600), C(300,375) D(500), D(700) | B(400,600), C(400) D(200,300) | C(275,400) D(200,300) | D(200,300,400) E(200,300) | |
| 33 | 336 | A(600) B(250,350,450,600) | B(250,425,500,650) C(375,500) | B(500), C(150, 225,300) D(200) | C(300) D(160,200) | D(200,300) | D(200,300) E(250,300) | |
| 47 | 476 | B(250,350,500) C(300) | B(250,350,500,650) C(200,350), D(100,300) | C(350) D(100,200) | D(200) | D(125,150,250) E(125) | E(200,250) | |
| 68 | 686 | B(250,350,500) C(150,200) | C(200,300) D(150) | C(200) D(150) | D(150,200,300) E(125,150,200) | E(200) | | |
| 100 | 107 | B(250,400) C(150), D(300) | C(100,150,200) D(100,125,150) | D(80,100,125,150) E(100,125,150) | E(100,150,200) | E(150) | | |
| 150 | 157 | C(100,150,200,250) D(125) | D(85,100) E(100) | E(100) | | | | |
| 220 | 227 | D(100,125) | D(100,150) E(70,100,125,150) | E(100,150) | | | | |
| 330 | 337 | D(45,50,70,100) E(100,125,150) | E(50,60,100) | | | | | |
| 470 | 477 | D(45,60,100,200) E(45,50,60,100,200) | | | | | | |
| 680 | 687 | E(45,60,100) | | | | | | |

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.

TPS Automotive Range

Low ESR - Automotive Product Range

RATINGS & PART NUMBER REFERENCE

| Part Number | Case Size | Capacitance (µF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (A) | | | MSL |
|------------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|------------------------|------------------------|-------|-------|-----|
| | | | | | | | | | | 25°C | 85°C | 125°C | |
| 6.3 Volt @ 85°C | | | | | | | | | | | | | |
| TPSA335*006T2100 | A | 3.3 | 6.3 | 85 | 4 | 125 | 0.5 | 6 | 2100 | 0.189 | 0.170 | 0.076 | 1 |
| TPSA106*006T1500 | A | 10 | 6.3 | 85 | 4 | 125 | 0.6 | 6 | 1500 | 0.224 | 0.201 | 0.089 | 1 |
| TPSB106*006T1500 | B | 10 | 6.3 | 85 | 4 | 125 | 0.6 | 6 | 1500 | 0.238 | 0.214 | 0.095 | 1 |
| TPSA156*006T0700 | A | 15 | 6.3 | 85 | 4 | 125 | 0.9 | 6 | 700 | 0.327 | 0.295 | 0.131 | 1 |
| TPSA156*006T1500 | A | 15 | 6.3 | 85 | 4 | 125 | 0.9 | 6 | 1500 | 0.224 | 0.201 | 0.089 | 1 |
| TPSA226*006T0300 | A | 22 | 6.3 | 85 | 4 | 125 | 1.4 | 6 | 300 | 0.500 | 0.450 | 0.200 | 1 |
| TPSA226*006T0500 | A | 22 | 6.3 | 85 | 4 | 125 | 1.4 | 6 | 500 | 0.387 | 0.349 | 0.155 | 1 |
| TPSA226*006T0900 | A | 22 | 6.3 | 85 | 4 | 125 | 1.4 | 6 | 900 | 0.289 | 0.260 | 0.115 | 1 |
| TPSB226*006T0375 | B | 22 | 6.3 | 85 | 4 | 125 | 1.4 | 6 | 375 | 0.476 | 0.428 | 0.190 | 1 |
| TPSB226*006T0600 | B | 22 | 6.3 | 85 | 4 | 125 | 1.4 | 6 | 600 | 0.376 | 0.339 | 0.151 | 1 |
| TPSC226*006T0500 | C | 22 | 6.3 | 85 | 4 | 125 | 1.4 | 6 | 500 | 0.469 | 0.422 | 0.188 | 1 |
| TPSA336*006T0600 | A | 33 | 6.3 | 85 | 4 | 125 | 2.1 | 8 | 600 | 0.354 | 0.318 | 0.141 | 1 |
| TPSB336*006T0250 | B | 33 | 6.3 | 85 | 4 | 125 | 2.1 | 6 | 250 | 0.583 | 0.525 | 0.233 | 1 |
| TPSB336*006T0350 | B | 33 | 6.3 | 85 | 4 | 125 | 2.1 | 6 | 350 | 0.493 | 0.444 | 0.197 | 1 |
| TPSB336*006T0450 | B | 33 | 6.3 | 85 | 4 | 125 | 2.1 | 6 | 450 | 0.435 | 0.391 | 0.174 | 1 |
| TPSB336*006T0600 | B | 33 | 6.3 | 85 | 4 | 125 | 2.1 | 6 | 600 | 0.376 | 0.339 | 0.151 | 1 |
| TPSB476*006T0250 | B | 47 | 6.3 | 85 | 4 | 125 | 3 | 6 | 250 | 0.583 | 0.525 | 0.233 | 1 |
| TPSB476*006T0350 | B | 47 | 6.3 | 85 | 4 | 125 | 3 | 6 | 350 | 0.493 | 0.444 | 0.197 | 1 |
| TPSB476*006T0500 | B | 47 | 6.3 | 85 | 4 | 125 | 3 | 6 | 500 | 0.412 | 0.371 | 0.165 | 1 |
| TPSC476*006T0300 | C | 47 | 6.3 | 85 | 4 | 125 | 3 | 6 | 300 | 0.606 | 0.545 | 0.242 | 1 |
| TPSB686*006T0250 | B | 68 | 6.3 | 85 | 4 | 125 | 4 | 8 | 250 | 0.583 | 0.525 | 0.233 | 1 |
| TPSB686*006T0350 | B | 68 | 6.3 | 85 | 4 | 125 | 4 | 8 | 350 | 0.493 | 0.444 | 0.197 | 1 |
| TPSB686*006T0500 | B | 68 | 6.3 | 85 | 4 | 125 | 4 | 8 | 500 | 0.412 | 0.371 | 0.165 | 1 |
| TPSC686*006T0150 | C | 68 | 6.3 | 85 | 4 | 125 | 4.3 | 6 | 150 | 0.856 | 0.771 | 0.343 | 1 |
| TPSC686*006T0200 | C | 68 | 6.3 | 85 | 4 | 125 | 4.3 | 6 | 200 | 0.742 | 0.667 | 0.297 | 1 |
| TPSB107*006T0250 | B | 100 | 6.3 | 85 | 4 | 125 | 6.3 | 10 | 250 | 0.583 | 0.525 | 0.233 | 1 |
| TPSB107*006T0400 | B | 100 | 6.3 | 85 | 4 | 125 | 6.3 | 10 | 400 | 0.461 | 0.415 | 0.184 | 1 |
| TPSC107*006T0150 | C | 100 | 6.3 | 85 | 4 | 125 | 6.3 | 6 | 150 | 0.856 | 0.771 | 0.343 | 1 |
| TPSD107*006T0300V | D | 100 | 6.3 | 85 | 4 | 125 | 6.3 | 6 | 300 | 0.707 | 0.636 | 0.283 | 3 |
| TPSC157*006T0100 | C | 150 | 6.3 | 85 | 4 | 125 | 9.5 | 6 | 100 | 1.049 | 0.944 | 0.420 | 1 |
| TPSC157*006T0150 | C | 150 | 6.3 | 85 | 4 | 125 | 9.5 | 6 | 150 | 0.856 | 0.771 | 0.343 | 1 |
| TPSC157*006T0200 | C | 150 | 6.3 | 85 | 4 | 125 | 9.5 | 6 | 200 | 0.742 | 0.667 | 0.297 | 1 |
| TPSC157*006T0250 | C | 150 | 6.3 | 85 | 4 | 125 | 9.5 | 6 | 250 | 0.663 | 0.597 | 0.265 | 1 |
| TPSD157*006T0125V | D | 150 | 6.3 | 85 | 4 | 125 | 9.5 | 6 | 125 | 1.095 | 0.986 | 0.438 | 3 |
| TPSD227*006T0100V | D | 220 | 6.3 | 85 | 4 | 125 | 13.9 | 8 | 100 | 1.225 | 1.102 | 0.490 | 3 |
| TPSD227*006T0125V | D | 220 | 6.3 | 85 | 4 | 125 | 13.9 | 8 | 125 | 1.095 | 0.986 | 0.438 | 3 |
| TPSD337*006T0045V | D | 330 | 6.3 | 85 | 4 | 125 | 20.8 | 8 | 45 | 1.826 | 1.643 | 0.730 | 3 |
| TPSD337*006T0050V | D | 330 | 6.3 | 85 | 4 | 125 | 20.8 | 8 | 50 | 1.732 | 1.559 | 0.693 | 3 |
| TPSD337*006T0070V | D | 330 | 6.3 | 85 | 4 | 125 | 20.8 | 8 | 70 | 1.464 | 1.317 | 0.586 | 3 |
| TPSD337*006T0100V | D | 330 | 6.3 | 85 | 4 | 125 | 20.8 | 8 | 100 | 1.225 | 1.102 | 0.490 | 3 |
| TPSE337*006T0100V | E | 330 | 6.3 | 85 | 4 | 125 | 20.8 | 8 | 100 | 1.285 | 1.156 | 0.514 | 3 |
| TPSE337*006T0125V | E | 330 | 6.3 | 85 | 4 | 125 | 20.8 | 8 | 125 | 1.149 | 1.034 | 0.460 | 3 |
| TPSE337*006T0150V | E | 330 | 6.3 | 85 | 4 | 125 | 20.8 | 8 | 150 | 1.049 | 0.944 | 0.420 | 3 |
| TPSD477*006T0045V | D | 470 | 6.3 | 85 | 4 | 125 | 28 | 12 | 45 | 1.826 | 1.643 | 0.730 | 3 |
| TPSD477*006T0060V | D | 470 | 6.3 | 85 | 4 | 125 | 28 | 12 | 60 | 1.581 | 1.423 | 0.632 | 3 |
| TPSD477*006T0100V | D | 470 | 6.3 | 85 | 4 | 125 | 28 | 12 | 100 | 1.225 | 1.102 | 0.490 | 3 |
| TPSD477*006T0200V | D | 470 | 6.3 | 85 | 4 | 125 | 28 | 12 | 200 | 0.866 | 0.779 | 0.346 | 3 |
| TPSE477*006T0045V | E | 470 | 6.3 | 85 | 4 | 125 | 28 | 10 | 45 | 1.915 | 1.723 | 0.766 | 3 |
| TPSE477*006T0050V | E | 470 | 6.3 | 85 | 4 | 125 | 28 | 10 | 50 | 1.817 | 1.635 | 0.727 | 3 |
| TPSE477*006T0060V | E | 470 | 6.3 | 85 | 4 | 125 | 28 | 10 | 60 | 1.658 | 1.492 | 0.663 | 3 |
| TPSE477*006T0100V | E | 470 | 6.3 | 85 | 4 | 125 | 28 | 10 | 100 | 1.285 | 1.156 | 0.514 | 3 |
| TPSE477*006T0200V | E | 470 | 6.3 | 85 | 4 | 125 | 28 | 10 | 200 | 0.908 | 0.817 | 0.363 | 3 |
| TPSE687*006T0045V | E | 680 | 6.3 | 85 | 4 | 125 | 42.8 | 10 | 45 | 1.915 | 1.723 | 0.766 | 3 |
| TPSE687*006T0060V | E | 680 | 6.3 | 85 | 4 | 125 | 42.8 | 10 | 60 | 1.658 | 1.492 | 0.663 | 3 |
| TPSE687*006T0100V | E | 680 | 6.3 | 85 | 4 | 125 | 42.8 | 10 | 100 | 1.285 | 1.156 | 0.514 | 3 |
| 10 Volt @ 85°C | | | | | | | | | | | | | |
| TPSA225*010T1800 | A | 2.2 | 10 | 85 | 7 | 125 | 0.5 | 6 | 1800 | 0.204 | 0.184 | 0.082 | 1 |
| TPSA475*010T1400 | A | 4.7 | 10 | 85 | 7 | 125 | 0.5 | 6 | 1400 | 0.231 | 0.208 | 0.093 | 1 |
| TPSB475*010T1400 | B | 4.7 | 10 | 85 | 7 | 125 | 0.5 | 6 | 1400 | 0.246 | 0.222 | 0.099 | 1 |
| TPSA685*010T1800 | A | 6.8 | 10 | 85 | 7 | 125 | 0.7 | 6 | 1800 | 0.204 | 0.184 | 0.082 | 1 |
| TPSB685*010T1300 | B | 6.8 | 10 | 85 | 7 | 125 | 0.7 | 6 | 1300 | 0.256 | 0.230 | 0.102 | 1 |
| TPSA106*010T0900 | A | 10 | 10 | 85 | 7 | 125 | 1 | 6 | 900 | 0.289 | 0.260 | 0.115 | 1 |
| TPSA106*010T1800 | A | 10 | 10 | 85 | 7 | 125 | 1 | 6 | 1800 | 0.204 | 0.184 | 0.082 | 1 |
| TPSB106*010T1000 | B | 10 | 10 | 85 | 7 | 125 | 1 | 6 | 1000 | 0.292 | 0.262 | 0.117 | 1 |
| TPSA156*010T1000 | A | 15 | 10 | 85 | 7 | 125 | 1.5 | 6 | 1000 | 0.274 | 0.246 | 0.110 | 1 |
| TPSB156*010T0450 | B | 15 | 10 | 85 | 7 | 125 | 1.5 | 6 | 450 | 0.435 | 0.391 | 0.174 | 1 |
| TPSB156*010T0600 | B | 15 | 10 | 85 | 7 | 125 | 1.5 | 6 | 600 | 0.376 | 0.339 | 0.151 | 1 |

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

*Please use "U" instead of "T" in the suffix letter for 13" reel packaging

Please use specific PN for automotive version – see "HOW TO ORDER". 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 259.

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.

TPS Automotive Range

Low ESR - Automotive Product Range



QUALIFICATION TABLE

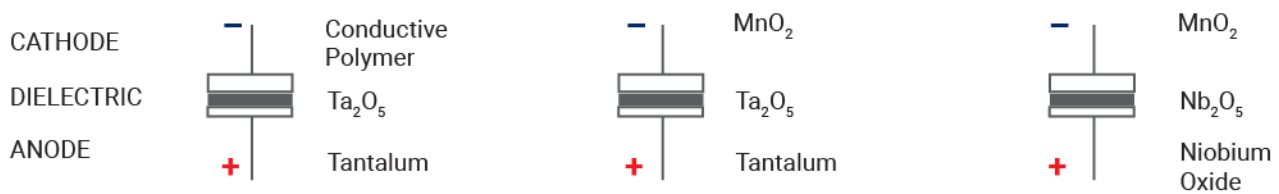
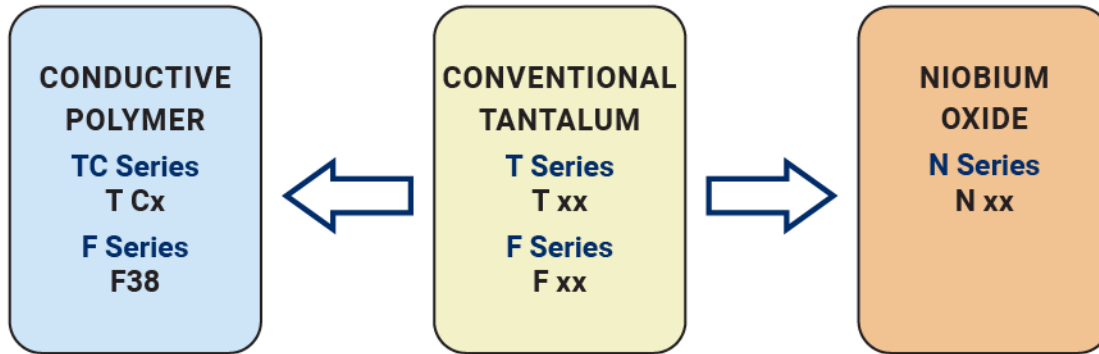
| TEST | TPS automotive series (Temperature range -55°C to +125°C) | | | | | | | | | |
|------------------------------|---|---------------|---------------|--------------------|------------------------------------|-----------|-----------|-----------|------------|-----------|
| | Condition | | | Characteristics | | | | | | |
| Endurance | Apply rated voltage (Ur) at 85°C and / or category voltage (Uc) at 125°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 | 1.25 x initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 10\%$ of initial value | | | | | |
| | | | | DF | initial limit | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Storage Life | Store at 125°C, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring. | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 10\%$ of initial value | | | | | |
| | | | | DF | initial limit | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Humidity | Store at 65°C and 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 | 1.5 x initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 10\%$ of initial value | | | | | |
| | | | | DF | 1.2 x initial limit | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Biased Humidity | Apply rated voltage (Ur) at 85°C, 85% relative humidity for 1000 hours. 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 | | | | | |
| | | | | DF | 1.2 x initial limit | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Temperature Stability | Step | Temperature°C | Duration(min) | | +20°C | -55°C | +20°C | +85°C | +125°C | +20°C |
| | 1 | +20 | 15 | DCL | IL* | n/a | IL* | 10 x IL* | 12.5 x IL* | IL* |
| | 2 | -55 | 15 | $\Delta C/C$ | n/a | +0/-10% | $\pm 5\%$ | +10/-0% | +12/-0% | $\pm 5\%$ |
| | 3 | +20 | 15 | DF | IL* | 1.5 x IL* | IL* | 1.5 x IL* | 2 x IL* | IL* |
| | 4 | +85 | 15 | ESR | 1.25xIL* | 2.5xIL* | 1.25xIL* | 1.25xIL* | 1.25xIL* | 1.25xIL* |
| | 5 | +125 | 15 | | | | | | | |
| | 6 | +20 | 15 | | | | | | | |
| Surge Voltage | Apply 1.3x category voltage (Uc) at 125°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 | initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 5\%$ of initial value | | | | | |
| | | | | DF | initial limit | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Mechanical Shock | MIL-STD-202, Method 213, Condition F | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | initial limit | | | | | |
| | | | | $\Delta C/C$ | within $\pm 5\%$ of initial value | | | | | |
| | | | | DF | initial limit | | | | | |
| | | | | ESR | 1.25 x 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 | | | | | |
| | | | | DF | initial limit | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |

*Initial Limit

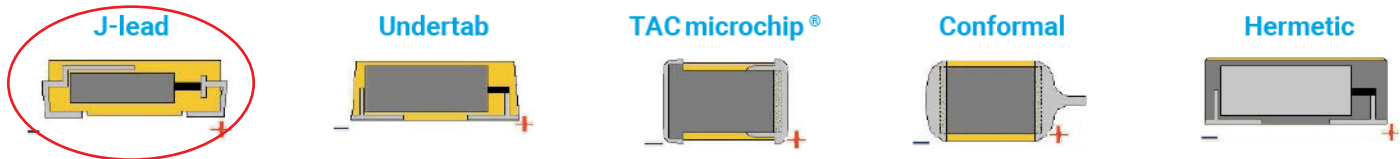
TPS Automotive Range

Low ESR - Automotive Product Range

SOLID ELECTROLYTIC CAPACITOR ROADMAP



FIVE CAPACITOR CONSTRUCTION STYLES



SERIES LINE UP : CONVENTIONAL SMD MnO₂

