TPS Automotive Range

Low ESR - Automotive Product Range

FEATURES

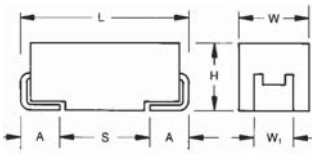
- Low ESR series of robust MnO_2 solid electrolyte capacitors
- CV range: 0.22-680µF / 6.3-50V
- 5 case sizes available
- Power supply applications

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

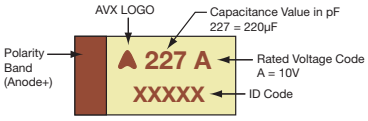
APPLICATIONS

- 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 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	**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
CAPACITANCE AND RATED VOLTAGE RANGE
(LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R) 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)	C(300,500), D(500)	C(600), D(300)	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(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)	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)	C(225,300), D(200)	C(300), D(160,200)	D(200,300)	E(250,300)	
47	476	B(250,350,500), C(300)	B(250,350,500,650), C(200,350), D(300)	C(350), D(150,200)	D(200)	D(125,150,250), E(125)		
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)			
100	107	C(150), D(300)	C(150,200), D(100,125,150)	D(100,125,150), E(100,125,150)	E(100,150,200)	E(150)		
150	157	C(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)					
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)						

Not recommended for new designs; higher voltage or smaller case size alternatives are available.
Released ratings (ESR ratings in mOhms in parenthesis)
Engineering samples - please contact AVX
Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.

TPS Automotive Range

Low ESR - Automotive Product Range

RATINGS & PART NUMBER REFERENCE

AVX Part No.	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)	MSL	100kHz RMS Current (A)		
											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	1	0.189	0.170	0.076
TPSA106*006T1500	A	10	6.3	85	4	125	0.6	6	1500	1	0.224	0.201	0.089
TPSB106*006T1500	B	10	6.3	85	4	125	0.6	6	1500	1	0.238	0.214	0.095
TPSA156*006T0700	A	15	6.3	85	4	125	0.9	6	700	1	0.327	0.295	0.131
TPSA156*006T1500	A	15	6.3	85	4	125	0.9	6	1500	1	0.224	0.201	0.089
TPSA226*006T0500	A	22	6.3	85	4	125	1.4	6	500	1	0.387	0.349	0.155
TPSA226*006T0900	A	22	6.3	85	4	125	1.4	6	900	1	0.289	0.260	0.115
TPSB226*006T0375	B	22	6.3	85	4	125	1.4	6	375	1	0.476	0.428	0.190
TPSB226*006T0600	B	22	6.3	85	4	125	1.4	6	600	1	0.376	0.339	0.151
TPSC226*006T0500	C	22	6.3	85	4	125	1.4	6	500	1	0.469	0.422	0.188
TPSA336*006T0600	A	33	6.3	85	4	125	2.1	8	600	1	0.354	0.318	0.141
TPSB336*006T0250	B	33	6.3	85	4	125	2.1	6	250	1	0.583	0.525	0.233
TPSB336*006T0350	B	33	6.3	85	4	125	2.1	6	350	1	0.493	0.444	0.197
TPSB336*006T0450	B	33	6.3	85	4	125	2.1	6	450	1	0.435	0.391	0.174
TPSB336*006T0600	B	33	6.3	85	4	125	2.1	6	600	1	0.376	0.339	0.151
TPSB476*006T0250	B	47	6.3	85	4	125	3	6	250	1	0.583	0.525	0.233
TPSB476*006T0350	B	47	6.3	85	4	125	3	6	350	1	0.493	0.444	0.197
TPSB476*006T0500	B	47	6.3	85	4	125	3	6	500	1	0.412	0.371	0.165
TPSC476*006T0300	C	47	6.3	85	4	125	3	6	300	1	0.606	0.545	0.242
TPSB686*006T0250	B	68	6.3	85	4	125	4	8	250	1	0.583	0.525	0.233
TPSB686*006T0350	B	68	6.3	85	4	125	4	8	350	1	0.493	0.444	0.197
TPSB686*006T0500	B	68	6.3	85	4	125	4	8	500	1	0.412	0.371	0.165
TPSC686*006T0150	C	68	6.3	85	4	125	4.3	6	150	1	0.856	0.771	0.343
TPSC686*006T0200	C	68	6.3	85	4	125	4.3	6	200	1	0.742	0.667	0.297
TPSC107*006T0150	C	100	6.3	85	4	125	6.3	6	150	1	0.856	0.771	0.343
TPSD107*006T0300V	D	100	6.3	85	4	125	6.3	6	300	3	0.707	0.636	0.283
TPSC157*006T0150	C	150	6.3	85	4	125	9.5	6	150	1	0.856	0.771	0.343
TPSC157*006T0200	C	150	6.3	85	4	125	9.5	6	200	1	0.742	0.667	0.297
TPSC157*006T0250	C	150	6.3	85	4	125	9.5	6	250	1	0.663	0.597	0.265
TPSD157*006T0125V	D	150	6.3	85	4	125	9.5	6	125	3	1.095	0.986	0.438
TPSD227*006T0100V	D	220	6.3	85	4	125	13.9	8	100	3	1.225	1.102	0.490
TPSD227*006T0125V	D	220	6.3	85	4	125	13.9	8	125	3	1.095	0.986	0.438
TPSD337*006T0045V	D	330	6.3	85	4	125	20.8	8	45	3	1.826	1.643	0.730
TPSD337*006T0050V	D	330	6.3	85	4	125	20.8	8	50	3	1.732	1.559	0.693
TPSD337*006T0070V	D	330	6.3	85	4	125	20.8	8	70	3	1.464	1.317	0.586
TPSD337*006T0100V	D	330	6.3	85	4	125	20.8	8	100	3	1.225	1.102	0.490
TPSE337*006T0100V	E	330	6.3	85	4	125	20.8	8	100	3	1.285	1.156	0.514
TPSE337*006T0125V	E	330	6.3	85	4	125	20.8	8	125	3	1.149	1.034	0.460
TPSE337*006T0150V	E	330	6.3	85	4	125	20.8	8	150	3	1.049	0.944	0.420
TPSD477*006T0045V	D	470	6.3	85	4	125	28	12	45	3	1.826	1.643	0.730
TPSD477*006T0060V	D	470	6.3	85	4	125	28	12	60	3	1.581	1.423	0.632
TPSD477*006T0100V	D	470	6.3	85	4	125	28	12	100	3	1.225	1.102	0.490
TPSD477*006T0200V	D	470	6.3	85	4	125	28	12	200	3	0.866	0.779	0.346
TPSE477*006T0045V	E	470	6.3	85	4	125	28	10	45	3	1.915	1.723	0.766
TPSE477*006T0050V	E	470	6.3	85	4	125	28	10	50	3	1.817	1.635	0.727
TPSE477*006T0060V	E	470	6.3	85	4	125	28	10	60	3	1.658	1.492	0.663
TPSE477*006T0100V	E	470	6.3	85	4	125	28	10	100	3	1.285	1.156	0.514
TPSE477*006T0200V	E	470	6.3	85	4	125	28	10	200	3	0.908	0.817	0.363
TPSE687*006T0045V	E	680	6.3	85	4	125	42.8	10	45	3	1.915	1.723	0.766
TPSE687*006T0060V	E	680	6.3	85	4	125	42.8	10	60	3	1.658	1.492	0.663
TPSE687*006T0100V	E	680	6.3	85	4	125	42.8	10	100	3	1.285	1.156	0.514
10 Volt @ 85°C													
TPSA225*010T1800	A	2.2	10	85	7	125	0.5	6	1800	1	0.204	0.184	0.082
TPSA475*010T1400	A	4.7	10	85	7	125	0.5	6	1400	1	0.231	0.208	0.093
TPSB475*010T1400	B	4.7	10	85	7	125	0.5	6	1400	1	0.246	0.222	0.099
TPSA685*010T1800	A	6.8	10	85	7	125	0.7	6	1800	1	0.204	0.184	0.082
TPSB685*010T1300	B	6.8	10	85	7	125	0.7	6	1300	1	0.256	0.230	0.102
TPSA106*010T0900	A	10	10	85	7	125	1	6	900	1	0.289	0.260	0.115
TPSA106*010T1800	A	10	10	85	7	125	1	6	1800	1	0.204	0.184	0.082
TPSB106*010T1000	B	10	10	85	7	125	1	6	1000	1	0.292	0.262	0.117
TPSA156*010T1000	A	15	10	85	7	125	1.5	6	1000	1	0.274	0.246	0.110
TPSB156*010T0450	B	15	10	85	7	125	1.5	6	450	1	0.435	0.391	0.174
TPSB156*010T0600	B	15	10	85	7	125	1.5	6	600	1	0.376	0.339	0.151
TPSC156*010T0700	C	15	10	85	7	125	1.5	6	700	1	0.396	0.357	0.159
TPSA226*010T0900	A	22	10	85	7	125	2.2	8	900	1	0.289	0.260	0.115
TPSB226*010T0400	B	22	10	85	7	125	2.2	6	400	1	0.461	0.415	0.184
TPSB226*010T0500	B	22	10	85	7	125	2.2	6	500	1	0.412	0.371	0.165
TPSB226*010T0700	B	22	10	85	7	125	2.2	6	700	1	0.348	0.314	0.139
TPSC226*010T0180	C	22	10	85	7	125	2.2	6	180	1	0.782	0.704	0.313
TPSC226*010T0300	C	22	10	85	7	125	2.2	6	300	1	0.606	0.545	0.242
TPSB336*010T0250	B	33	10	85	7	125	3.3	6	250	1	0.583	0.525	0.233

TPS Automotive Range

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RATINGS & PART NUMBER REFERENCE

AVX Part No.	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)	MSL	100kHz RMS Current (A)		
											25°C	85°C	125°C
TPSB336*010T0425	B	33	10	85	7	125	3.3	6	425	1	0.447	0.402	0.179
TPSB336*010T0500	B	33	10	85	7	125	3.3	6	500	1	0.412	0.371	0.165
TPSB336*010T0650	B	33	10	85	7	125	3.3	6	650	1	0.362	0.325	0.145
TPSC336*010T0375	C	33	10	85	7	125	3.3	6	375	1	0.542	0.487	0.217
TPSC336*010T0500	C	33	10	85	7	125	3.3	6	500	1	0.469	0.422	0.188
TPSB476*010T0250	B	47	10	85	7	125	4.7	8	250	1	0.583	0.525	0.233
TPSB476*010T0350	B	47	10	85	7	125	4.7	8	350	1	0.493	0.444	0.197
TPSB476*010T0500	B	47	10	85	7	125	4.7	8	500	1	0.412	0.371	0.165
TPSB476*010T0650	B	47	10	85	7	125	4.7	8	650	1	0.362	0.325	0.145
TPSC476*010T0200	C	47	10	85	7	125	4.7	6	200	1	0.742	0.667	0.297
TPSC476*010T0350	C	47	10	85	7	125	4.7	6	350	1	0.561	0.505	0.224
TPSD476*010T0300V	D	47	10	85	7	125	4.7	6	300	3	0.707	0.636	0.283
TPSC686*010T0200	C	68	10	85	7	125	6.8	6	200	1	0.742	0.667	0.297
TPSC686*010T0300	C	68	10	85	7	125	6.8	6	300	1	0.606	0.545	0.242
TPSD686*010T0150V	D	68	10	85	7	125	6.8	6	150	3	1.000	0.900	0.400
TPSC107*010T0150	C	100	10	85	7	125	10	8	150	1	0.856	0.771	0.343
TPSC107*010T0200	C	100	10	85	7	125	10	8	200	1	0.742	0.667	0.297
TPSD107*010T0100V	D	100	10	85	7	125	10	6	100	3	1.225	1.102	0.490
TPSD107*010T0125V	D	100	10	85	7	125	10	6	125	3	1.095	0.986	0.438
TPSD107*010T0150V	D	100	10	85	7	125	10	6	150	3	1.000	0.900	0.400
TPSD157*010T0085V	D	150	10	85	7	125	15	8	85	3	1.328	1.196	0.531
TPSD157*010T0100V	D	150	10	85	7	125	15	8	100	3	1.225	1.102	0.490
TPSE157*010T0100V	E	150	10	85	7	125	15	8	100	3	1.285	1.156	0.514
TPSD227*010T0100V	D	220	10	85	7	125	22	8	100	3	1.225	1.102	0.490
TPSD227*010T0150V	D	220	10	85	7	125	22	8	150	3	1.000	0.900	0.400
TPSE227*010T0070V	E	220	10	85	7	125	22	8	70	3	1.535	1.382	0.614
TPSE227*010T0100V	E	220	10	85	7	125	22	8	100	3	1.285	1.156	0.514
TPSE227*010T0125V	E	220	10	85	7	125	22	8	125	3	1.149	1.034	0.460
TPSE227*010T0150V	E	220	10	85	7	125	22	8	150	3	1.049	0.944	0.420
TPSE337*010T0050V	E	330	10	85	7	125	33	8	50	3	1.817	1.635	0.727
TPSE337*010T0060V	E	330	10	85	7	125	33	8	60	3	1.658	1.492	0.663
TPSE337*010T0100V	E	330	10	85	7	125	33	8	100	3	1.285	1.156	0.514
16 Volt @ 85°C													
TPSA105*016T6200	A	1.0	16	85	10	125	0.5	4	6200	1	0.110	0.099	0.044
TPSA225*016T1800	A	2.2	16	85	10	125	0.5	6	1800	1	0.204	0.184	0.082
TPSA225*016T3500	A	2.2	16	85	10	125	0.5	6	3500	1	0.146	0.132	0.059
TPSA335*016T3500	A	3.3	16	85	10	125	0.5	6	3500	1	0.146	0.132	0.059
TPSB335*016T2500	B	3.3	16	85	10	125	0.5	6	2500	1	0.184	0.166	0.074
TPSA475*016T2000	A	4.7	16	85	10	125	0.8	6	2000	1	0.194	0.174	0.077
TPSB475*016T0800	B	4.7	16	85	10	125	0.8	6	800	1	0.326	0.293	0.130
TPSB475*016T1500	B	4.7	16	85	10	125	0.8	6	1500	1	0.238	0.214	0.095
TPSA685*016T1500	A	6.8	16	85	10	125	1.1	6	1500	1	0.224	0.201	0.089
TPSB685*016T0600	B	6.8	16	85	10	125	1.1	6	600	1	0.376	0.339	0.151
TPSB685*016T1200	B	6.8	16	85	10	125	1.1	6	1200	1	0.266	0.240	0.106
TPSA106*016T1000	A	10	16	85	10	125	1.6	6	1000	1	0.274	0.246	0.110
TPSB106*016T0500	B	10	16	85	10	125	1.6	6	500	1	0.412	0.371	0.165
TPSB106*016T0800	B	10	16	85	10	125	1.6	6	800	1	0.326	0.293	0.130
TPSC106*016T0500	C	10	16	85	10	125	1.6	6	500	1	0.469	0.422	0.188
TPSB156*016T0500	B	15	16	85	10	125	2.4	6	500	1	0.412	0.371	0.165
TPSB156*016T0800	B	15	16	85	10	125	2.4	6	800	1	0.326	0.293	0.130
TPSC156*016T0300	C	15	16	85	10	125	2.4	6	300	1	0.606	0.545	0.242
TPSC156*016T0700	C	15	16	85	10	125	2.4	6	700	1	0.396	0.357	0.159
TPSB226*016T0400	B	22	16	85	10	125	3.5	6	400	1	0.461	0.415	0.184
TPSB226*016T0600	B	22	16	85	10	125	3.5	6	600	1	0.376	0.339	0.151
TPSC226*016T0300	C	22	16	85	10	125	3.5	6	300	1	0.606	0.545	0.242
TPSC226*016T0375	C	22	16	85	10	125	3.5	6	375	1	0.542	0.487	0.217
TPSD226*016T0500V	D	22	16	85	10	125	3.5	6	500	3	0.548	0.493	0.219
TPSD226*016T0700V	D	22	16	85	10	125	3.5	6	700	3	0.463	0.417	0.185
TPSC336*016T0225	C	33	16	85	10	125	5.3	6	225	1	0.699	0.629	0.280
TPSC336*016T0300	C	33	16	85	10	125	5.3	6	300	1	0.606	0.545	0.242
TPSD336*016T0200V	D	33	16	85	10	125	5.3	6	200	3	0.866	0.779	0.346
TPSC476*016T0350	C	47	16	85	10	125	7.5	6	350	1	0.561	0.505	0.224
TPSD476*016T0150V	D	47	16	85	10	125	7.5	6	150	3	1.000	0.900	0.400
TPSD476*016T0200V	D	47	16	85	10	125	7.5	6	200	3	0.866	0.779	0.346
TPSC686*016T0200	C	68	16	85	10	125	10.9	6	200	1	0.742	0.667	0.297
TPSD686*016T0150V	D	68	16	85	10	125	10.9	6	150	3	1.000	0.900	0.400
TPSD107*016T0100V	D	100	16	85	10	125	16	6	100	3	1.225	1.102	0.490
TPSD107*016T0125V	D	100	16	85	10	125	16	6	125	3	1.095	0.986	0.438
TPSD107*016T0150V	D	100	16	85	10	125	16	6	150	3	1.000	0.900	0.400
TPSE107*016T0100V	E	100	16	85	10	125	16	6	100	3	1.285	1.156	0.514
TPSE107*016T0125V	E	100	16	85	10	125	16	6	125	3	1.149	1.034	0.460
TPSE107*016T0150V	E	100	16	85	10	125	16	6	150	3	1.049	0.944	0.420
TPSE157*016T0100V	E	150	16	85	10	125	23	8	100	3	1.285	1.156	0.514

TPS Automotive Range

Low ESR - Automotive Product Range

RATINGS & PART NUMBER REFERENCE

AVX Part No.	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)	MSL	100kHz RMS Current (A)		
											25°C	85°C	125°C
20 Volt @ 85°C													
TPSA105*020T3000	A	1	20	85	13	125	0.5	4	3000	1	0.158	0.142	0.063
TPSA155*020T3000	A	1.5	20	85	13	125	0.5	6	3000	1	0.158	0.142	0.063
TPSA225*020T3000	A	2.2	20	85	13	125	0.5	6	3000	1	0.158	0.142	0.063
TPSB225*020T1700	B	2.2	20	85	13	125	0.5	6	1700	1	0.224	0.201	0.089
TPSA335*020T2500	A	3.3	20	85	13	125	0.7	6	2500	1	0.173	0.156	0.069
TPSB335*020T1300	B	3.3	20	85	13	125	0.7	6	1300	1	0.256	0.230	0.102
TPSA475*020T1800	A	4.7	20	85	13	125	0.9	6	1800	1	0.204	0.184	0.082
TPSB475*020T0750	B	4.7	20	85	13	125	0.9	6	750	1	0.337	0.303	0.135
TPSB475*020T1000	B	4.7	20	85	13	125	0.9	6	1000	1	0.292	0.262	0.117
TPSB685*020T0600	B	6.8	20	85	13	125	1.4	6	600	1	0.376	0.339	0.151
TPSB685*020T1000	B	6.8	20	85	13	125	1.4	6	1000	1	0.292	0.262	0.117
TPSC685*020T0700	C	6.8	20	85	13	125	1.4	6	700	1	0.396	0.357	0.159
TPSB106*020T0500	B	10	20	85	13	125	2	6	500	1	0.412	0.371	0.165
TPSB106*020T1000	B	10	20	85	13	125	2	6	1000	1	0.292	0.262	0.117
TPSC106*020T0500	C	10	20	85	13	125	2	6	500	1	0.469	0.422	0.188
TPSC106*020T0700	C	10	20	85	13	125	2	6	700	1	0.396	0.357	0.159
TPSB156*020T0500	B	15	20	85	13	125	3	6	500	1	0.412	0.371	0.165
TPSC156*020T0400	C	15	20	85	13	125	3	6	400	1	0.524	0.472	0.210
TPSC156*020T0450	C	15	20	85	13	125	3	6	450	1	0.494	0.445	0.198
TPSC226*020T0400	C	22	20	85	13	125	4.4	6	400	1	0.524	0.472	0.210
TPSD226*020T0200V	D	22	20	85	13	125	4.4	6	200	3	0.866	0.779	0.346
TPSD226*020T0300V	D	22	20	85	13	125	4.4	6	300	3	0.707	0.636	0.283
TPSC336*020T0300	C	33	20	85	13	125	6.6	6	300	1	0.606	0.545	0.242
TPSD336*020T0160V	D	33	20	85	13	125	6.6	6	160	3	0.968	0.871	0.387
TPSD336*020T0200V	D	33	20	85	13	125	6.6	6	200	3	0.866	0.779	0.346
TPSD476*020T0200V	D	47	20	85	13	125	9.4	6	200	3	0.866	0.779	0.346
TPSD686*020T0150V	D	68	20	85	13	125	13.6	6	150	3	1.000	0.900	0.400
TPSD686*020T0200V	D	68	20	85	13	125	13.6	6	200	3	0.866	0.779	0.346
TPSD686*020T0300V	D	68	20	85	13	125	13.6	6	300	3	0.707	0.636	0.283
TPSE686*020T0125V	E	68	20	85	13	125	13.6	6	125	3	1.149	1.034	0.460
TPSE686*020T0150V	E	68	20	85	13	125	13.6	6	150	3	1.049	0.944	0.420
TPSE686*020T0200V	E	68	20	85	13	125	13.6	6	200	3	0.908	0.817	0.363
TPSE107*020T0100V	E	100	20	85	13	125	20	6	100	3	1.285	1.156	0.514
TPSE107*020T0150V	E	100	20	85	13	125	20	6	150	3	1.049	0.944	0.420
TPSE107*020T0200V	E	100	20	85	13	125	20	6	200	3	0.908	0.817	0.363
25 Volt @ 85°C													
TPSA474*025T7000	A	0.47	25	85	17	125	0.5	4	7000	1	0.104	0.093	0.041
TPSA684*025T6000	A	0.68	25	85	17	125	0.5	4	6000	1	0.112	0.101	0.045
TPSA105*025T4000	A	1.0	25	85	17	125	0.5	4	4000	1	0.137	0.123	0.055
TPSA155*025T3000	A	1.5	25	85	17	125	0.5	6	3000	1	0.158	0.142	0.063
TPSA225*025T2500	A	2.2	25	85	17	125	0.6	6	2500	1	0.173	0.156	0.069
TPSB225*025T0900	B	2.2	25	85	17	125	0.6	6	900	1	0.307	0.277	0.123
TPSB225*025T1200	B	2.2	25	85	17	125	0.6	6	1200	1	0.266	0.240	0.106
TPSB225*025T2500	B	2.2	25	85	17	125	0.6	6	2500	1	0.184	0.166	0.074
TPSB335*025T0750	B	3.3	25	85	17	125	0.8	6	750	1	0.337	0.303	0.135
TPSB335*025T1500	B	3.3	25	85	17	125	0.8	6	1500	1	0.238	0.214	0.095
TPSB335*025T2000	B	3.3	25	85	17	125	0.8	6	2000	1	0.206	0.186	0.082
TPSB475*025T0700	B	4.7	25	85	17	125	1.2	6	700	1	0.348	0.314	0.139
TPSB475*025T0900	B	4.7	25	85	17	125	1.2	6	900	1	0.307	0.277	0.123
TPSC475*025T0700	C	4.7	25	85	17	125	1.2	6	700	1	0.396	0.357	0.159
TPSB685*025T0700	B	6.8	25	85	17	125	1.7	6	700	1	0.348	0.314	0.139
TPSC685*025T0500	C	6.8	25	85	17	125	1.7	6	500	1	0.469	0.422	0.188
TPSC685*025T0600	C	6.8	25	85	17	125	1.7	6	600	1	0.428	0.385	0.171
TPSC685*025T0700	C	6.8	25	85	17	125	1.7	6	700	1	0.396	0.357	0.159
TPSC106*025T0300	C	10	25	85	17	125	2.5	6	300	1	0.606	0.545	0.242
TPSC106*025T0500	C	10	25	85	17	125	2.5	6	500	1	0.469	0.422	0.188
TPSD106*025T0500V	D	10	25	85	17	125	2.5	6	500	3	0.548	0.493	0.219
TPSC156*025T0220	C	15	25	85	17	125	3.8	6	220	1	0.707	0.636	0.283
TPSC156*025T0300	C	15	25	85	17	125	3.8	6	300	1	0.606	0.545	0.242
TPSD156*025T0300V	D	15	25	85	17	125	3.8	6	300	3	0.707	0.636	0.283
TPSC226*025T0275	C	22	25	85	17	125	5.5	6	275	1	0.632	0.569	0.253
TPSC226*025T0400	C	22	25	85	17	125	5.5	6	400	1	0.524	0.472	0.210
TPSD226*025T0200V	D	22	25	85	17	125	5.5	6	200	3	0.866	0.779	0.346
TPSD226*025T0300V	D	22	25	85	17	125	5.5	6	300	3	0.707	0.636	0.283
TPSD336*025T0200V	D	33	25	85	17	125	8.3	6	200	3	0.866	0.779	0.346
TPSD336*025T0300V	D	33	25	85	17	125	8.3	6	300	3	0.707	0.636	0.283
TPSD476*025T0125V	D	47	25	85	17	125	11.8	6	125	3	1.095	0.986	0.438
TPSD476*025T0150V	D	47	25	85	17	125	11.8	6	150	3	1.000	0.900	0.400
TPSD476*025T0250V	D	47	25	85	17	125	11.8	6	250	3	0.775	0.697	0.310
TPSE476*025T0125V	E	47	25	85	17	125	11.8	6	125	3	1.149	1.034	0.460
TPSE107*025T0150V	E	100	25	85	17	125	25	10	150	3	1.049	0.944	0.420

TPS Automotive Range

Low ESR - Automotive Product Range

RATINGS & PART NUMBER REFERENCE

AVX Part No.	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)	MSL	100kHz RMS Current (A)		
											25°C	85°C	125°C
35 Volt @ 85°C													
TPSA334*035T6000	A	0.33	35	85	23	125	0.5	4	6000	1	0.112	0.101	0.045
TPSA474*035T6000	A	0.47	35	85	23	125	0.5	4	6000	1	0.112	0.101	0.045
TPSA684*035T6000	A	0.68	35	85	23	125	0.5	4	6000	1	0.112	0.101	0.045
TPSA105*035T3000	A	1	35	85	23	125	0.5	4	3000	1	0.158	0.142	0.063
TPSB105*035T2000	B	1	35	85	23	125	0.5	4	2000	1	0.206	0.186	0.082
TPSA155*035T3000	A	1.5	35	85	23	125	0.5	6	3000	1	0.158	0.142	0.063
TPSB155*035T2500	B	1.5	35	85	23	125	0.5	6	2500	1	0.184	0.166	0.074
TPSB225*035T0750	B	2.2	35	85	23	125	0.8	6	750	1	0.337	0.303	0.135
TPSB225*035T1500	B	2.2	35	85	23	125	0.8	6	1500	1	0.238	0.214	0.095
TPSB225*035T2000	B	2.2	35	85	23	125	0.8	6	2000	1	0.206	0.186	0.082
TPSC225*035T1000	C	2.2	35	85	23	125	0.8	6	1000	1	0.332	0.298	0.133
TPSB335*035T1000	B	3.3	35	85	23	125	1.2	6	1000	1	0.292	0.262	0.117
TPSC335*035T0700	C	3.3	35	85	23	125	1.2	6	700	1	0.396	0.357	0.159
TPSB475*035T0700	B	4.7	35	85	23	125	1.6	6	700	1	0.348	0.314	0.139
TPSB475*035T1500	B	4.7	35	85	23	125	1.6	6	1500	1	0.238	0.214	0.095
TPSC475*035T0600	C	4.7	35	85	23	125	1.6	6	600	1	0.428	0.385	0.171
TPSD475*035T0700V	D	4.7	35	85	23	125	1.6	6	700	3	0.463	0.417	0.185
TPSC685*035T0350	C	6.8	35	85	23	125	2.4	6	350	1	0.561	0.505	0.224
TPSD685*035T0400V	D	6.8	35	85	23	125	2.4	6	400	3	0.612	0.551	0.245
TPSD685*035T0500V	D	6.8	35	85	23	125	2.4	6	500	3	0.548	0.493	0.219
TPSC106*035T0600	C	10	35	85	23	125	3.5	6	600	1	0.428	0.385	0.171
TPSD106*035T0300V	D	10	35	85	23	125	3.5	6	300	3	0.707	0.636	0.283
TPSD156*035T0300V	D	15	35	85	23	125	5.3	6	300	3	0.707	0.636	0.283
TPSD226*035T0200V	D	22	35	85	23	125	7.7	6	200	3	0.866	0.779	0.346
TPSD226*035T0300V	D	22	35	85	23	125	7.7	6	300	3	0.707	0.636	0.283
TPSD226*035T0400V	D	22	35	85	23	125	7.7	6	400	3	0.612	0.551	0.245
TPSE226*035T0200V	E	22	35	85	23	125	7.7	6	200	3	0.908	0.817	0.363
TPSE226*035T0300V	E	22	35	85	23	125	7.7	6	300	3	0.742	0.667	0.297
TPSE336*035T0250V	E	33	35	85	23	125	11.6	6	250	3	0.812	0.731	0.325
TPSE336*035T0300V	E	33	35	85	23	125	11.6	6	300	3	0.742	0.667	0.297
50 Volt @ 85°C													
TPSA224*050T7000	A	0.22	50	85	33	125	0.5	4	7000	1	0.104	0.093	0.041
TPSA334*050T7000	A	0.33	50	85	33	125	0.5	4	7000	1	0.104	0.093	0.041
TPSA474*050T6500	A	0.47	50	85	33	125	0.5	4	6500	1	0.107	0.097	0.043
TPSB474*050T6000	B	0.47	50	85	33	125	0.5	4	6000	1	0.119	0.107	0.048
TPSB684*050T4000	B	0.68	50	85	33	125	0.5	4	4000	1	0.146	0.131	0.058
TPSB105*050T3000	B	1	50	85	33	125	0.5	6	3000	1	0.168	0.151	0.067
TPSC105*050T2500	C	1	50	85	33	125	0.5	4	2500	1	0.210	0.189	0.084
TPSC155*050T1500	C	1.5	50	85	33	125	0.8	6	1500	1	0.271	0.244	0.108
TPSC155*050T2000	C	1.5	50	85	33	125	0.8	6	2000	1	0.235	0.211	0.094
TPSC225*050T1500	C	2.2	50	85	33	125	1.1	8	1500	1	0.271	0.244	0.108
TPSD225*050T1200V	D	2.2	50	85	33	125	1.1	6	1200	3	0.354	0.318	0.141
TPSC335*050T1000	C	3.3	50	85	33	125	1.6	6	1000	1	0.332	0.298	0.133
TPSD335*050T0800V	D	3.3	50	85	33	125	1.7	6	800	3	0.433	0.390	0.173
TPSC475*050T0800	C	4.7	50	85	33	125	2.4	6	800	1	0.371	0.334	0.148
TPSD475*050T0250V	D	4.7	50	85	33	125	2.4	6	250	1	0.775	0.697	0.310
TPSD475*050T0500V	D	4.7	50	85	33	125	2.4	6	500	3	0.548	0.493	0.219
TPSD475*050T0700V	D	4.7	50	85	33	125	2.4	6	700	3	0.463	0.417	0.185
TPSD685*050T0500V	D	6.8	50	85	33	125	3.4	6	500	3	0.548	0.493	0.219
TPSD685*050T0600V	D	6.8	50	85	33	125	3.4	6	600	3	0.500	0.450	0.200
TPSD106*050T0500V	D	10	50	85	33	125	5	6	500	3	0.548	0.493	0.219
TPSE106*050T0250V	E	10	50	85	33	125	5	6	250	3	0.812	0.731	0.325
TPSE106*050T0300V	E	10	50	85	33	125	5	6	300	3	0.742	0.667	0.297
TPSE106*050T0400V	E	10	50	85	33	125	5	6	400	3	0.642	0.578	0.257
TPSE106*050T0500V	E	10	50	85	33	125	5	6	500	3	0.574	0.517	0.230
TPSE156*050T0250V	E	15	50	85	33	125	7.5	6	250	3	0.812	0.731	0.325

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 222.

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.

TPS Automotive Range

Low ESR - Automotive Product Range

QUALIFICATION TABLE

TEST	TPS automotive series (Temperature range -55ºC to +125ºC)		
	Condition	Characteristics	
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2ºC and then leaving 1-2 hours at room temperature. Also determine of 125ºC 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 ±10% of initial value
		DF	initial limit
		ESR	1.25 x initial limit
Storage Life	125ºC, 0V, 2000h	Visual examination	no visible damage
		DCL	1.25 x initial limit
		ΔC/C	within ±10% of initial value
		DF	initial limit
		ESR	1.25 x initial limit
Humidity	Determine after storage without applied voltage at 65±2ºC and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.	Visual examination	no visible damage
		DCL	1.5 x initial limit
		ΔC/C	within ±10% of initial value
		DF	1.2 x initial limit
		ESR	1.25 x initial limit
Biased Humidity	Determine after leaving for 1000 hours at 85±2ºC, 85% relative humidity and rated voltage and then recovery 1-2 hours at room temperature.	Visual examination	no visible damage
		DCL	2 x initial limit
		ΔC/C	within ±10% of initial value
		DF	1.2 x initial limit
		ESR	1.25 x initial limit
Temperature Stability	Step 1: +20±2, 15 min Step 2: -55+0/-3, 15 min Step 3: +20±2, 15 min Step 4: +85+3/-0, 15 min Step 5: +125+3/-0, 15 min Step 6: +20±2, 15 min		

	+20ºC	-55ºC	+20ºC	+85ºC	+125ºC	+20ºC
DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
ΔC/C	n/a	+0/-10%	±5%	+10/-0%	+12/-0%	±5%
DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	IL*
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*

Surge Voltage	Test temperature: 125ºC+3/0ºC Test voltage: Category voltage at 125ºC Surge voltage: 1.3 x category voltage at 125ºC 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 ±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
		ΔC/C	within ±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
		ΔC/C	within ±5% of initial value
		DF	initial limit
		ESR	1.25 x initial limit

*Initial Limit