

TPS Series



Low ESR



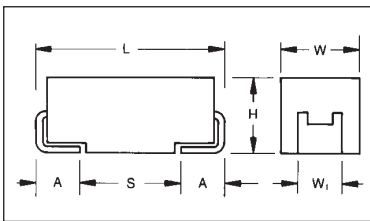
TPS surface mount products have inherently low ESR (equivalent series resistance) and are capable of higher ripple current handling, producing lower ripple voltages, less power and heat dissipation than standard product for the most efficient use of circuit power. TPS has been designed, manufactured, and preconditioned for

optimum performance in typical power supply applications. By combining the latest improvements in tantalum powder technology, improved manufacturing processes, and application specific preconditioning tests, AVX is able to provide a technologically superior alternative to the standard range.

CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	Dimension Low Profile	L±0.20 (0.008)	W+0.20 (0.008) -0.10 (0.004)	H+0.20 (0.008) -0.10 (0.004)	W _i ±0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
A	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	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	6032-28	-	6.00 (0.236)	3.20 (0.126)	2.6 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	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	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)
R*	2012-12	R Case (1.20)	2.05 (0.081)	1.30 (0.051)	1.20 (0.047) max.	1.20 (0.047)	0.50 (0.020)	0.85 (0.033)
S**	3216-12	A Case (1.20)	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**	3528-12	B Case (1.20)	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	7361-38	-	7.30 (0.287)	6.10 (0.240)	3.45 ±0.30 (0.136 ±0.012)	3.10 (0.120)	1.40 (0.055)	4.40 (0.173)
W**	6032-15	C Case (1.50)	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**	7343-15	D Case (1.50)	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**	7343-20	D Case (2.00)	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)

W_i dimension applies to the termination width for A dimensional area only.
 * 0805 Footprint Compatible ** Low Profile Versions of A & B & C & D Case



For part marking see page 111

HOW TO ORDER

TPS

Type

C

Case Size
See table above

107

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

M

Tolerance
K = ±10%
M = ±20%

010

Rated DC Voltage
002 = 2.5Vdc
004 = 4Vdc
006 = 6.3Vdc
010 = 10Vdc
016 = 16Vdc
020 = 20Vdc
025 = 25Vdc
035 = 35Vdc
050 = 50Vdc

R

Packaging
R = 7" T/R
S = 13" T/R
A = Gold Plating
7" Reel
B = Gold Plating
13" Reel
Y = Lead Free
7" Reel
P = Lead Free
13" Reel

0100

Maximum ESR in Milliohms
See note below

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

TECHNICAL SPECIFICATIONS

Technical Data:

All technical data relate to an ambient temperature of +25°C

Capacitance Range:

0.15µF to 1500µF

Capacitance Tolerance:

±10%; ±20%

Rated Voltage (V _R)	≧ +85°C:	2.5	4	6.3	10	16	20	25	35	50
Category Voltage (V _C)	≧ +125°C:	1.7	2.7	4	7	10	13	17	23	33
Surge Voltage (V _S)	≧ +85°C:	3.3	5.2	8	13	20	26	32	46	65
Surge Voltage (V _S)	≧ +125°C:	2.2	3.4	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



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

Capacitance		Rated Voltage DC (V_R) to 85°C								
μF	Code	2.5V	4V (G)	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.15	154									A(9000)
0.22	224								A(6000)	A(7000)
0.33	334								A(6000)	
0.47	474							A(7000)	A(6000) B(4000)	
0.68	684							A(6000)	A(6000)	
1	105				R(9000)		A(3000), R(6000) S(6000), T(2000)		A(3000) B(2000)	C(2500)
1.5	155							A(3000) B(1800)	B(2500)	C(1500,2000)
2.2	225			R(7000)	A(1800)	A(1800,3500) T(2000)	A(3000)	B(900,1200,2500)	A(1500), B(750, 1500,2000), C(1000)	D(1200)
3.3	335				T(1500)	A(3500)	A(2500) B(1300)	A(1500) B(750,1500,2000)	B(1000) C(700)	D(800)
4.7	475			S(4000)	A(1400) R(3000,5000)	A(2000) B(800,1500)	A(1800) B(750,1000)	B(700,900,1500)	B(700,1500) C(600)	D(300,500,700)
6.8	685			A(1800)	A(1800) T(1800)	A(1500) B(600,1200)	B(600,1000) C(700)	B(700) C(500,600,700)	C(350) D(150,400,500)	D(500,600)
10	106		R(3000)	A(1500) R(1000,1500,3000)	A(900,1800) P(2000) T(1000,2000)	B(500,800), C(500) T(800,1000) W(500,600)	B(500,1000) C(500,700)	C(300,500)	D(125,300) E(200)	E(400,500)
15	156			A(700,1500)	A(1000) B(450,600)	B(500,800)	B(500) C(400,450)	C(220,300) D(100,300)	C(350,450) D(100,300)	E(250)
22	226			A(500,900) B(375,600) S(900)	B(400,500,700) C(300) T(800)	B(400,600) C(150,250,300,375) W(500)	B(400,600) C(100,150,400) D(200,300)	C(275,400) D(100,200,300)	D(125,200, 300,400) E(125,200,300)	
33	336			A(600) B(250,350,450,600) T(800)	B(250,425,500,650) C(150,375,500) W(350)	B(350,500) C(100,150,225,300) D(200), W(140,175, 250,400,500) Y(300,400)	C(300) D(100,200)	D(100,200,300) E(100,175, 200,300)	D(200,300) E(100,250,300)	
47	476		A(500)	B(250,350,500) C(300)	B(250,350,500,650) C(350) D(100) W(125,150,250)	C(110,350) D(80,100, 150,200) Y(250), X(180)	D(75,100,200) E(70,125,150, 200,250)	D(125,150,250) E(80,100,125)	E(200,250)	
68	686			B(250,350,500) C(150,200) W(110,125,250)	C(80,100,200,300) D(100,150), Y(100,200) W(100,150)	C(125,200) D(70,100,150) Y(200,250), X(150)	D(70,150, 200,300) E(125,150,200)	E(125,200) V(80,95,150,200)		
100	107	B(200)	B(250, 350,500) W(100)	B(250,400) C(75,150) Y(100) W(100)	C(75,100,150,200) D(50,65,80,125,150) E(125) Y(100,150,200) X(85,150,200) W(150)	D(60,100, 125,150) E(55,100, 125,150) Y(100,150,200)	D(85,100,150) E(100,150,200) V(60,85,100,200)	V(100)		
150	157	B(150)	B(250) C(70,80)	C(50,90,150,200,250) D(50,125), Y(40)	D(50,85,100), E(100) X(100), Y(100,150,200)	D(60,85,100,125,150) E(100), V(45,75)	V(80)			
220	227	B(200, 600) D(45)	D(40,50,100)	C(70,100,125,250) D(50,100,125) E(100) Y(100,150)	D(50,100,150) E(50,60,70,100, 125,150) Y(150,200)	E(100,150) V(50,75, 100,150)				
330	337		C(100) D(35,45,100) X(100)	D(45,50,70,100) E(50,100,125,150) V(100), Y(150)	D(50,65,100,150) E(40,50,60,100) V(40,60,100)					
470	477	D(35) Y(100)	D(45,100) E(35,45,100)	D(45,60,100,200) E(45,50,60,100,200) V(40,55,100)	E(45,50,60,100,200) V(40,60,100)					
680	687	Y(100)	D(45,60,100) E(40,60,100)	E(45,60,100) V(35,40,50)						
1000	108	E(30,40)	E(60) V(25,35,40,50)	V(40,50)						
1500	158	V(30,40)	V(50,75)							

For C, D and E case ratings in TPS Series, ESR ratings are printed on capacitor side in the following format:

T x x x - where x x x is ESR limit in milliohms i.e. T100 represents max. ESR of 100 milliohms.

ESR limits quoted in brackets (milliohms)

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

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	100kHz Ripple Current Ratings (A)			100kHz Ripple Voltage Ratings (V)		
							25°C	85°C	125°C	25°C	85°C	125°C
TPSV686*025#0080	V	68	25	17	6	80	1.768	1.591	0.707	0.141	0.127	0.057
TPSV107*025#0100	V	100	25	25	8	100	1.581	1.423	0.632	0.158	0.142	0.063
TPSA224*035#6000	A	0.22	35	0.5	4	6000	0.112	0.101	0.045	0.672	0.605	0.269
TPSA334*035#6000	A	0.33	35	0.5	4	6000	0.112	0.101	0.045	0.672	0.605	0.269
TPSB474*035#4000	B	0.47	35	0.5	4	4000	0.146	0.131	0.058	0.584	0.526	0.234
TPSA474*035#6000	A	0.47	35	0.5	4	6000	0.112	0.101	0.045	0.671	0.604	0.268
TPSA684*035#6000	A	0.68	35	0.5	4	6000	0.112	0.101	0.045	0.672	0.605	0.269
TPSA105*035#3000	A	1	35	0.5	4	3000	0.158	0.142	0.063	0.474	0.427	0.190
TPSB105*035#2000	B	1	35	0.5	4	2000	0.206	0.186	0.082	0.412	0.371	0.165
TPSB155*035#2500	B	1.5	35	0.5	6	2500	0.184	0.166	0.074	0.461	0.415	0.184
TPSA225*035#1500	A	2.2	35	0.8	6	1500	0.224	0.201	0.089	0.335	0.302	0.134
TPSB225*035#0750	B	2.2	35	0.8	6	750	0.337	0.303	0.135	0.252	0.227	0.101
TPSB225*035#1500	B	2.2	35	0.8	6	1500	0.238	0.214	0.095	0.357	0.321	0.143
TPSB225*035#2000	B	2.2	35	0.8	6	2000	0.206	0.186	0.082	0.412	0.371	0.165
TPSC225*035#1000	C	2.2	35	0.8	6	1000	0.332	0.298	0.133	0.332	0.298	0.133
TPSB335*035#1000	B	3.3	35	1.2	6	1000	0.292	0.262	0.117	0.292	0.262	0.117
TPSC335*035#0700	C	3.3	35	1.2	6	700	0.396	0.357	0.159	0.277	0.250	0.111
TPSB475*035#0700	B	4.7	35	1.2	6	700	0.348	0.314	0.139	0.244	0.220	0.98
TPSB475*035#1500	B	4.7	35	1.2	6	1500	0.238	0.214	0.095	0.357	0.321	0.143
TPSC475*035#0600	C	4.7	35	1.6	6	600	0.428	0.383	0.171	0.257	0.230	0.103
TPSC685*035#0350	C	6.8	35	2.4	6	350	0.561	0.505	0.224	0.196	0.177	0.078
TPSD685*035#0150	D	6.8	35	2.4	6	150	1.000	0.900	0.400	0.150	0.135	0.060
TPSD685*035#0500	D	6.8	35	2.4	6	500	0.548	0.493	0.219	0.274	0.246	0.110
TPSD685*035#0400	D	6.8	35	2.4	6	400	0.612	0.551	0.245	0.245	0.220	0.098
TPSD106*035#0300	D	10	35	3.5	6	300	0.707	0.632	0.283	0.212	0.190	0.085
TPSD106*035#0125	D	10	35	3.5	6	125	1.095	0.986	0.438	0.137	0.123	0.055
TPSE106*035#0200	E	10	35	3.5	6	200	0.908	0.817	0.363	0.182	0.163	0.073
TPSC156*035#0350	C	15	35	5.3	6	350	0.561	0.505	0.224	0.196	0.177	0.078
TPSC156*035#0450	C	15	35	5.3	6	450	0.494	0.445	0.198	0.222	0.200	0.089
TPSD156*035#0300	D	15	35	5.3	6	300	0.707	0.632	0.283	0.212	0.190	0.085
TPSD156*035#0100	D	15	35	5.3	6	100	1.225	1.102	0.490	0.122	0.110	0.049
TPSD226*035#0400	D	22	35	7.7	6	400	0.612	0.548	0.245	0.245	0.219	0.098
TPSD226*035#0300	D	22	35	7.7	6	300	0.707	0.632	0.283	0.212	0.190	0.085
TPSD226*035#0200	D	22	35	7.7	6	200	0.866	0.775	0.346	0.173	0.155	0.069
TPSD226*035#0125	D	22	35	7.7	6	125	1.095	0.986	0.438	0.137	0.123	0.055
TPSE226*035#0300	E	22	35	7.7	6	300	0.742	0.663	0.297	0.222	0.199	0.089
TPSE226*035#0200	E	22	35	7.7	6	200	0.908	0.812	0.363	0.182	0.162	0.073
TPSE226*035#0125	E	22	35	7.7	6	125	1.149	1.034	0.460	0.144	0.129	0.057
TPSD336*035#0300	D	33	35	11.6	6	300	0.707	0.636	0.283	0.212	0.191	0.085
TPSD336*035#0200	D	33	35	11.6	6	200	0.866	0.775	0.346	0.173	0.155	0.069
TPSE336*035#0300	E	33	35	11.6	6	300	0.742	0.667	0.297	0.222	0.200	0.089
TPSE336*035#0250	E	33	35	11.6	6	250	0.812	0.731	0.325	0.203	0.183	0.081
TPSE336*035#0100	E	33	35	11.6	6	100	1.285	1.156	0.514	0.128	0.116	0.051
TPSE476*035#0250	E	47	35	16.5	6	250	0.812	0.731	0.325	0.203	0.183	0.081
TPSE476*035#0200	E	47	35	16.5	6	200	0.908	0.817	0.363	0.182	0.163	0.073
TPSA154*050#9000	A	0.15	50	0.5	4	9000	0.091	0.082	0.036	0.819	0.737	0.328
TPSA224*050#7000	A	0.22	50	0.5	4	7000	0.103	0.093	0.041	0.721	0.649	0.288
TPSC105*050#2500	C	1	50	0.5	4	2500	0.210	0.189	0.084	0.524	0.472	0.210
TPSC155*050#2000	C	1.5	50	0.8	6	2000	0.234	0.211	0.094	0.468	0.421	0.187
TPSC155*050#1500	C	1.5	50	0.8	6	1500	0.271	0.243	0.108	0.406	0.366	0.163
TPSD225*050#1200	D	2.2	50	1.1	6	1200	0.354	0.318	0.141	0.424	0.382	0.170
TPSD335*050#0800	D	3.3	50	1.7	6	800	0.433	0.390	0.173	0.346	0.311	0.138
TPSD475*050#0700	D	4.7	50	2.4	6	700	0.463	0.417	0.185	0.324	0.292	0.130
TPSD475*050#0500	D	4.7	50	2.4	6	500	0.548	0.493	0.219	0.274	0.246	0.110
TPSD475*050#0300	D	4.7	50	2.4	6	300	0.707	0.636	0.283	0.212	0.191	0.085
TPSD685*050#0600	D	6.8	50	3.4	6	600	0.500	0.450	0.200	0.300	0.270	0.120
TPSD685*050#0500	D	6.8	50	3.4	6	500	0.548	0.493	0.219	0.274	0.246	0.110
TPSE106*050#0400	E	10	50	5	6	400	0.642	0.578	0.257	0.257	0.231	0.103
TPSE106*050#0500	E	10	50	5	6	500	0.574	0.516	0.230	0.287	0.258	0.115
TPSE156*050#0250	E	15	50	5	6	250	0.812	0.731	0.325	0.203	0.183	0.081

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.
 * Insert K for ±10% and M for ±20% Capacitance Tolerance

Standard Plating – Insert R for 7" reel and S for 13" reel
 # **Gold Plating** – Insert A for 7" reel and B for 13" reel