

TPS Series



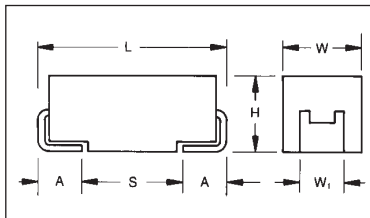
Low ESR



The 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)



For part marking see pages 12 & 50

Code	EIA Code	L±0.2 (0.008)	W+0.2 (0.008) -0.1 (0.004)	H+0.2 (0.008) -0.1 (0.004)	W ₁ ±0.2 (0.008)	A+0.3 (0.012) -0.2 (0.008)	S Min.
A	3216	3.2 (0.126)	1.6 (0.063)	1.6 (0.063)	1.2 (0.047)	0.8 (0.031)	1.1 (0.043)
B	3528	3.5 (0.138)	2.8 (0.110)	1.9 (0.075)	2.2 (0.087)	0.8 (0.031)	1.4 (0.055)
C	6032	6.0 (0.236)	3.2 (0.126)	2.6 (0.102)	2.2 (0.087)	1.3 (0.051)	2.9 (0.114)
D	7343	7.3 (0.287)	4.3 (0.169)	2.9 (0.114)	2.4 (0.094)	1.3 (0.051)	4.4 (0.173)
E	7343H	7.3 (0.287)	4.3 (0.169)	4.1 (0.162)	2.4 (0.094)	1.3 (0.051)	4.4 (0.173)
V	7361	7.3 (0.287)	6.1 (0.240)	3.45 ±0.3 (0.136±0.012)	3.1 (0.120)	1.4 (0.055)	4.4 (0.173)
W*	6032L	6.0 (0.236)	3.2 (0.126)	1.5 (0.059) max.	2.2 (0.087)	1.3 (0.051)	2.9 (0.114)
Y**	7343L	7.3 (0.287)	4.3 (0.169)	2.0 (0.079) max.	2.4 (0.094)	1.3 (0.051)	4.4 (0.173)

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

* Low Profile Version of C Case (max. height 1.5mm)

** Low Profile Version of D Case (max. height 2mm)

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

006=6.3Vdc
010=10Vdc
016=16Vdc
020=20Vdc
025=25Vdc
035=35Vdc
050=50Vdc

R

Packaging

See Tape and Reel Packaging
R=7" T/R
S=13" T/R
(see page 49)

100

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: 1.0µF to 470µF

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	12	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 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 (V_R) to 85°C							
μF	Code	4V (G)	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
1	105							A(3000) B(2000)	
1.5	155						A(3000)	B(2500)	
2.2	225			A(1800)	A(3500)	A(3000)	B(2500)	B(2000)	
3.3	335				A(3500)	A(2500)	B(2000)	C(700)	
4.7	475			A(1400)	A(2000)	A(1800)	B(1500)	C(600)	D(700)
6.8	685		A(1800)	A(1800)	B(1200)	C(700)	C(600/700)	D(500)	D(600)
10	106		A(1500)	A(1800)	B(800) W(600)	B(1000) C(700)	C(500)	D(300) E(200)	
15	156		A(1500)	A(1000)	B(800)	C(450)	D(300)	C(450) D(300)	
22	226		A(900) B(600)	B(500/700)	B(600) C(375)	C(400) D(300)	D(200)	D(400) E(200/300)	
33	336		A(600) B(600)	W(350) B(500/650) C(375/500)	C(300) W(400/500)	D(200)	D(300) E(175/300)	D(300)	
47	476		B(500) C(300)	B(500/650) C(350)	C(350) D(150/200)	D(200) E(150/250)	D(150/250)	E(200/250)	
68	686		B(500) C(150/200) W(250)	D(100/150) Y(150/200)	C(200) D(150) Y(200/250)	D(200/300) E(125/150)	E(125/200) V(95/150)		
100	107		C(150)	C(100/200) D(65/100) Y(150/200)	D(100/200) E(100/150)	E(150/200) V(85/200)			
150	157		C(150/250) D(125)	D(100/150) Y(150/200)	D(125/150)				
220	227		C(125/250) D(100) E(100)	D(100/150) E(60/100)	E(100/150) V(75/150)				
330	337		D(100) E(100/150)	D(100/150) E(60/100) V(60/100)					
470	477		D(100/200) E(50/100) V(55/100)	E(50/100) V(60/100)					
680	687	E(100)							

For TPS series and the case sizes C, D and E the ESR limits 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 are in 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 (Voltage Code)	DCL (μA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	100kHz Ripple Current (mA) Ratings		
							25°C	85°C	125°C
Voltage/Code 4 volt @ 85°C (2.5 volt @ 125°C) / G									
TPSE687*004#0100	E	680	4	27.2	14	100	1.284	1.156	0.513
Voltage/Code 6.3 volt @ 85°C (4 volt @ 125°C) / J									
TPSA685*006#1800	A	6.8	6.3	0.5	6	1800	0.204	0.184	0.082
TPSA106*006#1500	A	10	6.3	0.6	6	1500	0.224	0.200	0.089
TPSA156*006#1500	A	15	6.3	0.9	6	1500	0.224	0.200	0.089
TPSA226*006#0900	A	22	6.3	1.4	6	900	0.289	0.260	0.115
TPSB226*006#0600	B	22	6.3	1.4	6	600	0.376	0.339	0.151
TPSA336*006R0600	A	33	6.3	2.1	6	600	0.353	0.318	0.141
TPSB336*006#0600	B	33	6.3	2.1	6	600	0.376	0.337	0.151
TPSW336*006#0400	W	33	6.3	2.1	6	400	0.474	0.427	0.190
TPSB476*006#0500	B	47	6.3	3.0	6	500	0.412	0.371	0.165
TPSC476*006#0300	C	47	6.3	3.0	6	300	0.606	0.545	0.242
TPSB686*006#0500	B	68	6.3	4.3	6	500	0.412	0.371	0.165
TPSC686*006#0200	C	68	6.3	4.3	6	200	0.742	0.667	0.297
TPSC686*006#0150	C	68	6.3	4.3	6	150	0.856	0.766	0.343
TPSW686*006#0250	W	68	6.3	4.3	6	250	0.600	0.540	0.240
TPSC107*006#0150	C	100	6.3	6.3	6	150	0.856	0.766	0.343
TPSC157*006#0250	C	150	6.3	9.5	6	250	0.663	0.597	0.265
TPSC157*006#0150	C	150	6.3	9.5	6	150	0.856	0.771	0.343
TPSD157*006#0125	D	150	6.3	9.5	6	125	1.095	0.980	0.438
TPSC227*006#0250	C	220	6.3	13.9	10	250	0.663	0.597	0.265
TPSC227*006#0125	C	220	6.3	13.9	10	125	0.938	0.844	0.375
TPSD227*006#0100	D	220	6.3	13.9	8	100	1.125	1.102	0.490
TPSE227*006#0100	E	220	6.3	13.9	8	100	1.285	1.156	0.514
TPSD337M006#0100	D	330	6.3	20.8	8	100	1.125	1.102	0.490
TPSE337*006#0150	E	330	6.3	20.8	8	150	1.049	0.938	0.420
TPSE337*006#0100	E	330	6.3	20.8	8	100	1.285	1.149	0.514
TPSD477M006#0200	D	470	6.3	29.6	12	200	0.866	0.779	0.346
TPSD477M006#0100	D	470	6.3	29.6	12	100	1.225	1.102	0.490
TPSE477M006#0100	E	470	6.3	29.6	10	100	1.285	1.156	0.514
TPSE477M006#0050	E	470	6.3	29.6	10	50	1.817	1.635	0.727
TPSV477*006#0100	V	470	6.3	29.6	10	100	1.581	1.414	0.632
TPSV477*006#0055	V	470	6.3	29.6	10	55	2.132	1.907	0.853
Voltage/Code 10 volt @ 85°C (6.3 volt @ 125°C) / A									
TPSA225*010#1800	A	2.2	10	0.5	6	1800	0.204	0.184	0.082
TPSA475*010#1400	A	4.7	10	0.5	6	1400	0.231	0.208	0.093
TPSA685*010#1800	A	6.8	10	0.7	6	1800	0.204	0.184	0.082
TPSA106*010#1800	A	10	10	1.0	6	1800	0.204	0.183	0.082
TPSA156*010#1000	A	15	10	1.5	6	1000	0.274	0.246	0.110
TPSB226*010#0700	B	22	10	2.2	6	700	0.348	0.312	0.139
TPSB226*010#0500	B	22	10	2.2	6	500	0.412	0.371	0.165
TPSB336*010#0650	B	33	10	3.3	6	650	0.362	0.325	0.145
TPSB336*010#0500	B	33	10	3.3	6	500	0.412	0.371	0.165
TPSC336*010#0500	C	33	10	3.3	6	500	0.469	0.420	0.188
TPSC336*010#0375	C	33	10	3.3	6	375	0.542	0.484	0.217
TPSW336*010#0350	W	33	10	3.3	6	350	0.507	0.456	0.203
TPSB476*010#0650	B	47	10	4.7	8	650	0.362	0.325	0.145
TPSB476*010#0500	B	47	10	4.7	8	500	0.412	0.371	0.165
TPSC476*010#0350	C	47	10	4.7	6	350	0.561	0.501	0.224
TPSD686*010#0150	D	68	10	6.8	6	150	1.000	0.900	0.400
TPSD686*010#0100	D	68	10	6.8	6	100	1.225	1.102	0.490
TPSY686*010#0200	Y	68	10	6.8	6	200	0.791	0.712	0.316
TPSY686*010#0150	Y	68	10	6.8	6	150	0.913	0.821	0.365
TPSC107*010#0200	C	100	10	10.0	8	200	0.742	0.667	0.297
TPSC107*010#0150	C	100	10	10.0	6	150	0.856	0.771	0.343
TPSC107*010#0100	C	100	10	10.0	6	100	1.049	0.944	0.420
TPSD107*010#0100	D	100	10	10.0	6	100	1.225	1.095	0.490
TPSD107*010#0080	D	100	10	10.0	6	80	1.369	1.225	0.548
TPSD107*010#0065	D	100	10	10.0	6	65	1.519	1.367	0.607

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance μF	Rated Voltage (Voltage Code)	DCL (μA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	100kHz Ripple Current (mA) Ratings		
							25°C	85°C	125°C
Voltage/Code10 volt @ 85°C (6.3 volt @ 125°C) / A									
TPSY107*010#0200	Y	100	10	10.0	6	200	0.791	0.712	0.316
TPSY107*010#0150	Y	100	10	10.0	6	150	0.913	0.822	0.365
TPSD157*010#0150	D	150	10	15.0	6	150	1.000	0.900	0.400
TPSD157*010#0100	D	150	10	15.0	6	100	1.225	1.095	0.490
TPSY157*010#0200	Y	150	10	15.0	6	200	0.791	0.712	0.316
TPSY157*010#0150	Y	150	10	15.0	6	150	0.913	0.822	0.365
TPSD227M010#0150	D	220	10	22.0	8	150	1.000	0.900	0.400
TPSD227M010#0100	D	220	10	22.0	8	100	1.225	1.102	0.490
TPSE227*010#0100	E	220	10	22.0	8	100	1.285	1.149	0.514
TPSD337M010#0150	D	330	10	33.0	8	150	1.000	0.900	0.400
TPSD337M010#0100	D	330	10	33.0	8	100	1.225	1.102	0.490
TPSE337*010#0100	E	330	10	33.0	8	100	1.285	1.149	0.514
TPSE337*010#0060	E	330	10	33.0	8	60	1.658	1.483	0.663
TPSV337*010#0100	V	330	10	33.0	10	100	1.581	1.414	0.632
TPSV337*010#0060	V	330	10	33.0	10	60	2.041	1.826	0.816
TPSE477M010#0100	E	470	10	47.0	10	100	1.285	1.149	0.574
TPSE477M010#0060	E	470	10	47.0	10	60	1.658	1.492	0.663
TPSV477*010#0100	V	470	10	47.0	10	100	1.581	1.423	0.632
TPSV477*010#0060	V	470	10	47.0	10	60	2.041	1.826	0.816
Voltage/Code16 volt @ 85°C (10 volt @ 125°C) / C									
TPSA225*016#3500	A	2.2	16	0.5	6	3500	0.146	0.131	0.059
TPSA335*016#3500	A	3.3	16	0.5	6	3500	0.146	0.131	0.059
TPSA475*016#2000	A	4.7	16	0.8	6	2000	0.194	0.174	0.077
TPSB685*016#1200	B	6.8	16	1.1	6	1200	0.266	0.240	0.106
TPSB106*016#0800	B	10	16	1.6	6	800	0.326	0.293	0.130
TPSW106*016#0600	W	10	16	1.6	6	600	0.387	0.349	0.155
TPSB156*016#0800	B	15	16	2.4	6	800	0.326	0.292	0.130
TPSB226*016#0600	B	22	16	3.5	6	600	0.376	0.338	0.150
TPSC226*016#0375	C	22	16	3.5	6	375	0.542	0.484	0.217
TPSC336*016#0300	C	33	16	5.3	6	300	0.606	0.545	0.242
TPSW336*016#0500	W	33	16	5.3	6	500	0.424	0.381	0.169
TPSW336*016#0400	W	33	16	5.3	6	400	0.474	0.427	0.189
TPSC476*016#0350	C	47	16	7.5	6	350	0.561	0.501	0.224
TPSD476*016#0200	D	47	16	7.5	6	200	0.866	0.775	0.346
TPSD476*016#0150	D	47	16	7.5	6	150	1.000	0.894	0.400
TPSC686*016#0200	C	68	16	10.9	6	200	0.741	0.667	0.296
TPSD686*016#0150	D	68	16	10.8	6	150	1.000	0.894	0.400
TPSY686*016#0250	Y	68	16	10.8	6	250	0.707	0.636	0.283
TPSY686*016#0200	Y	68	16	10.8	6	200	0.791	0.712	0.316
TPSD107*016#0150	D	100	16	16.0	6	150	1.000	0.894	0.400
TPSD107*016#0125	D	100	16	16.0	6	125	1.095	0.980	0.438
TPSE107*016#0150	E	100	16	16.0	6	150	1.049	0.938	0.420
TPSE107*016#0125	E	100	16	16.0	6	125	1.149	1.028	0.460
TPSE107*016#0100	E	100	16	16.0	6	100	1.285	1.149	0.514
TPSD157M016#0150	D	150	16	24.0	6	150	1.000	0.900	0.400
TPSD157M016#0125	D	150	16	24.0	6	125	1.095	0.986	0.438
TPSE227M016#0150	E	220	16	35.2	10	150	1.049	0.944	0.420
TPSE227M016#0100	E	220	16	35.2	10	100	1.285	1.156	0.514
TPSV227*016#0150	V	220	16	35.2	8	150	1.290	1.162	0.516
TPSV227*016#0075	V	220	16	35.2	8	75	1.825	1.643	0.730
Voltage/Code20 volt @ 85°C (13 volt @ 125°C) / D									
TPSA225*020#3000	A	2.2	20	0.5	6	3000	0.158	0.142	0.063
TPSA335*020#2500	A	3.3	20	0.7	6	2500	0.173	0.156	0.069
TPSA475*020#1800	A	4.7	20	0.9	6	1800	0.204	0.183	0.082
TPSC685*020#0700	C	6.8	20	1.4	6	700	0.396	0.357	0.159
TPSB106*020#1000	B	10	20	2.0	6	1000	0.292	0.261	0.117
TPSC106*020#0700	C	10	20	2.0	6	700	0.396	0.357	0.159
TPSC156*020#0450	C	15	20	3.0	6	450	0.494	0.442	0.198
TPSC226*020#0400	C	22	20	4.4	6	400	0.524	0.472	0.210
TPSD226*020#0300	D	22	20	4.4	6	300	0.707	0.636	0.283
TPSD336*020#0200	D	33	20	6.6	6	200	0.866	0.775	0.346
TPSD476*020#0200	D	47	20	9.4	6	200	0.866	0.779	0.346
TPSE476*020#0250	E	47	20	9.4	6	250	0.812	0.731	0.325

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance μF	Rated Voltage (Voltage Code)	DCL (μA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	100kHz Ripple Current (mA) Ratings		
							25°C	85°C	125°C
Voltage/Code							20 volt @ 85°C (13 volt @ 125°C) / D		
TPSE476*020#0150	E	47	20	9.4	6	150	1.049	0.938	0.420
TPSE476*020#0125	E	47	20	9.4	6	125	1.149	1.034	0.460
TPSD686*020#0300	D	68	20	13.6	6	300	0.707	0.636	0.283
TPSD686*020#0200	D	68	20	13.6	6	200	0.866	0.779	0.346
TPSE686*020#0200	E	68	20	13.6	6	200	0.908	0.817	0.363
TPSE686*020#0150	E	68	20	13.6	6	150	1.049	0.938	0.420
TPSE686*020#0125	E	68	20	13.6	6	125	1.149	1.028	0.460
TPSE107M020#0200	E	100	20	20.0	6	200	0.908	0.817	0.363
TPSE107M020#0150	E	100	20	20.0	6	150	1.049	0.944	0.420
TPSV107*020#0200	V	100	20	20.0	8	200	1.118	1.006	0.447
TPSV107*020#0085	V	100	20	20.0	8	85	1.715	1.543	0.686
Voltage/Code							25 volt @ 85°C (16 volt @ 125°C) / E		
TPSA155*025#3000	A	1.5	25	0.4	6	3000	0.158	0.141	0.063
TPSB225*025#2500	B	2.2	25	0.6	6	2500	0.184	0.166	0.074
TPSB335*025#2000	B	3.3	25	0.8	6	2000	0.206	0.186	0.082
TPSB475*025#1500	B	4.7	25	1.2	6	1500	0.238	0.213	0.095
TPSC685*025#0700	C	6.8	25	1.7	6	700	0.396	0.357	0.159
TPSC685*025#0600	C	6.8	25	1.7	6	600	0.428	0.385	0.171
TPSC106*025#0500	C	10	25	2.5	6	500	0.469	0.420	0.188
TPSD156*025#0300	D	15	25	3.8	6	300	0.707	0.636	0.283
TPSD226*025#0200	D	22	25	5.5	6	200	0.866	0.775	0.346
TPSD336*025#0300	D	33	25	8.3	6	300	0.707	0.636	0.283
TPSE336*025#0300	E	33	25	8.3	6	300	0.742	0.663	0.297
TPSE336*025#0200	E	33	25	8.3	6	200	0.908	0.812	0.363
TPSE336*025#0175	E	33	25	8.3	6	175	0.971	0.868	0.388
TPSD476M025#0250	D	47	25	8.3	6	250	0.775	0.697	0.310
TPSE686M025#0200	E	68	25	17.0	6	200	0.908	0.817	0.363
TPSE686M025#0125	E	68	25	17.0	6	125	1.149	1.034	0.459
TPSV686*025#0150	V	68	25	17.0	8	150	1.291	1.162	0.516
TPSV686*025#0095	V	68	25	17.0	8	95	1.622	1.460	0.649
Voltage/Code							35 volt @ 85°C (23 volt @ 125°C) / V		
TPSA105*035#3000	A	1.0	35	0.5	4	3000	0.158	0.142	0.063
TPSB105*035#2000	B	1.0	35	0.5	4	2000	0.206	0.186	0.082
TPSB155*035#2500	B	1.5	35	0.5	6	2500	0.184	0.166	0.074
TPSB225*035#2000	B	2.2	35	0.8	6	2000	0.206	0.186	0.082
TPSC335*035#0700	C	3.3	35	1.2	6	700	0.396	0.357	0.159
TPSC475*035#0600	C	4.7	35	1.6	6	600	0.428	0.383	0.171
TPSD685*035#0500	D	6.8	35	2.4	6	500	0.548	0.493	0.219
TPSD106*035#0300	D	10	35	3.5	6	300	0.707	0.632	0.283
TPSE106*035#0200	E	10	35	3.5	6	200	0.908	0.817	0.363
TPSC156*035#0450	C	15	35	5.3	6	450	0.494	0.445	0.198
TPSD156*035#0300	D	15	35	5.3	6	300	0.707	0.632	0.283
TPSD226M035#0400	D	22	35	7.7	6	400	0.612	0.548	0.245
TPSE226*035#0300	E	22	35	7.7	6	300	0.742	0.663	0.297
TPSE226*035#0200	E	22	35	7.7	6	200	0.908	0.812	0.363
TPSD336M035#0300	D	33	35	11.6	6	300	0.707	0.636	0.283
TPSE476M035#0250	E	47	35	16.5	6	250	0.812	0.731	0.325
TPSE476M035#0200	E	47	35	16.5	6	200	0.908	0.817	0.363
Voltage/Code							50 volt @ 85°C (33 volt @ 125°C) / T		
TPSD475*050#0700	D	4.7	50	2.4	6	700	0.463	0.417	0.185
TPSD685*050#0600	D	6.8	50	3.4	6	600	0.500	0.450	0.200

All technical data relates to an ambient temperature of +25°C measured at 120Hz, 0.5V RMS unless otherwise stated.

* Insert K for $\pm 10\%$ and M for $\pm 20\%$

Insert R for 7" reel and S for 13" reel

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.