

TES LOW ESR – QPL ESCC

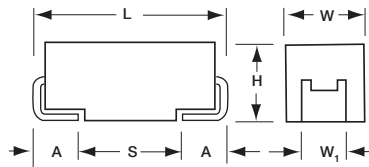
Low ESR Tantalum Chip Capacitor



- QPL ESCC approved series
- Manufactured in EU, ESA qualified plant, according to ESCC 3012
- Detailed specification 3012/004
- Low ESR designed parts, multianode D and E case included
- Robust against higher thermo-mechanical stresses during assembly process
- CV range 1.0 - 470uF/6.3 - 50V
- Improved reliability design



For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)



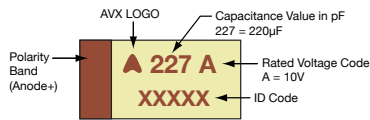
CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	Variant	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	3216-18	01	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	02	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	03	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	7343-31	04	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	05	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.

MARKING

A, B, C, D, E CASE



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

Capacitance		Rated Voltage DC (V _R) at 85°C							
µF	Code	6.3V (J)	10V (A)	12V (B)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
1.0	105						A(3000)		B(2000)
1.5	155								
2.2	225								
3.3	335					A(2500)		B(1000)	C(1000)
4.7	475				A(2000)		B(1000)	C(600)	D(200)
6.8	685								
10	106		A(1800)			B(1000)	C(600)	D(120)	
15	156								
22	226	A(900)			B(600)	C(400)		D(100)	
33	336		B(650)			C(300)	D(65)	E(65)	
47	476	B(500)			C(350)	D(55)	E(65)		
68	686								
100	107		C(200)		D(55)	E(45)			
150	157	C(300)	D(45)		E(40)				
220	227		D(35)	E(35)					
330	337	D(35)	E(35)						
470	477	E(30)							

Available Ratings: ESR limits quoted in brackets (mOhms)

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HOW TO ORDER

AVX PART NUMBER:

TES	E	477	K	006		U	0	@	^	Not RoHS Compliant
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%	Voltage Code 006 = 6.3Vdc 010 = 10Vdc 012 = 12Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	Packaging SnPb Termination X = 4" E = Bulk H = 7"	ESR Level C = Standard L = Mirror Multianode U = Multianode	LAT 0 = N/A 1 = LAT1 2 = LAT2 3 = LAT3	Screening Level B = Level B (Xray) C = Level C Z = non-ER (not for flight parts)	FCSI 0 = N/A 1 = YES	

ESCC PART NUMBER – MANDATORY FOR ORDERING:

3012 004	01	B	477	K	E	0030	Not RoHS Compliant
Detail Specification	Variant 01 02 03 04 05	Testing Level B = Level B (Xray) C = Level C	Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	Tolerance K = ±10% M = ±20%	Voltage J = 6.3V A = 10V B = 12V C = 16V D = 20V E = 25V V = 35V T = 50V	ESR in mΩ	

LAT TESTING

AVX can perform the following Lot Acceptance Test according to ESCC

- LAT 3 Qty. 10 pcs. - 4 pieces of which are “destructive samples”, the remaining 6 pieces may be for part of the Order Qty. OR be additional to the order Qty.
- LAT 2 Qty. 26 pcs. - including the 10 pieces of LAT3. The additional 16 pieces are “destructive samples”.
- LAT 1 Qty. 34 pcs. - including the 26 pieces of LAT2. The additional 8 pieces are all “destructive samples”.

OPTION

Packaging: Tape and reel available on request – Contact marketing.



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RATINGS & PART NUMBER REFERENCE

ESCC Part Number	AVX Part Number	Case Size	Cap (µF)	Rated Voltage (V)	DCL Max. (µA)	DF Max. (%)	ESR Max. @100kHz (mΩ)	100kHz RMS Current (mA)			100kHz RMS Voltage (mV)		
								25°C	85°C	125°C	25°C	85°C	125°C
6.3 Volt @ 85°C (4 Volt @ 125°C)													
301200401#226*J0900	TES A 226 * 006 □ C 0 @ ^	A	22	6.3	1.32	6	900	289	260	115	260	234	104
301200402#476*J0500	TES B 476 * 006 □ C 0 @ ^	B	47	6.3	2.82	6	500	412	371	165	206	186	82
301200403#157*J0300	TES C 157 * 006 □ C 0 @ ^	C	150	6.3	9	6	300	606	545	242	182	163	73
301200404#337*J0035	TES D 337 * 006 □ L 0 @ ^	D	330	6.3	19.8	8	35	2699	2429	1080	94	85	38
301200405#477*J0030	TES E 477 * 006 □ U 0 @ ^	E	470	6.3	28.2	6	30	3000	2700	1200	90	81	36
10 Volt @ 85°C (7 Volt @ 125°C)													
301200401#106*A1800	TES A 106 * 010 □ C 0 @ ^	A	10	10	1	6	1800	204	184	82	367	331	147
301200402#336*A0650	TES B 336 * 010 □ C 0 @ ^	B	33	10	3.3	6	650	362	325	145	235	212	94
301200403#107*A0200	TES C 107 * 010 □ C 0 @ ^	C	100	10	10	6	200	742	667	297	148	133	59
301200404#157*A0045	TES D 157 * 010 □ L 0 @ ^	D	150	10	15	6	45	2380	2142	952	107	96	43
301200404#227*A0035	TES D 227 * 010 □ L 0 @ ^	D	220	10	22	6	35	2699	2429	1080	94	85	38
301200405#337*A0035	TES E 337 * 010 □ U 0 @ ^	E	330	10	33	6	35	2777	2500	1111	97	87	39
12 Volt @ 85°C (8 Volt @ 125°C)													
301200405#227*B0035	TES E 227 * 012 □ U 0 @ ^	E	220	12	26.4	6	35	2777	2500	1111	97	87	39
16 Volt @ 85°C (10 Volt @ 125°C)													
301200401#475*C2000	TES A 475 * 016 □ C 0 @ ^	A	4.7	16	0.75	6	2000	194	174	77	387	349	155
301200402#226*C0600	TES B 226 * 016 □ C 0 @ ^	B	22	16	3.52	6	600	376	339	151	226	203	90
301200403#476*C0350	TES D 476 * 016 □ L 0 @ ^	C	47	16	7.52	6	350	561	505	224	196	177	78
301200404#107*C0055	TES D 107 * 016 □ L 0 @ ^	D	100	16	16	6	55	2153	1938	861	118	107	47
301200405#157*C0040	TES E 157 * 016 □ U 0 @ ^	E	150	16	24	6	40	2598	2338	1039	104	94	42
20 Volt @ 85°C (13 Volt @ 125°C)													
301200401#335*D2500	TES A 335 * 020 □ C 0 @ ^	A	3.3	20	0.66	6	2500	173	156	69	433	390	173
301200402#106*D1000	TES B 106 * 020 □ C 0 @ ^	B	10	20	2	6	1000	292	262	117	292	262	117
301200403#226*D0400	TES C 226 * 020 □ C 0 @ ^	C	22	20	4.4	6	400	524	472	210	210	189	84
301200403#336*D0300	TES C 336 * 020 □ C 0 @ ^	C	33	20	6.6	6	300	606	545	242	182	163	73
301200404#476*D0055	TES D 476 * 020 □ L 0 @ ^	D	47	20	9.4	6	55	2153	1938	861	118	107	47
301200405#107*D0045	TES E 107 * 020 □ U 0 @ ^	E	100	20	20	6	45	2449	2205	980	110	99	44
25 Volt @ 85°C (17 Volt @ 125°C)													
301200401#105*E3000	TES A 105 * 025 □ C 0 @ ^	A	1.0	25	0.25	6	3000	158	142	63	474	427	190
301200402#475*E1000	TES B 475 * 025 □ C 0 @ ^	B	4.7	25	1.18	6	1000	292	262	117	292	262	117
301200403#106*E0600	TES C 106 * 025 □ C 0 @ ^	C	10	25	2.5	6	600	428	385	171	257	231	103
301200404#336*E0065	TES D 336 * 025 □ L 0 @ ^	D	33	25	8.25	6	65	1981	1783	792	129	116	51
301200405#476*E0065	TES E 476 * 025 □ U 0 @ ^	E	47	25	11.8	6	65	2038	1834	815	132	119	53
35 Volt @ 85°C (23 Volt @ 125°C)													
301200402#335*V1000	TES B 335 * 035 □ C 0 @ ^	B	3.3	35	1.16	6	1000	292	262	117	292	262	117
301200403#475*V0600	TES C 475 * 035 □ C 0 @ ^	C	4.7	35	1.65	6	600	428	385	171	257	231	103
301200404#106*V0120	TES D 106 * 035 □ L 0 @ ^	D	10	35	3.5	6	120	1458	1312	583	175	157	70
301200404#226*V0100	TES D 226 * 035 □ L 0 @ ^	D	22	35	7.7	6	100	1597	1437	639	160	144	64
301200405#336*V0065	TES E 336 * 035 □ U 0 @ ^	E	33	35	11.6	6	65	2038	1834	815	132	119	53
50 Volt @ 85°C (33 Volt @ 125°C)													
301200402#105*T2000	TES B 105 * 050 □ C 0 @ ^	B	1.0	50	0.5	6	2000	206	186	82	412	271	165
301200403#335*T1000	TES C 335 * 050 □ C 0 @ ^	C	3.3	50	1.65	6	1000	332	298	133	332	298	133
301200404#475*T0200	TES D 475 * 050 □ L 0 @ ^	D	4.7	50	2.35	6	200	1129	1016	452	226	203	90

The parts are supplied in dry pack with Moisture Sensitivity Level (MSL) level 3 - 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.

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.



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.