TCJ Series

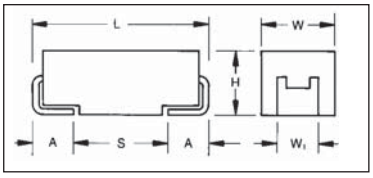
Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

- Conductive polymer electrode reduces ignition failure mode
- Lower ESR
- 3x reflow 260°C compatible
- CV range: 1.0-220µF / 2.5-35V
- 11 case sizes available

LEAD-FREE

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT



For part marking see page 132

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)
G	1206	3216-15	3.20 (0.126)	1.60 (0.063)	1.50 (0.059) max	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
H	1210	3528-15	3.50 (0.138)	2.80 (0.110)	1.50 (0.059) max	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
K	1206	3216-10	3.20 (0.126)	1.60 (0.063)	1.00 (0.039) max	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
P	0805	2012-15	2.05 (0.081)	1.35 (0.050)	1.50 (0.059) max	1.0±0.1 (0.039±0.004)	0.50 (0.020)	0.85 (0.033)
R	0805	2012-12	2.05 (0.081)	1.30 (0.051)	1.20 (0.047) max	1.0±0.1 (0.039±0.004)	0.50 (0.020)	0.85 (0.033)
S	1206	3216-12	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	1210	3528-12	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)
W	2312	6032-15	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)

W_1 dimension applies to the termination width for A dimensional area only.

HOW TO ORDER

TCJ	A	226	M	004	R	0300
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** M=±20%	**Rated DC Voltage** 002=2.5Vdc 004=4Vdc 006=6.3Vdc 010=10Vdc 016=16Vdc 020=20Vdc 025=25Vdc 035=35Vdc	**Packaging** R=7" T/R S=13" T/R	**ESR in mΩ**

TECHNICAL SPECIFICATIONS

Technical Data:		All technical data relate to an ambient temperature of +25°C								
Capacitance Range:		1.0 µF to 220 µF								
Capacitance Tolerance:		±20%								
Leakage Current DCL:		0.1CV								
Rated Voltage (V_R)	≤ +85°C:	2.5	4	6.3	10	16	20	25	35	
Category Voltage (V_C)	≤ +105°C:								28	
Category Voltage (V_C)	≤ +125°C:	1.7	2.7	4	7	10	13	17		
Surge Voltage (V_S)	≤ +85°C:	3.3	5.2	8	13	20	26	32	46	
Surge Voltage (V_S)	≤ +105°C:								28	
Surge Voltage (V_S)	≤ +125°C:	2.2	3.4	5	8	13	16	20		
Temperature Range:		-55°C to +125°C, -55ºC to +105ºC (35V)								
Reliability:		1% per 1000 hours at 85°C, V_R with 0.1Ω/V series impedance, 60% confidence level								

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

Capacitance		Rated Voltage DC (V_R) to 85°C						
µF	Code	2.5V (e)	4V (G)	6.3V (J)	10V (A)	16V (C)	25V (E)	35V (V)
1.0	105						P(500)	
4.7	475				K(500), R(500)			
6.8	685					A(200)		
10	106			A(300), R(500)	A(300)	A(200), B(200) T(150,200)		C(200)
15	156		A(300)	A(300)	A(200)	B(150)		
22	226		A(300)	A(300), K(400) S(400), T(150)	B(300), T(150)	B(150)	Y(70)*	
33	336		A(300)	A(200) B(70,200) T(150)	B(70,200) C(100) T(70,150)			
47	476		A(200), T(80)	A(200), B(70) K(400), P(500) T(80,120)	B(70), C(100)			
68	686	A(250)	A(250), B(70) T(80)	B(55), C(100) W(70)				
100	107	A(200), B(70)	A(200), B(70) G(300), T(150)	B(45,70)				
150	157	B(70)	B(70)	A(200), B(45,70) H(200), W(40,70) Y(25,40)*				
220	227		B(45,70)	B(200)				

Available Ratings, (ESR ratings in mOhms in brackets)

Engineering samples - please contact manufacturer

*Codes under development – subject to change

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.

TCJ Series

Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	100kHz RMS Current (mA)			100kHz RMS Voltage (mV)		
							25ºC	85ºC	125ºC	25ºC	85ºC	125ºC
2.5 Volt @ 85ºC (1.7 Volt @ 125ºC)												
TCJA686M002#0250	A	68	2.5	17.0	6	250	548	493	219	137	123	55
TCJA107M002#0200	A	100	2.5	25.0	6	200	612	551	245	122	110	49
TCJB107M002#0070	B	100	2.5	25.0	6	70	1102	992	441	77	69	31
TCJB157M002#0070	B	150	2.5	37.5	6	70	1102	992	441	77	69	31
4 Volt @ 85°C (2.7 Volt @ 125°C)												
TCJA156M004#0300	A	15	4	6.0	6	300	500	450	200	150	135	60
TCJA226M004#0300	A	22	4	8.8	6	300	500	450	200	150	135	60
TCJA336M004#0300	A	33	4	13.2	6	300	500	450	200	150	135	60
TCJA476M004#0200	A	47	4	18.8	6	200	612	551	245	122	110	49
TCJT476M004#0080	T	47	4	18.8	8	80	1000	900	400	80	72	32
TCJA686M004#0250	A	68	4	27.2	6	250	548	493	219	137	123	55
TCJB686M004#0070	B	68	4	27.2	6	70	1102	992	441	77	69	31
TCJT686M004#0080	T	68	4	27.2	8	80	1000	900	400	80	72	32
TCJA107M004#0200	A	100	4	40.0	6	200	612	551	245	122	110	49
TCJB107M004#0070	B	100	4	40.0	8	70	1102	992	441	77	69	31
TCJG107M004#0300	G	100	4	40.0	10	300	483	435	193	145	130	58
TCJT107M004#0150	T	100	4	40.0	8	150	730	657	292	110	99	44
TCJB157M004#0070	B	150	4	60.0	6	70	1102	992	441	77	69	31
TCJB227M004#0045	B	220	4	88.0	10	45	1374	1237	550	62	56	25
TCJB227M004#0070	B	220	4	88.0	10	70	1102	992	441	77	69	31
6.3 Volt @ 85°C (4 Volt @ 125°C)												
TCJA106M006#0300	A	10	6.3	6.0	6	300	500	450	200	150	135	60
TCJR106M006#0500	R	10	6.3	6.0	6	500	332	298	133	166	149	66
TCJA156M006#0300	A	15	6.3	9.0	6	300	500	450	200	150	135	60
TCJA226M006#0300	A	22	6.3	13.2	6	300	500	450	200	150	135	60
TCJK226M006#0400	K	22	6.3	13.2	8	400	403	363	161	161	145	64
TCJS226M006#0400	S	22	6.3	13.2	8	400	403	363	161	161	145	64
TCJT226M006#0150	T	22	6.3	13.2	6	150	730	657	292	110	99	44
TCJA336M006#0200	A	33	6.3	19.8	6	200	612	551	245	122	110	49
TCJB336M006#0070	B	33	6.3	19.8	6	70	1102	992	441	77	69	31
TCJB336M006#0200	B	33	6.3	19.8	6	200	652	587	261	130	117	52
TCJT336M006#0150	T	33	6.3	19.8	8	150	730	657	292	110	99	44
TCJA476M006#0200	A	47	6.3	28.2	6	200	612	551	245	122	110	49
TCJB476M006#0070	B	47	6.3	28.2	6	70	1102	992	441	77	69	31
TCLP476M006#0500	P	47	6.3	28.2	10	500	346	312	139	173	156	69
TCJK476M006#0400	K	47	6.3	28.2	6	400	403	363	161	161	146	64
TCJT476M006#0080	T	47	6.3	28.2	8	80	1000	900	400	80	72	32
TCJT476M006#0120	T	47	6.3	28.2	8	120	816	735	327	98	88	39
TCJB686M006#0055	B	68	6.3	40.8	8	55	1102	992	441	77	69	31
TCJC686M006#0100	C	68	6.3	40.8	6	100	1049	944	420	105	94	42
TCJW686M006#0070	W	68	6.3	40.8	8	70	1134	1021	454	79	71	32
TCJB107M006#0045	B	100	6.3	60.0	10	45	1374	1237	550	62	56	25
TCJB107M006#0070	B	100	6.3	60.0	10	70	1102	992	441	77	69	31
TCJA157M006#0200	A	150	6.3	90.0	10	200	612	551	245	122	110	49
TCJB157M006#0045	B	150	6.3	90.0	10	45	1374	1237	550	62	56	25
TCJB157M006#0070	B	150	6.3	90.0	10	70	1102	992	441	77	69	31
TCJH157M006#0200	H	150	6.3	90.0	6	200	632	569	253	126	114	51
TCJW157M006#0040	W	150	6.3	90.0	6	40	1500	1350	600	60	54	24
TCJW157M006#0070	W	150	6.3	90.0	6	70	1134	1021	454	79	71	32
TCJB227M006#0200	B	220	6.3	132.0	10	200	652	587	261	130	117	52

insert R for 7" reel or S for 13" reel

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5 RMS with DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes. TCJ series is MSL level 3 according to J-STD-020C.

ESR allowed to move up too 1.25 times catalog limit post mouting.

NOTE: AVX reserves the right to supply a higher voltage rating in the same case size, to the same reliability standards.

TCJ Series

Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL (µA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	100kHz RMS Current (mA)			100kHz RMS Voltage (mV)		
							25ºC	85ºC	125ºC	25ºC	85ºC	125ºC
10 Volt @ 85°C (7 Volt @ 125°C)												
TCJK475M010#0500	K	4.7	10	4.7	6	500	346	312	139	173	156	69
TCJR475M010#0500	R	4.7	10	4.7	6	500	332	298	133	166	149	66
TCJA106M010#0300	A	10	10	10.0	6	300	500	450	200	150	135	60
TCJA156M010#0200	A	15	10	15.0	6	200	612	551	245	122	110	49
TCJB226M010#0300	B	22	10	22.0	6	300	532	479	213	160	144	64
TCJT226M010#0150	T	22	10	22.0	6	150	730	657	292	110	99	44
TCJB336M010#0070	B	33	10	33.0	6	70	1102	992	441	77	69	31
TCJB336M010#0200	B	33	10	33.0	6	200	652	587	261	130	117	52
TCJC336M010#0100	C	33	10	33.0	6	100	1049	944	420	105	94	42
TCJT336M010#0070	T	33	10	33.0	6	70	1069	962	428	75	67	30
TCJT336M010#0150	T	33	10	33.0	6	150	730	657	292	110	99	44
TCJB476M010#0070	B	47	10	47.0	6	70	1102	992	441	77	69	31
TCJC476M010#0100	C	47	10	47.0	6	100	1049	944	420	105	94	42
16 Volt @ 85°C (10 Volt @ 125°C)												
TCJA685M016#0200	A	6.8	16	10.9	6	200	612	551	245	122	110	49
TCJA106M016#0200	A	10	16	16.0	6	200	612	551	245	122	110	49
TCJB106M016#0200	B	10	16	16.0	6	200	652	587	261	130	117	52
TCJT106M016#0150	T	10	16	16.0	6	150	730	657	292	110	99	44
TCJT106M016#0200	T	10	16	16.0	6	200	632	569	253	126	114	51
TCJB156M016#0150	B	15	16	24.0	6	150	753	677	301	113	102	45
TCJB226M016#0150	B	22	16	35.2	6	150	753	677	301	113	102	45
25 Volt @ 85°C (17 Volt @ 125°C)												
TCJP105M025#0500	P	1.0	25	2.5	6	500	346	312	139	173	156	69
35 Volt @ 85°C (28 Volt @ 105°C)												
TCJC106M035#0200	C	10	35	35	6	200	742	667	482	148	133	96

insert R for 7" reel or S for 13" reel

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5 RMS with DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes. TCJ series is MSL level 3 according to J-STD-020C.

ESR allowed to move up to 1.25 times catalog limit post mounting.

NOTE: AVX reserves the right to supply a higher voltage rating in the same case size, to the same reliability standards.

Voltage Derating vs Temperature Recommendation