

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: 0.68-220µF / 2.5-50V
- 14 case sizes available



Elektra Award 2010

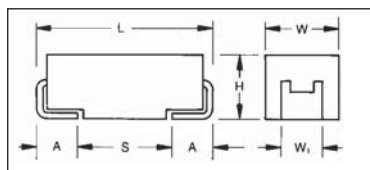


LEAD-FREE
LEAD-FREE COMPATIBLE
COMPONENT



RoHS
COMPLIANT

CASE DIMENSIONS: millimeters (inches)



For part marking see page 132

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)
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)
Y	2917	7343-20	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)

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

HOW TO ORDER

TCJ

Type

A

Case Size
See table above

226

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

M

Tolerance
M=±20%

004

Rated DC Voltage
002=2.5Vdc
004=4Vdc
006=6.3Vdc
010=10Vdc
016=16Vdc
020=20Vdc
025=25Vdc
035=35Vdc
050=50Vdc
100=100Vdc
125=125Vdc

R

Packaging
R = Lead Free 7" Reel
S = Lead Free 13" Reel

0300

ESR in mΩ

TECHNICAL SPECIFICATIONS

Technical Data:

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

Capacitance Range: 0.68 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	16	20	25	35	50	100	125
Category Voltage (V _C)	≤ +105°C:						12.8	16	20	28	40	80	100
Category Voltage (V _C)	≤ +125°C:	1.7	2.7	4	7	10							
Surge Voltage (V _S)	≤ +85°C:	3.3	5.2	8	13	20	20.8	26	33	46	65	130	162.5
Surge Voltage (V _S)	≤ +105°C:						16	20	25	35	50	100	125
Surge Voltage (V _S)	≤ +125°C:	2.2	3.4	5	8	13							

Temperature Range: -55°C to +125°C, -55°C to +105°C

Reliability: 1% per 1000 hours at 85°C, V_R with 0.1Ω/V series impedance, 60% confidence level



TCJ Series



Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

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

125°C RATED PARTS

Capacitance		Rated Voltage DC (V _R) to 85°C				
μF	Code	2.5V (e)	4V (G)	6.3V (J)	10V (A)	16V (C)
1.0	105					
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)
15	156		A(300)	A(300)	A(200)	B(150)
22	226		A(300)	A(300), K(400) R(500), S(400), T(150)	B(300), T(150)	B(150)
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) R(500), T(80,120)	B(70), C(100)	
68	686	A(250)	A(250), B(70) T(80)	B(55,70) C(100), W(70)		
100	107	A(200), B(70)	A(200), B(70) G(300), T(150)	B(45,69,70)		
150	157	B(70)	B(70)	B(45,69,70) H(200), W(40,70)		
220	227		B(45,70)	B(70,200)		

105°C RATED PARTS

Capacitance		Rated Voltage DC (V _R) to 85°C						
μF	Code	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)	100V	125V
0.68	684					B(300)		
1.0	105			P(500)		B(300)		
1.5	155				B(200)	B(300),C(300)		
2.2	225				B(200)	C(300)		
3.3	335				B(200)	C(200)		D*
4.7	475			B(100)	B(200), C(200)	C(200)		
6.8	685			B(100)	C(200)	C(200),D(120)	V*	
10	106			B(100)	B(200), C(200),Y(70)	D(120), E(70)		
15	156			B(100)	C(200), D(70,100)	E(70)		
22	226		Y(70)	B(100), C(100), D(60,100), Y(70)	D(70,100)			
33	336	Y(70)	Y(70)	D(60,100), Y(100)	D(70,100), E(55)			
47	476	Y(70)	Y(70)	D(60,100), E(50)	E(55)			
68	686			E(50)				

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	MSL	100kHz RMS Current (mA)			100kHz RMS Voltage (mV)		
								25°C	85°C	125°C	25°C	85°C	125°C
2.5 Volt @ 85°C (1.7 Volt @ 125°C)													
TCJA686M002#0250	A	68	2.5	17.0	6	250	3	548	493	219	137	123	55
TCJA107M002#0200	A	100	2.5	25.0	6	200	3	612	551	245	122	110	49
TCJB107M002#0070	B	100	2.5	25.0	6	70	3	1102	992	441	77	69	31
TCJB157M002#0070	B	150	2.5	37.5	6	70	3	1102	992	441	77	69	31
4 Volt @ 85°C (2.7 Volt @ 125°C)													
TCJA156M004#0300	A	15	4	6.0	6	300	3	500	450	200	150	135	60
TCJA226M004#0300	A	22	4	8.8	6	300	3	500	450	200	150	135	60
TCJA336M004#0300	A	33	4	13.2	6	300	3	500	450	200	150	135	60
TCJA476M004#0200	A	47	4	18.8	6	200	3	612	551	245	122	110	49
TCJT476M004#0080	T	47	4	18.8	8	80	3	1000	900	400	80	72	32
TCJA686M004#0250	A	68	4	27.2	6	250	3	548	493	219	137	123	55
TCJB686M004#0070	B	68	4	27.2	6	70	3	1102	992	441	77	69	31
TCJT686M004#0080	T	68	4	27.2	8	80	3	1000	900	400	80	72	32
TCJA107M004#0200	A	100	4	40.0	6	200	3	612	551	245	122	110	49
TCJB107M004#0070	B	100	4	40.0	8	70	3	1102	992	441	77	69	31
TCJG107M004#0300	G	100	4	40.0	10	300	3	483	435	193	145	130	58
TCJT107M004#0150	T	100	4	40.0	8	150	3	730	657	292	110	99	44
TCJB157M004#0070	B	150	4	60.0	6	70	3	1102	992	441	77	69	31
TCJB227M004#0045	B	220	4	88.0	10	45	3	1374	1237	550	62	56	25
TCJB227M004#0070	B	220	4	88.0	10	70	3	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	3	500	450	200	150	135	60
TCJR106M006#0500	R	10	6.3	6.0	6	500	3	332	298	133	166	149	66
TCJA156M006#0300	A	15	6.3	9.0	6	300	3	500	450	200	150	135	60
TCJA226M006#0300	A	22	6.3	13.2	6	300	3	500	450	200	150	135	60
TCJK226M006#0400	K	22	6.3	13.2	8	400	3	403	363	161	161	145	64
TCJR226M006#0500	R	22	6.3	13.2	10	500	3	332	298	133	166	149	66
TCJS226M006#0400	S	22	6.3	13.2	8	400	3	403	363	161	161	145	64
TCJT226M006#0150	T	22	6.3	13.2	6	150	3	730	657	292	110	99	44
TCJA336M006#0200	A	33	6.3	19.8	6	200	3	612	551	245	122	110	49
TCJB336M006#0070	B	33	6.3	19.8	6	70	3	1102	992	441	77	69	31
TCJB336M006#0200	B	33	6.3	19.8	6	200	3	652	587	261	130	117	52
TCJT336M006#0150	T	33	6.3	19.8	8	150	3	730	657	292	110	99	44
TCJA476M006#0200	A	47	6.3	28.2	6	200	3	612	551	245	122	110	49
TCJB476M006#0070	B	47	6.3	28.2	6	70	3	1102	992	441	77	69	31
TCJK476M006#0400	K	47	6.3	28.2	6	400	3	403	363	161	161	146	64
TCJP476M006#0500	P	47	6.3	28.2	10	500	3	346	312	139	173	156	69
TCJR476M006#0500	R	47	6.3	28.2	10	500	3	332	298	133	166	149	66
TCJT476M006#0080	T	47	6.3	28.2	8	80	3	1000	900	400	80	72	32
TCJT476M006#0120	T	47	6.3	28.2	8	120	3	816	735	327	98	88	39
TCJB686M006#0055	B	68	6.3	40.8	8	55	3	1243	1119	497	68	62	27
TCJB686M006#0070	B	68	6.3	40.8	8	70	3	1102	992	441	77	69	31
TCJC686M006#0100	C	68	6.3	40.8	6	100	3	1049	944	420	105	94	42
TCJW686M006#0070	W	68	6.3	40.8	8	70	3	1134	1021	454	79	71	32
TCJB107M006#0045	B	100	6.3	60.0	10	45	3	1374	1237	550	62	56	25
TCJB107M006#0069	B	100	6.3	60.0	10	69	3	1110	999	444	77	69	31
TCJB107M006#0070	B	100	6.3	60.0	10	70	3	1102	992	441	77	69	31
TCJB157M006#0045	B	150	6.3	90.0	10	45	3	1374	1237	550	62	56	25
TCJB157M006#0069	B	150	6.3	90.0	10	69	3	1110	999	444	77	69	31
TCJB157M006#0070	B	150	6.3	90.0	10	70	3	1102	992	441	77	69	31
TCJH157M006#0200	H	150	6.3	90.0	6	200	3	632	569	253	126	114	51
TCJW157M006#0040	W	150	6.3	90.0	6	40	3	1500	1350	600	60	54	24
TCJW157M006#0070	W	150	6.3	90.0	6	70	3	1134	1021	454	79	71	32
TCJB227M006#0070	B	220	6.3	132.0	10	70	3	1102	992	441	77	69	31
TCJB227M006#0200	B	220	6.3	132.0	10	200	3	652	587	261	130	117	52
10 Volt @ 85°C (7 Volt @ 125°C)													
TCJK475M010#0500	K	4.7	10	4.7	6	500	3	346	312	139	173	156	69
TCJR475M010#0500	R	4.7	10	4.7	6	500	3	332	298	133	166	149	66
TCJA106M010#0300	A	10	10	10.0	6	300	3	500	450	200	150	135	60
TCJA156M010#0200	A	15	10	15.0	6	200	3	612	551	245	122	110	49

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

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

For typical weight and composition see page 125.

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.



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	MSL	100kHz RMS Current (mA)			100kHz RMS Voltage (mV)		
								25°C	85°C	125°C	25°C	85°C	125°C
TCJB226M010#0300	B	22	10	22.0	6	300	3	532	479	213	160	144	64
TCJT226M010#0150	T	22	10	22.0	6	150	3	730	657	292	110	99	44
TCJB336M010#0070	B	33	10	33.0	6	70	3	1102	992	441	77	69	31
TCJB336M010#0200	B	33	10	33.0	6	200	3	652	587	261	130	117	52
TCJC336M010#0100	C	33	10	33.0	6	100	3	1049	944	420	105	94	42
TCJT336M010#0070	T	33	10	33.0	6	70	3	1069	962	428	75	67	30
TCJT336M010#0150	T	33	10	33.0	6	150	3	730	657	292	110	99	44
TCJB476M010#0070	B	47	10	47.0	6	70	3	1102	992	441	77	69	31
TCJC476M010#0100	C	47	10	47.0	6	100	3	1049	944	420	105	94	42
16 Volt @ 85°C (10 Volt @ 125°C)													
TCJA685M016#0200	A	6.8	16	10.9	6	200	3	612	551	245	122	110	49
TCJA106M016#0200	A	10	16	16.0	6	200	3	612	551	245	122	110	49
TCJB106M016#0200	B	10	16	16.0	6	200	3	652	587	261	130	117	52
TCJT106M016#0150	T	10	16	16.0	6	150	3	730	657	292	110	99	44
TCJT106M016#0200	T	10	16	16.0	6	200	3	632	569	253	126	114	51
TCJB156M016#0150	B	15	16	24.0	6	150	3	753	677	301	113	102	45
TCJB226M016#0150	B	22	16	35.2	6	150	3	753	677	301	113	102	45

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

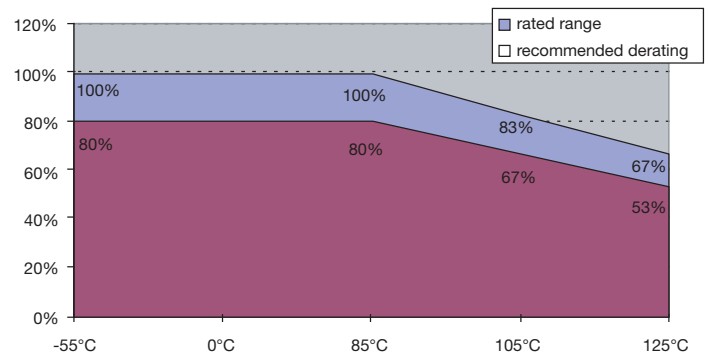
All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

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

For typical weight and composition see page 125.

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.

Voltage Derating vs Temperature Recommendation



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	MSL	100kHz RMS Current (mA)			100kHz RMS Voltage (mV)		
								25°C	85°C	105°C	25°C	85°C	105°C
16 Volt @ 85°C (12.8 Volt @ 105°C)													
TCJY336M016#0070	Y	33	16	52.8	6	70	3	1336	1203	869	94	84	61
TCJY476M016#0070	Y	47	16	75.2	6	70	3	1336	1203	869	94	84	61
20 Volt @ 85°C (16 Volt @ 105°C)													
TCJY226M020#0070	Y	22	20	44.0	6	70	3	1336	1203	869	94	84	61
TCJY336M020#0070	Y	33	20	66.0	6	70	3	1336	1203	869	94	84	61
TCJY476M020#0070	Y	47	20	94.0	6	70	3	1336	1203	869	94	84	61
25 Volt @ 85°C (20 Volt @ 105°C)													
TCJP105M025#0500	P	1.0	25	2.5	6	500	3	346	312	225	173	156	113
TCJB475M025#0100	B	4.7	25	11.8	6	100	3	922	830	599	92	83	60
TCJB685M025#0100	B	6.8	25	17.0	6	100	3	922	830	599	92	83	60
TCJB106M025#0100	B	10	25	25.0	6	100	3	922	830	599	92	83	60
TCJB156M025#0100	B	15	25	37.5	6	100	3	922	830	599	92	83	60
TCJB226M025#0100	B	22	25	55.0	6	100	3	922	830	599	92	83	60
TCJC226M025#0100	C	22	25	55.0	6	100	3	1049	944	682	105	94	68
TCJD226M025#0060	D	22	25	55.0	6	60	3	1581	1423	1028	95	85	62
TCJD226M025#0100	D	22	25	55.0	6	100	3	1225	1102	796	122	110	80
TCJY226M025#0070	Y	22	25	55.0	10	70	3	1336	1203	869	94	84	61
TCJD336M025#0060	D	33	25	82.5	6	60	3	1581	1423	1028	95	85	62
TCJD336M025#0100	D	33	25	82.5	6	100	3	1225	1102	796	122	110	80
TCJY336M025#0100	Y	33	25	82.5	6	100	3	1118	1006	727	112	101	73
TCJD476M025#0060	D	47	25	117.5	6	60	3	1581	1423	1028	95	85	62
TCJD476M025#0100	D	47	25	117.5	6	100	3	1225	1102	796	122	110	80
TCJE476M025#0050	E	47	25	117.5	6	50	3	1817	1635	1181	91	82	59
TCJE686M025#0050	E	68	25	170.0	6	50	3	1817	1635	1181	91	82	59
35 Volt @ 85°C (28 Volt @ 105°C)													
TCJB155M035#0200	B	1.5	35	5.3	6	200	3	652	587	424	130	117	85
TCJB225M035#0200	B	2.2	35	7.7	6	200	3	652	587	424	130	117	85
TCJB335M035#0200	B	3.3	35	11.6	6	200	3	652	587	424	130	117	85
TCJB475M035#0200	B	4.7	35	16.5	6	200	3	652	587	424	130	117	85
TCJC475M035#0200	C	4.7	35	16.5	6	200	3	742	667	482	148	133	96
TCJC685M035#0200	C	6.8	35	23.8	6	200	3	742	667	482	148	133	96
TCJB106M035#0200	B	10	35	35.0	6	200	3	652	587	424	130	117	85
TCJC106M035#0200	C	10	35	35.0	6	200	3	742	667	482	148	133	96
TCJC156M035#0200	C	15	35	52.5	6	200	3	742	667	482	148	133	96
TCJY106M035#0070	Y	10	35	35.0	6	70	3	1336	1203	869	94	84	61
TCJD156M035#0070	D	15	35	52.5	6	70	3	1464	1317	952	102	92	67
TCJD156M035#0100	D	15	35	52.5	6	100	3	1225	1102	796	122	110	80
TCJD226M035#0070	D	22	35	77.0	6	70	3	1464	1317	952	102	92	67
TCJD226M035#0100	D	22	35	77.0	6	100	3	1225	1102	796	122	110	80
TCJD336M035#0070	D	33	35	115.5	6	70	3	1464	1317	952	102	92	67
TCJD336M035#0100	D	33	35	115.5	6	100	3	1225	1102	796	122	110	80
TCJE336M035#0055	E	33	35	115.5	6	55	3	1732	1559	1126	95	86	62
TCJE476M035#0055	E	47	35	164.5	6	55	3	1732	1559	1126	95	86	62
50 Volt @ 85°C (40 Volt @ 105°C)													
TCJB684M050#0300	B	0.68	50	3.4	6	300	3	532	479	346	160	144	104
TCJB105M050#0300	B	1.0	50	5.0	6	300	3	532	479	346	160	144	104
TCJB155M050#0300	B	1.5	50	7.5	6	300	3	532	479	346	160	144	104
TCJC155M050#0300	C	1.5	50	7.5	6	300	3	606	545	394	182	163	118
TCJC225M050#0300	C	2.2	50	11	6	300	3	606	545	394	182	163	118
TCJC335M050#0200	C	3.3	50	16.5	8	200	3	742	667	482	148	133	96
TCJC475M050#0200	C	4.7	50	23.5	8	200	3	742	667	482	148	133	96
TCJC685M050#0200	C	6.8	50	34.0	8	200	3	742	667	482	148	133	96
TCJD685M050#0120	D	6.8	50	34.0	10	120	3	1118	1006	727	134	121	87
TCJD106M050#0120	D	10	50	50.0	10	120	3	1118	1006	727	134	121	87
TCJE106M050#0070	E	10	50	50.0	6	70	3	1535	1382	998	107	97	70
TCJE156M050#0070	E	15	50	75.0	6	70	3	1535	1382	998	107	97	70

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

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

For typical weight and composition see page 125.

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.

Voltage vs Temperature Rating

