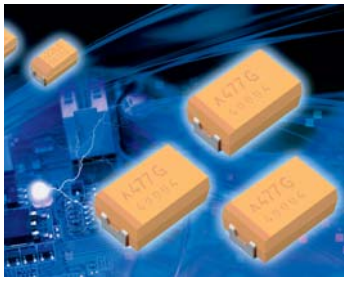
TCJ Series

Conductive Polymer Solid Electrolytic Chip Capacitors



FEATURES

- Conductive polymer electrode
- Benign failure mode under recommended use conditions
- Lower ESR
- 3x reflow 260°C compatible
- CV range: 0.47-470µF / 2.5-125V
- 18 case sizes available

APPLICATIONS

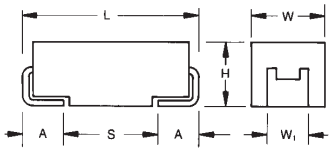
- Smart phone, Tablets, Notebook, LCD TV, Power supplies

Elektra Award 2010

LEAD-FREE

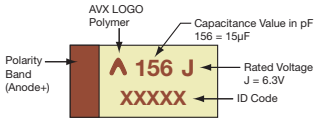
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

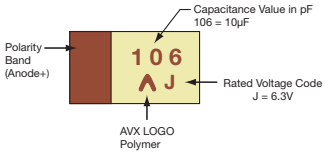


MARKING

A, B, C, D, E, G, H, K, S, T, V, W, X, Y, 5 CASE



N, P, R CASE



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)
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)
N	0805	2012-10	2.05 (0.081)	1.30 (0.051)	1.00 (0.039) max	1.00 (0.039)	0.50 (0.020)	0.85 (0.033)
P	0805	2012-15	2.05 (0.081)	1.35 (0.050)	1.50 (0.059) max	1.00±0.10 (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	1.00±0.10 (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)
V	2924	7361-38	7.30 (0.287)	6.10 (0.240)	3.55 (0.140)	3.10 (0.120)	1.30 (0.051)	4.40 (0.173)
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)
X	2917	7343-15	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	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)
5	2917	7343-40	7.30 (0.287)	4.30 (0.169)	3.80 (0.150)	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 | **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
050 = 50Vdc
063 = 63Vdc
075 = 75Vdc
100 = 100Vdc
125 = 125Vdc

Packaging
R = Pure Tin 7" Reel
S = Pure Tin 13" Reel

ESR in mΩ

TECHNICAL SPECIFICATIONS (Common for all TCJ series)

Technical Data:	All technical data relate to an ambient temperature of +25°C
Capacitance Tolerance:	±20%
Leakage Current DCL:	0.1CV
Reliability:	1% per 1000 hours at 85°C, V_R with 0.1Ω/V series impedance, 60% confidence level
Resistance to soldering heat:	3x260°C peak for max. 10s reflow

NOTE: Conductive Polymer Capacitors are designed to operate within the limits of the environmental conditions specified for each series. If operated continuously at their maximum temperature and / or humidity limit, or beyond these limits, capacitors may exhibit a parametric shift in capacitance and increases in ESR. These changes may occur earlier if the specified environmental conditions are exceeded. Similarly, their normal operational time period will be significantly extended if their general duty cycle includes operation below maximum temperature within humidity controlled environments. Careful attention should be paid to maximum temperature with associated high humidity environments as well as voltage derating, ripple current and current surges. Please reference the AVX Conductive Polymer Capacitor Guidelines for more information or contact factory for application assistance.

TCJ Series

Conductive Polymer Solid Electrolytic Chip Capacitors

CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Cap		Rated Voltage DC (V_R) to 85°C												
µF	Code	2.5V (e)	4V (G)	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)	63V (J)	75V (P)	100V (A)	125V (B)
0.47	474										B(400)			
0.68	684									B(400)	B(300)			
1.0	105							P(500)		B(300)	B(300) C(300)			
1.5	155								B(200)	B(300) C(300)	C(300)			
2.2	225								B(200)	C(300)	C(200)			
3.3	335								B(200)	C(200)	C(200)			D(250)
4.7	475				K(300,500) R(500)			B(100,150)	B(200) C(200)	C(200)	C(200) D(120)	D(150)	D(250)	
6.8	685					A(200)		A(150), B(90,150) T(100,150)	C(200)	C(200) D(120)	D(120) E(100,150)	D(120)		
10	106			A(300) N(200,250,500) R(500)	A(200,300)	A(200) B(100,200) T(100,150,200)	A(150)	A(150) B(90,100,150)	B(200) C(200) Y(70)	D(120) E(70,100)	E(100,150)	U*	U*	
15	156		A(300)	A(300)	A(200)	B(150)		B(100,150) Y(90)	B(200), C(200) D(70,100) Y(70,100)	E(70,100)				
22	226		A(300)	A(300), K(400) N(500), R(500) S(400), T(150)	B(300) T(70,150)	B(150)	B(90,150) Y(70)	B(100,150), C(100) D(60,100) Y(70)	D(70,100) Y(150)					
33	336		A(300)	A(200) B(70,200) T(150)	B(70,200) C(100) T(70,150)	Y(45,60,70)	Y(70)	D(60,100) X(70,100) Y(60,70,100)	D(70,100) E(55,70)					
47	476		A(200) T(80)	A(70,100,200), B(70) K(150,200,400) P(500), R(500) T(55,69,70,80,120)	B(70) C(100)	X(45,70) Y(45,70)	D(55) X(55,70) Y(70)	D(60,100) E(50)	E(55)					
68	686	A(250)	A(250) B(70) T(80)	B(55,70) C(100) T(200), W(70)	D(45,55) Y(45,55)	D(50) Y(50)	D(55) E(45)	D(70) E(50)						
100	107	A(200), B(70)	A(200) B(40,70) G(300) T(70,150)	A(100,150) B(40,45,55,69,70) T(70,200)	D(45,55,80) Y(25,45,55)	D(50), E(40) Y(50)	D(55) E(45)	D(55,70) E(80)						
150	157	B(70)	B(70), D(15) Y(15,25,45)	B(25,35,45,55,69,70) D(12,15,25,40) H(200), W(40,70) Y(15,25,40)	D(25,40,45,55) Y(25,40,45,55)	D(40,50,70) E(40) Y(40,50,70)								
220	227	B(35,45,70)	B(35,45,55,60,70) D(12,15,25,40) Y(15,25,40)	B(70,200) D(12,15,25,35,40,50) Y(15,25,35,40,50)	D(12,15,25,40,50) Y(15,25,40,50)									
330	337	B(35,45,70) Y(25,40)	D(15,25,40,50) Y(15,25,40,50)	D(12,15,25,40,50) Y(15,25,40,50)	5(35,100)	E(50,70) 5(100)								
470	477	D(12,15,25,40,50) Y(15,25,40,50)	D(10,12,15,25,40,50) Y(15,25,40,50)	X(50,55,100)		5(100)								
3300	338			U*										

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

Conductive Polymer Solid Electrolytic Chip Capacitors

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Maximum Operating Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (mΩ)	MSL	100kHz RMS Current (mA)				Product Category
									45°C	85°C	105°C	125°C	
2.5 Volt @ 85°C													
TCJA686M002#0250	A	68	2.5	105	17	6	250	3	600	400	300	–	3
TCJA107M002#0200	A	100	2.5	105	25	6	200	3	700	500	300	–	3
TCJB107M002#0070	B	100	2.5	125	25	6	70	3	1300	900	600	300	1
TCJB157M002#0070	B	150	2.5	105	37.5	6	70	3	1300	900	600	–	3
TCJB227M002#0035	B	220	2.5	105	55	8	35	3	1900	1300	900	–	3
TCJB227M002#0045	B	220	2.5	105	55	8	45	3	1700	1200	800	–	3
TCJB227M002#0070	B	220	2.5	105	55	8	70	3	1300	900	600	–	3
TCJB337M002#0035	B	330	2.5	105	82.5	8	35	3	1900	1300	900	–	3
TCJB337M002#0045	B	330	2.5	105	82.5	8	45	3	1700	1200	800	–	3
TCJB337M002#0070	B	330	2.5	105	82.5	8	70	3	1300	900	600	–	3
TCJY337M002#0025	Y	330	2.5	105	82.5	6	25	3	2700	1900	1200	–	2
TCJY337M002#0040	Y	330	2.5	105	82.5	6	40	3	2200	1500	1000	–	3
TCJD477M002#0012	D	470	2.5	105	117.5	6	12	3	4300	3000	1900	–	2
TCJD477M002#0015	D	470	2.5	105	117.5	6	15	3	3900	2700	1800	–	2
TCJD477M002#0025	D	470	2.5	105	117.5	6	25	3	3000	2100	1400	–	2
TCJD477M002#0040	D	470	2.5	105	117.5	6	40	3	2400	1700	1100	–	3
TCJD477M002#0050	D	470	2.5	105	117.5	6	50	3	2100	1500	900	–	3
TCJY477M002#0015	Y	470	2.5	85	117.5	6	15	3	3500	2500	–	–	5
TCJY477M002#0025	Y	470	2.5	105	117.5	6	25	3	2700	1900	1200	–	3
TCJY477M002#0040	Y	470	2.5	105	117.5	6	40	3	2200	1500	1000	–	3
TCJY477M002#0050	Y	470	2.5	105	117.5	6	50	3	1900	1300	900	–	3
4 Volt @ 85°C													
TCJA156M004#0300	A	15	4	125	6	6	300	3	600	400	300	200	1
TCJA226M004#0300	A	22	4	125	8.8	6	300	3	600	400	300	200	1
TCJA336M004#0300	A	33	4	125	13.2	6	300	3	600	400	300	200	1
TCJA476M004#0200	A	47	4	105	18.8	6	200	3	700	500	300	–	3
TCJT476M004#0080	T	47	4	105	18.8	8	80	3	1100	800	500	–	3
TCJA686M004#0250	A	68	4	105	27.2	6	250	3	600	400	300	–	3
TCJB686M004#0070	B	68	4	125	27.2	6	70	3	1300	900	600	300	1
TCJT686M004#0080	T	68	4	105	27.2	8	80	3	1100	800	500	–	3
TCJA107M004#0200	A	100	4	105	40	6	200	3	700	500	300	–	3
TCJB107M004#0040	B	100	4	105	40	8	40	3	1800	1300	800	–	3
TCJB107M004#0070	B	100	4	125	40	8	70	3	1300	900	600	300	1
TCJG107M004#0300	G	100	4	105	40	10	300	3	600	400	300	–	3
TCJT107M004#0070	T	100	4	105	40	8	70	3	1200	800	500	–	3
TCJT107M004#0150	T	100	4	105	40	8	150	3	800	600	400	–	3
TCJB157M004#0070	B	150	4	105	60	6	70	3	1300	900	600	–	3
TCJD157M004#0015	D	150	4	105	60	6	15	3	3900	2700	1800	–	2
TCJY157M004#0015	Y	150	4	105	60	6	15	3	3500	2500	1600	–	2
TCJY157M004#0025	Y	150	4	105	60	6	25	3	2700	1900	1200	–	2
TCJY157M004#0045	Y	150	4	105	60	6	45	3	2000	1400	900	–	3
TCJB227M004#0035	B	220	4	105	88	10	35	3	1900	1300	900	–	3
TCJB227M004#0045	B	220	4	105	88	10	45	3	1700	1200	800	–	3
TCJB227M004#0055	B	220	4	105	88	10	55	3	1500	1100	700	–	3
TCJB227M004#0060	B	220	4	105	88	10	60	3	1400	1000	600	–	3
TCJB227M004#0070	B	220	4	105	88	10	70	3	1300	900	600	–	3
TCJD227M004#0012	D	220	4	105	88	6	12	3	4300	3000	1900	–	2
TCJD227M004#0015	D	220	4	105	88	6	15	3	3900	2700	1800	–	2
TCJD227M004#0025	D	220	4	105	88	6	25	3	3000	2100	1400	–	2
TCJD227M004#0040	D	220	4	105	88	6	40	3	2400	1700	1100	–	2
TCJY227M004#0015	Y	220	4	105	88	6	15	3	3500	2500	1600	–	2
TCJY227M004#0025	Y	220	4	105	88	6	25	3	2700	1900	1200	–	2
TCJY227M004#0040	Y	220	4	105	88	6	40	3	2200	1500	1000	–	3
TCJD337M004#0015	D	330	4	105	132	6	15	3	3900	2700	1800	–	2
TCJD337M004#0025	D	330	4	105	132	6	25	3	3000	2100	1400	–	2
TCJD337M004#0040	D	330	4	105	132	6	40	3	2400	1700	1100	–	3
TCJD337M004#0050	D	330	4	105	132	6	50	3	2100	1500	900	–	3
TCJY337M004#0015	Y	330	4	85	132	6	15	3	3500	2500	–	–	5
TCJY337M004#0025	Y	330	4	105	132	6	25	3	2700	1900	1200	–	3
TCJY337M004#0040	Y	330	4	105	132	6	40	3	2200	1500	1000	–	3
TCJY337M004#0050	Y	330	4	105	132	6	50	3	1900	1300	900	–	3
TCJD477M004#0010	D	470	4	105	188	6	10	3	4700	3300	2100	–	2
TCJD477M004#0012	D	470	4	105	188	6	12	3	4300	3000	1900	–	2
TCJD477M004#0015	D	470	4	105	188	6	15	3	3900	2700	1800	–	2
TCJD477M004#0025	D	470	4	105	188	6	25	3	3000	2100	1400	–	2
TCJD477M004#0040	D	470	4	105	188	6	40	3	2400	1700	1100	–	2
TCJD477M004#0050	D	470	4	105	188	6	50	3	2100	1500	900	–	2
TCJY477M004#0015	Y	470	4	85	188	6	15	3	3500	2500	–	–	5
TCJY477M004#0025	Y	470	4	105	188	6	25	3	2700	1900	1200	–	3
TCJY477M004#0040	Y	470	4	105	188	6	40	3	2200	1500	1000	–	3
TCJY477M004#0050	Y	470	4	105	188	6	50	3	1900	1300	900	–	3
6.3 Volt @ 85°C													
TCJA106M006#0300	A	10	6.3	125	6	6	300	3	600	400	300	200	1
TCJN106M006#0200	N	10	6.3	105	6	6	200	3	600	400	300	–	3
TCJN106M006#0250	N	10	6.3	105	6	6	250	3	600	400	300	–	3
TCJN106M006#0500	N	10	6.3	105	6	6	500	3	400	300	200	–	3
TCJR106M006#0500	R	10	6.3	105	6	6	500	3	400	300	200	–	3

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RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Maximum Operating Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (mΩ)	MSL	100kHz RMS Current (mA)				Product Category
									45°C	85°C	105°C	125°C	
TCJA156M006#0300	A	15	6.3	125	9	6	300	3	600	400	300	200	1
TCJA226M006#0300	A	22	6.3	125	13.2	6	300	3	600	400	300	200	1
TCJK226M006#0400	K	22	6.3	105	13.2	8	400	3	500	400	200	–	3
TCJN226M006#0500	N	22	6.3	105	13.2	10	500	3	400	300	200	–	3
TCJR226M006#0500	R	22	6.3	105	13.2	10	500	3	400	300	200	–	3
TCJS226M006#0400	S	22	6.3	105	13.2	8	400	3	500	400	200	–	3
TCJT226M006#0150	T	22	6.3	105	13.2	6	150	3	800	600	400	–	3
TCJA336M006#0200	A	33	6.3	105	19.8	6	200	3	700	500	300	–	3
TCJB336M006#0070	B	33	6.3	125	19.8	6	70	3	1300	900	600	300	1
TCJB336M006#0200	B	33	6.3	125	19.8	6	200	3	800	600	400	200	1
TCJT336M006#0150	T	33	6.3	105	19.8	8	150	3	800	600	400	–	3
TCJA476M006#0070	A	47	6.3	105	28.2	6	70	3	1200	800	500	–	3
TCJA476M006#0100	A	47	6.3	105	28.2	6	100	3	1000	700	500	–	3
TCJA476M006#0200	A	47	6.3	105	28.2	6	200	3	700	500	300	–	3
TCJB476M006#0070	B	47	6.3	125	28.2	6	70	3	1300	900	600	300	1
TCJK476M006#0150	K	47	6.3	105	28.2	6	150	3	800	600	400	–	3
TCJK476M006#0200	K	47	6.3	105	28.2	6	200	3	700	500	300	–	3
TCJK476M006#0400	K	47	6.3	105	28.2	6	400	3	500	400	200	–	3
TCJP476M006#0500	P	47	6.3	105	28.2	10	500	3	400	300	200	–	3
TCJR476M006#0500	R	47	6.3	105	28.2	10	500	3	400	300	200	–	3
TCJT476M006#0055	T	47	6.3	105	28.2	8	55	3	1300	900	600	–	3
TCJT476M006#0069	T	47	6.3	105	20	8	69	3	1200	800	500	–	3
TCJT476M006#0070	T	47	6.3	105	28.2	8	70	3	1200	800	500	–	3
TCJT476M006#0080	T	47	6.3	105	28.2	8	80	3	1100	800	500	–	3
TCJT476M006#0120	T	47	6.3	105	28.2	8	120	3	900	600	400	–	3
TCJB686M006#0055	B	68	6.3	125	40.8	8	55	3	1500	1100	700	400	1
TCJB686M006#0070	B	68	6.3	125	40.8	8	70	3	1300	900	600	300	1
TCJC686M006#0100	C	68	6.3	125	40.8	6	100	3	1300	900	600	300	1
TCJT686M006#0200	T	68	6.3	105	40.8	8	200	3	700	500	300	–	3
TCJW686M006#0070	W	68	6.3	125	40.8	8	70	3	1400	1000	600	400	1
TCJA107M006#0100	A	100	6.3	105	60	10	100	3	1000	700	500	–	3
TCJA107M006#0150	A	100	6.3	105	60	10	150	3	800	600	400	–	3
TCJB107M006#0040	B	100	6.3	105	60	10	40	3	1800	1300	800	–	3
TCJB107M006#0045	B	100	6.3	105	60	10	45	3	1700	1200	800	–	3
TCJB107M006#0055	B	100	6.3	105	60	10	55	3	1500	1100	700	–	3
TCJB107M006#0069	B	100	6.3	105	60	10	69	3	1300	900	600	–	3
TCJB107M006#0070	B	100	6.3	105	60	10	70	3	1300	900	600	–	3
TCJT107M006#0070	T	100	6.3	105	60	10	70	3	1200	800	500	–	3
TCJT107M006#0200	T	100	6.3	105	60	10	200	3	700	500	300	–	3
TCJB157M006#0025	B	150	6.3	105	90	10	25	3	2200	1500	1000	–	3
TCJB157M006#0035	B	150	6.3	105	90	10	35	3	1900	1300	900	–	3
TCJB157M006#0045	B	150	6.3	105	90	10	45	3	1700	1200	800	–	3
TCJB157M006#0055	B	150	6.3	105	90	10	55	3	1500	1100	700	–	3
TCJB157M006#0069	B	150	6.3	105	90	10	69	3	1300	900	600	–	3
TCJB157M006#0070	B	150	6.3	105	90	10	70	3	1300	900	600	–	3
TCJD157M006#0012	D	150	6.3	105	90	6	12	3	4300	3000	1900	–	2
TCJD157M006#0015	D	150	6.3	105	90	6	15	3	3900	2700	1800	–	2
TCJD157M006#0025	D	150	6.3	105	90	6	25	3	3000	2100	1400	–	2
TCJD157M006#0040	D	150	6.3	105	90	6	40	3	2400	1700	1100	–	2
TCJH157M006#0200	H	150	6.3	105	90	6	200	3	700	500	300	–	3
TCJW157M006#0040	W	150	6.3	105	90	6	40	3	1800	1300	800	–	3
TCJW157M006#0070	W	150	6.3	105	90	6	70	3	1400	1000	600	–	3
TCJY157M006#0015	Y	150	6.3	105	90	6	15	3	3500	2500	1600	–	2
TCJY157M006#0025	Y	150	6.3	105	90	6	25	3	2700	1900	1200	–	2
TCJY157M006#0040	Y	150	6.3	105	90	6	40	3	2200	1500	1000	–	3
TCJB227M006#0070	B	220	6.3	105	132	10	70	3	1300	900	600	–	3
TCJB227M006#0200	B	220	6.3	105	132	10	200	3	800	600	400	–	3
TCJD227M006#0012	D	220	6.3	105	132	6	12	3	4300	3000	1900	–	2
TCJD227M006#0015	D	220	6.3	105	132	6	15	3	3900	2700	1800	–	2
TCJD227M006#0025	D	220	6.3	105	132	6	25	3	3000	2100	1400	–	2
TCJD227M006#0035	D	220	6.3	105	132	6	35	3	2500	1800	1100	–	3
TCJD227M006#0040	D	220	6.3	105	132	6	40	3	2400	1700	1100	–	3
TCJD227M006#0050	D	220	6.3	105	132	6	50	3	2100	1500	900	–	3
TCJY227M006#0015	Y	220	6.3	85	132	6	15	3	3500	2500	–	–	5
TCJY227M006#0025	Y	220	6.3	105	132	6	25	3	2700	1900	1200	–	2
TCJY227M006#0035	Y	220	6.3	105	132	6	35	3	2300	1600	1000	–	2
TCJY227M006#0040	Y	220	6.3	105	132	6	40	3	2200	1500	1000	–	2
TCJY227M006#0050	Y	220	6.3	105	132	6	50	3	1900	1300	900	–	2
TCJD337M006#0012	D	330	6.3	105	198	6	12	3	4300	3000	1900	–	3
TCJD337M006#0015	D	330	6.3	105	198	6	15	3	3900	2700	1800	–	3
TCJD337M006#0025	D	330	6.3	105	198	6	25	3	3000	2100	1400	–	3
TCJD337M006#0040	D	330	6.3	105	198	6	40	3	2400	1700	1100	–	2
TCJD337M006#0050	D	330	6.3	105	198	6	50	3	2100	1500	900	–	2
TCJY337M006#0015	Y	330	6.3	85	198	12	15	3	3500	2500	–	–	5
TCJY337M006#0025	Y	330	6.3	105	198	12	25	3	2700	1900	1200	–	3
TCJY337M006#0040	Y	330	6.3	105	198	12	40	3	2200	1500	1000	–	3
TCJY337M006#0050	Y	330	6.3	105	198	12	50	3	1900	1300	900	–	3
TCJX477M006#0050	X	470	6.3	105	282	6	50	3	1900	1300	900	–	3
TCJX477M006#0055	X	470	6.3	105	282	6	55	3	1800	1300	800	–	3

TCJ Series

Conductive Polymer Solid Electrolytic Chip Capacitors

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Maximum Operating Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (mΩ)	MSL	100kHz RMS Current (mA)				Product Category
									45°C	85°C	105°C	125°C	
TCJX477M006#0100	X	470	6.3	105	282	6	100	3	1300	900	600	–	3
10 Volt @ 85°C													
TCJK475M010#0300	K	4.7	10	105	4.7	6	300	3	500	400	200	–	3
TCJK475M010#0500	K	4.7	10	105	4.7	6	500	3	400	300	200	–	3
TCJR475M010#0500	R	4.7	10	105	4.7	6	500	3	400	300	200	–	3
TCJA106M010#0200	A	10	10	125	10	6	200	3	700	500	300	200	1
TCJA106M010#0300	A	10	10	125	10	6	300	3	600	400	300	200	1
TCJA156M010#0200	A	15	10	125	15	6	200	3	700	500	300	200	1
TCJB226M010#0300	B	22	10	125	22	6	300	3	600	400	300	200	1
TCJT226M010#0070	T	22	10	105	22	6	70	3	1200	800	500	–	3
TCJT226M010#0150	T	22	10	105	22	6	150	3	800	600	400	–	3
TCJB336M010#0070	B	33	10	125	33	6	70	3	1300	900	600	300	1
TCJB336M010#0200	B	33	10	125	33	6	200	3	800	600	400	200	1
TCJC336M010#0100	C	33	10	125	33	6	100	3	1300	900	600	300	1
TCJT336M010#0070	T	33	10	105	33	6	70	3	1200	800	500	–	3
TCJT336M010#0150	T	33	10	105	33	6	150	3	800	600	400	–	3
TCJB476M010#0070	B	47	10	105	47	6	70	3	1300	900	600	–	3
TCJC476M010#0100	C	47	10	125	47	6	100	3	1300	900	600	300	1
TCJD686M010#0045	D	68	10	105	68	6	45	3	2200	1500	1000	–	3
TCJD686M010#0055	D	68	10	105	68	6	55	3	2000	1400	900	–	3
TCJY686M010#0045	Y	68	10	105	68	6	45	3	2000	1400	900	–	3
TCJY686M010#0055	Y	68	10	105	68	6	55	3	1800	1300	800	–	3
TCJD107M010#0045	D	100	10	105	100	6	45	3	2200	1500	1000	–	3
TCJD107M010#0055	D	100	10	105	100	6	55	3	2000	1400	900	–	3
TCJD107M010#0080	D	100	10	105	100	6	80	3	1700	1200	800	–	3
TCJY107M010#0025	Y	100	10	105	100	6	25	3	2700	1900	1200	–	2
TCJY107M010#0045	Y	100	10	105	100	6	45	3	2000	1400	900	–	3
TCJY107M010#0055	Y	100	10	105	100	6	55	3	1800	1300	800	–	3
TCJD157M010#0025	D	150	10	105	150	6	25	3	3000	2100	1400	–	3
TCJD157M010#0040	D	150	10	105	150	6	40	3	2400	1700	1100	–	3
TCJD157M010#0045	D	150	10	105	150	6	45	3	2200	1500	1000	–	3
TCJD157M010#0055	D	150	10	105	150	6	55	3	2000	1400	900	–	3
TCJY157M010#0025	Y	150	10	105	150	6	25	3	2700	1900	1200	–	3
TCJY157M010#0040	Y	150	10	105	150	6	40	3	2200	1500	1000	–	3
TCJY157M010#0045	Y	150	10	105	150	6	45	3	2000	1400	900	–	3
TCJY157M010#0055	Y	150	10	105	150	6	55	3	1800	1300	800	–	3
TCJD227M010#0012	D	220	10	105	220	6	12	3	4300	3000	1900	–	3
TCJD227M010#0015	D	220	10	105	220	6	15	3	3900	2700	1800	–	3
TCJD227M010#0025	D	220	10	105	220	6	25	3	3000	2100	1400	–	3
TCJD227M010#0040	D	220	10	105	220	6	40	3	2400	1700	1100	–	3
TCJD227M010#0050	D	220	10	105	220	6	50	3	2100	1500	900	–	3
TCJY227M010#0015	Y	220	10	85	220	6	15	3	3500	2500	–	–	5
TCJY227M010#0025	Y	220	10	105	220	6	25	3	2700	1900	1200	–	3
TCJY227M010#0040	Y	220	10	105	220	6	40	3	2200	1500	1000	–	3
TCJY227M010#0050	Y	220	10	105	220	6	50	3	1900	1300	900	–	3
TCJ5337M010#0035	5	330	10	105	330	10	35	3	1800	1300	800	–	2
TCJ5337M010#0100	5	330	10	105	330	10	100	3	1300	900	600	–	2
16 Volt @ 85°C													
TCJA685M016#0200	A	6.8	16	125	10.9	6	200	3	700	500	300	200	1
TCJA106M016#0200	A	10	16	125	16	6	200	3	700	500	300	200	1
TCJB106M016#0100	B	10	16	125	16	6	100	3	1100	800	500	300	1
TCJB106M016#0200	B	10	16	125	16	6	200	3	800	600	400	200	1
TCJT106M016#0100	T	10	16	125	16	6	100	3	1000	700	500	300	1
TCJT106M016#0150	T	10	16	125	16	6	150	3	800	600	400	200	1
TCJT106M016#0200	T	10	16	125	16	6	200	3	700	500	300	200	1
TCJB156M016#0150	B	15	16	125	24	6	150	3	900	600	400	200	1
TCJB226M016#0150	B	22	16	125	35.2	6	150	3	900	600	400	200	1
TCJY336M016#0045	Y	33	16	105	52.8	6	45	3	2000	1400	900	–	2
TCJY336M016#0060	Y	33	16	105	52.8	6	60	3	1800	1300	800	–	2
TCJY336M016#0070	Y	33	16	105	52.8	6	70	3	1600	1100	700	–	2
TCJX476M016#0045	X	47	16	105	75.2	6	45	3	2000	1400	900	–	2
TCJX476M016#0070	X	47	16	105	75.2	6	70	3	1600	1100	700	–	2
TCJY476M016#0045	Y	47	16	105	75.2	6	45	3	2000	1400	900	–	2
TCJY476M016#0070	Y	47	16	105	75.2	6	70	3	1600	1100	700	–	2
TCJD686M016#0050	D	68	16	105	108.8	6	50	3	2100	1500	900	–	2
TCJY686M016#0050	Y	68	16	105	108.8	6	50	3	1900	1300	900	–	2
TCJD107M016#0050	D	100	16	105	160	6	50	3	2100	1500	900	–	2
TCJE107M016#0040	E	100	16	105	160	6	40	3	2500	1800	1100	–	2
TCJY107M016#0050	Y	100	16	105	160	6	50	3	1900	1300	900	–	2
TCJD157M016#0040	D	150	16	85	240	6	40	3	2400	1700	–	–	5
TCJD157M016#0050	D	150	16	85	240	6	50	3	2100	1500	–	–	5
TCJD157M016#0070	D	150	16	105	240	6	70	3	1800	1300	800	–	3
TCJE157M016#0040	E	150	16	105	240	6	40	3	2500	1800	1100	–	2
TCJY157M016#0040	Y	150	16	85	240	6	40	3	2200	1500	–	–	5
TCJY157M016#0050	Y	150	16	85	240	6	50	3	1900	1300	–	–	5
TCJY157M016#0070	Y	150	16	105	240	6	70	3	1600	1100	700	–	3
TCJE337M016#0050	E	330	16	105	528	10	50	3	2200	1500	1000	–	2
TCJE337M016#0070	E	330	16	105	528	10	70	3	1900	1300	900	–	2

TCJ Series

Conductive Polymer Solid Electrolytic Chip Capacitors

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Maximum Operating Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (mΩ)	MSL	100kHz RMS Current (mA)				Product Category
									45°C	85°C	105°C	125°C	
TCJ5337M016#0100	5	330	16	105	528	10	100	3	1300	900	600	–	2
TCJ5477M016#0100	5	470	16	105	752	10	100	3	1300	900	600	–	3
20 Volt @ 85°C													
TCJA106M020#0150	A	10	20	105	20	6	150	3	800	600	400	–	3
TCJB226M020#0090	B	22	20	105	44	6	90	3	1200	800	500	–	3
TCJB226M020#0150	B	22	20	105	44	6	150	3	900	600	400	–	3
TCJY226M020#0070	Y	22	20	105	44	6	70	3	1600	1100	700	–	2
TCJY336M020#0070	Y	33	20	105	66	6	70	3	1600	1100	700	–	2
TCJD476M020#0055	D	47	20	105	94	6	55	3	2000	1400	900	–	2
TCJX476M020#0055	X	47	20	105	94	6	55	3	1800	1300	800	–	3
TCJX476M020#0070	X	47	20	105	94	6	70	3	1600	1100	700	–	3
TCJY476M020#0070	Y	47	20	105	94	6	70	3	1600	1100	700	–	2
TCJD686M020#0055	D	68	20	105	136	6	55	3	2000	1400	900	–	3
TCJE686M020#0045	E	68	20	105	136	6	45	3	2400	1700	1100	–	2
TCJD107M020#0055	D	100	20	105	200	6	55	3	2000	1400	900	–	3
TCJE107M020#0045	E	100	20	105	200	6	45	3	2400	1700	1100	–	3
25 Volt @ 85°C													
TCJP105M025#0500	P	1.0	25	105	2.5	6	500	3	400	300	200	–	2
TCJB475M025#0100	B	4.7	25	105	11.8	6	100	3	1100	800	500	–	3
TCJB475M025#0150	B	4.7	25	105	11.8	6	150	3	900	600	400	–	3
TCJA685M025#0150	A	6.8	25	105	17	6	150	3	800	600	400	–	3
TCJB685M025#0090	B	6.8	25	105	17	6	90	3	1200	800	500	–	2
TCJB685M025#0150	B	6.8	25	105	17	6	150	3	900	600	400	–	3
TCJT685M025#0100	T	6.8	25	105	17	6	100	3	1000	700	500	–	3
TCJT685M025#0150	T	6.8	25	105	17	6	150	3	800	600	400	–	3
TCJA106M025#0150	A	10	25	105	25	6	150	3	800	600	400	–	3
TCJB106M025#0090	B	10	25	105	25	6	90	3	1200	800	500	–	2
TCJB106M025#0100	B	10	25	105	25	6	100	3	1100	800	500	–	2
TCJB106M025#0150	B	10	25	105	25	6	150	3	900	600	400	–	2
TCJB156M025#0100	B	15	25	105	37.5	6	100	3	1100	800	500	–	2
TCJB156M025#0150	B	15	25	105	37.5	6	150	3	900	600	400	–	2
TCJY156M025#0090	Y	15	25	105	37.5	6	90	3	1400	1000	600	–	2
TCJB226M025#0100	B	22	25	105	55	6	100	3	1100	800	500	–	3
TCJB226M025#0150	B	22	25	105	55	6	150	3	900	600	400	–	3
TCJC226M025#0100	C	22	25	105	55	6	100	3	1300	900	600	–	3
TCJD226M025#0060	D	22	25	105	55	6	60	3	1900	1300	900	–	2
TCJD226M025#0100	D	22	25	105	55	6	100	3	1500	1100	700	–	2
TCJY226M025#0070	Y	22	25	105	55	6	70	3	1600	1100	700	–	3
TCJD336M025#0060	D	33	25	105	82.5	6	60	3	1900	1300	900	–	2
TCJD336M025#0100	D	33	25	105	82.5	6	100	3	1500	1100	700	–	2
TCJX336M025#0070	X	33	25	105	82.5	6	70	3	1600	1100	700	–	2
TCJX336M025#0100	X	33	25	105	82.5	6	100	3	1300	900	600	–	2
TCJY336M025#0060	Y	33	25	105	82.5	6	60	3	1800	1300	800	–	2
TCJY336M025#0070	Y	33	25	105	82.5	6	70	3	1600	1100	700	–	2
TCJY336M025#0100	Y	33	25	105	82.5	6	100	3	1400	1000	600	–	2
TCJD476M025#0060	D	47	25	105	117.5	6	60	3	1900	1300	900	–	3
TCJD476M025#0100	D	47	25	105	117.5	6	100	3	1500	1100	700	–	3
TCJE476M025#0050	E	47	25	105	117.5	6	50	3	2200	1500	1000	–	3
TCJD686M025#0070	D	68	25	105	170	6	70	3	1800	1300	800	–	2
TCJE686M025#0050	E	68	25	105	170	6	50	3	2200	1500	1000	–	3
TCJD107M025#0055	D	100	25	105	250	6	55	3	2000	1400	900	–	2
TCJD107M025#0070	D	100	25	105	250	6	70	3	1800	1300	800	–	2
TCJE107M025#0080	E	100	25	105	250	6	80	3	1800	1300	800	–	2
35 Volt @ 85°C													
TCJB155M035#0200	B	1.5	35	105	5.3	6	200	3	800	600	400	–	2
TCJB225M035#0200	B	2.2	35	105	7.7	6	200	3	800	600	400	–	3
TCJB335M035#0200	B	3.3	35	105	11.6	6	200	3	800	600	400	–	3
TCJB475M035#0200	B	4.7	35	105	16.5	6	200	3	800	600	400	–	3
TCJC475M035#0200	C	4.7	35	105	16.5	6	200	3	900	600	400	–	3
TCJC685M035#0200	C	6.8	35	105	23.8	6	200	3	900	600	400	–	3
TCJB106M035#0200	B	10	35	105	35	6	200	3	800	600	400	–	2
TCJC106M035#0200	C	10	35	105	35	6	200	3	900	600	400	–	3
TCJY106M035#0070	Y	10	35	105	35	6	70	3	1600	1100	700	–	2
TCJB156M035#0200	B	15	35	105	52.5	6	200	3	800	600	400	–	2
TCJC156M035#0200	C	15	35	105	52.5	6	200	3	900	600	400	–	3
TCJD156M035#0070	D	15	35	105	52.5	6	70	3	1800	1300	800	–	3
TCJD156M035#0100	D	15	35	105	52.5	6	100	3	1500	1100	700	–	3
TCJY156M035#0070	Y	15	35	105	52.5	6	70	3	1600	1100	700	–	3
TCJY156M035#0100	Y	15	35	105	52.5	6	100	3	1400	1000	600	–	3
TCJD226M035#0070	D	22	35	105	77	6	70	3	1800	1300	800	–	2
TCJD226M035#0100	D	22	35	105	77	6	100	3	1500	1100	700	–	2
TCJY226M035#0150	Y	22	35	105	77	6	150	3	1100	800	500	–	3
TCJD336M035#0070	D	33	35	105	115.5	6	70	3	1800	1300	800	–	2
TCJD336M035#0100	D	33	35	105	115.5	6	100	3	1500	1100	700	–	2
TCJE336M035#0055	E	33	35	105	115.5	6	55	3	2100	1500	900	–	3
TCJE336M035#0070	E	33	35	105	115.5	6	70	3	1900	1300	900	–	3
TCJE476M035#0055	E	47	35	105	164.5	6	55	3	2100	1500	900	–	2

TCJ Series

Conductive Polymer Solid Electrolytic Chip Capacitors

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Maximum Operating Temperature (°C)	DCL Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (mΩ)	MSL	100kHz RMS Current (mA)				Product Category
									45°C	85°C	105°C	125°C	
50 Volt @ 85°C													
TCJB684M050#0400	B	0.68	50	105	3.4	6	400	3	600	400	300	–	3
TCJB105M050#0300	B	1.0	50	105	5	6	300	3	600	400	300	–	3
TCJB155M050#0300	B	1.5	50	105	7.5	6	300	3	600	400	300	–	3
TCJC155M050#0300	C	1.5	50	105	7.5	6	300	3	800	600	400	–	3
TCJC225M050#0300	C	2.2	50	105	11	6	300	3	800	600	400	–	3
TCJC335M050#0200	C	3.3	50	105	16.5	8	200	3	900	600	400	–	3
TCJC475M050#0200	C	4.7	50	105	23.5	8	200	3	900	600	400	–	3
TCJC685M050#0200	C	6.8	50	105	34	8	200	3	900	600	400	–	3
TCJD685M050#0120	D	6.8	50	105	34	10	120	3	1400	1000	600	–	3
TCJD106M050#0120	D	10	50	105	50	10	120	3	1400	1000	600	–	3
TCJE106M050#0070	E	10	50	105	50	6	70	3	1900	1300	900	–	3
TCJE106M050#0100	E	10	50	105	50	6	100	3	1600	1100	700	–	3
TCJE156M050#0070	E	15	50	105	75	6	70	3	1900	1300	900	–	3
TCJE156M050#0100	E	15	50	105	75	6	100	3	1600	1100	700	–	3
63 Volt @ 85°C													
TCJB474M063#0400	B	0.47	63	105	3	8	400	3	600	400	300	–	3
TCJB684M063#0300	B	0.68	63	105	4.3	8	300	3	600	400	300	–	3
TCJB105M063#0300	B	1.0	63	105	6.3	8	300	3	600	400	300	–	3
TCJC105M063#0300	C	1.0	63	105	6.3	6	300	3	800	600	400	–	3
TCJC155M063#0300	C	1.5	63	105	9.5	6	300	3	800	600	400	–	3
TCJC225M063#0200	C	2.2	63	105	13.9	6	200	3	900	600	400	–	3
TCJC335M063#0200	C	3.3	63	105	20.8	6	200	3	900	600	400	–	3
TCJC475M063#0200	C	4.7	63	105	29.6	6	200	3	900	600	400	–	3
TCJD475M063#0120	D	4.7	63	105	29.6	6	120	3	1400	1000	600	–	3
TCJD685M063#0120	D	6.8	63	105	42.8	6	120	3	1400	1000	600	–	3
TCJE685M063#0100	E	6.8	63	105	42.8	6	100	3	1600	1100	700	–	3
TCJE685M063#0150	E	6.8	63	105	42.8	6	150	3	1300	900	600	–	3
TCJE106M063#0100	E	10	63	105	63	6	100	3	1600	1100	700	–	3
TCJE106M063#0150	E	10	63	105	63	6	150	3	1300	900	600	–	3
75 Volt @ 85°C													
TCJD475M075#0150	D	4.7	75	105	35.3	6	150	3	1200	800	500	–	3
TCJD685M075#0120	D	6.8	75	105	51	6	120	3	1400	1000	600	–	3
100 Volt @ 85°C													
TCJD475M100#0250	D	4.7	100	105	47	8	250	3	900	600	400	–	4
125 Volt @ 85°C													
TCJD335M125#0250	D	3.3	125	105	41.2	8	250	3	900	600	400	–	4

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.

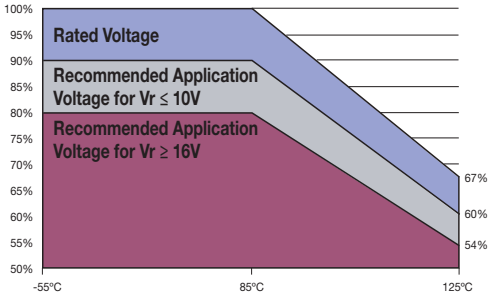
For typical weight and composition see page 223.

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.

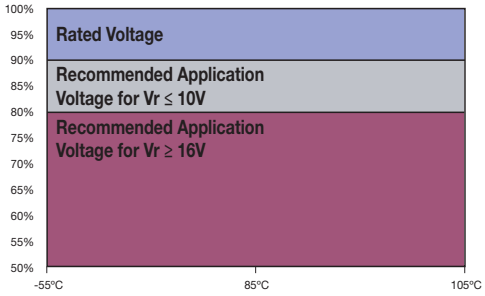
RECOMMENDED DERATING FACTOR

Voltage and temperature derating as percentage of Vr

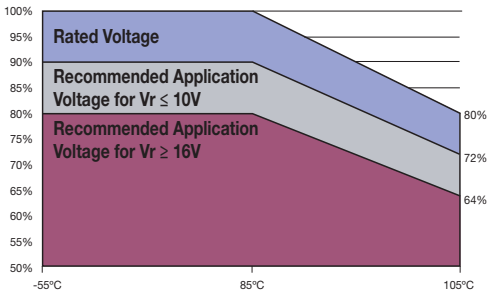
Product Category 1



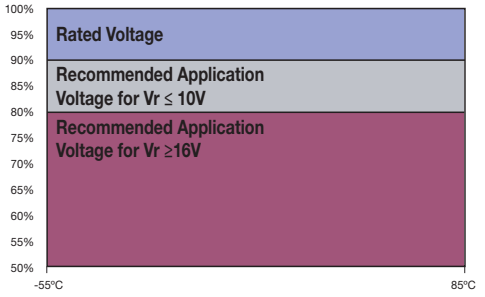
Product Category 2



Product Category 3, 4



Product Category 5



PRODUCT CATEGORY 1 (TEMPERATURE RANGE -55°C TO +125°C)

TEST	Condition	Characteristics	
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine after application of 125°C temperature, 2/3 rated voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤ 0.1Ω/V.	Visual examination	no visible damage
		DCL	1.25 x initial limit
		ΔC/C	within ±20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit
Storage Life	125°C, 0V, 2000h	Visual examination	no visible damage
		DCL	2 x initial limit
		ΔC/C	within ±20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit
Humidity	Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500hrs and then recovery 1-2hours at room temperature.	Visual examination	no visible damage
		DCL	3 x initial limit
		ΔC/C	within +30/-20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit

Temperature Stability

Step	Temperature°C	Duration(min)
1	+20±2	15
2	-55+0/-3	15
3	+20±2	15
4	+85+3/-0	15
5	+125+3/-0	15
6	+20±2	15

	+20°C	-55°C	+20°C	+85°C	+125°C	+20°C
DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
ΔC/C	n/a	+0/-20%	±5%	+20/-0%	+30/-0%	±5%
DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	IL*

Surge Voltage	Test temperature: 125°C+3/0°C Surge voltage: 1.3x 2/3x rated voltage at 125°C Charge/Discharge resistance: 1000Ω±100Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge	Visual examination	no visible damage
		DCL	initial limit
		ΔC/C	within +10/-20% of initial value for Vr ≤ 10V within +20/-30% of initial value for Vr ≥ 16V
		DF	1.25 x initial limit

*Initial Limit Initial measurement max. 1hr after the removal from dry pack or after pretreatment at 85°C for 24 hours.

TCJ Series

Conductive Polymer Solid Electrolytic Chip Capacitors

PRODUCT CATEGORY 2, 3, 4 (TEMPERATURE RANGE -55°C TO +105°C)

TEST	Condition	Characteristics	
Endurance	Determine after application of rated voltage for 2000 +48/- 0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine after application of 105°C temperature. For CATEGORY 2: Rated voltage for 2000 +48/-0 hours. For CATEGORY 3, 4: 0.8x rated voltage for 2000 +48/-0 hours And then leaving 1-2 hours at room temperature. Power supply impedance to be ≤ 0.1Ω/V.	Visual examination	no visible damage
		DCL	1.25 x initial limit
		ΔC/C	within ±20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit
Storage Life	105°C, 0V, 2000h	Visual examination	no visible damage
		DCL ($V_R \leq 75V$)	1.25 x initial limit
		DCL ($V_R > 75V$)	2 x initial limit
		ΔC/C	within ±20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit
Humidity	Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500hrs and then recovery 1-2 hours at room temperature.	Visual examination	no visible damage
		DCL	3 x initial limit
		ΔC/C	within +30/-20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit

Temperature Stability

Step	Temperature°C	Duration(min)
1	+20±2	15
2	-55+0/-3	15
3	+20±2	15
4	+85+3/-0	15
5	+105+3/-0	15
6	+20±2	15

	+20°C	-55°C	+20°C	+85°C	+105°C	+20°C
DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
ΔC/C	n/a	+0/-20%	±5%	+20/-0%	+30/-0%	±5%
DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	IL*

Surge Voltage	Test temperature: 105°C +3/0°C For CATEGORY 2: Surge voltage: 1.3x rated voltage at 105°C For CATEGORY 3, 4: Surge voltage: 1.3x 0.8x rated voltage at 105°C Charge/Discharge resistance: 1000±100Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge	Visual examination	no visible damage
		DCL	initial limit
		ΔC/C	within +10/-20% of initial value for Vr ≤ 10V within +20/-30% of initial value for Vr ≥ 16V
		DF	1.25 x initial limit

*Initial Limit Initial measurement max. 1hr after the removal from dry pack or after pretreatment at 85°C for 24 hours.

PRODUCT CATEGORY 5 (TEMPERATURE RANGE -55°C TO +85°C)

TEST	Condition	Characteristics	
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤ 0.1Ω/V.	Visual examination	no visible damage
		DCL	1.25 x initial limit
		ΔC/C	within ±20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit
Storage Life	85°C, 0V, 2000h	Visual examination	no visible damage
		DCL	1.25 x initial limit
		ΔC/C	within ±20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit
Humidity	Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500hrs and then recovery 1-2hours at room temperature.	Visual examination	no visible damage
		DCL	5 x initial limit
		ΔC/C	within +40/-20% of initial value
		DF	1.5 x initial limit
		ESR	2 x initial limit

Temperature Stability

Step	Temperature°C	Duration(min)
1	+20±2	15
2	-55+0/-3	15
3	+20±2	15
4	+85+3/-0	15
5	+20±2	15

	+20°C	-55°C	+20°C	+85°C	+20°C
DCL	IL*	n/a	IL*	10 x IL*	IL*
ΔC/C	n/a	+0/-20%	±5%	+20/-0%	±5%
DF	IL*	1.5 x IL*	IL*	1.5 x IL*	IL*

Surge Voltage	Test temperature: 85°C+3/0°C Surge voltage: 1.3 x rated voltage Charge/Discharge resistance: 1000±100Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge	Visual examination	no visible damage
		DCL	initial limit
		ΔC/C	within +10/-20% of initial value for Vr ≤ 10V within +20/-30% of initial value for Vr ≥ 16V
		DF	1.25 x initial limit

*Initial Limit Initial measurement max. 1hr after the removal from dry pack or after pretreatment at 85°C for 24 hours.