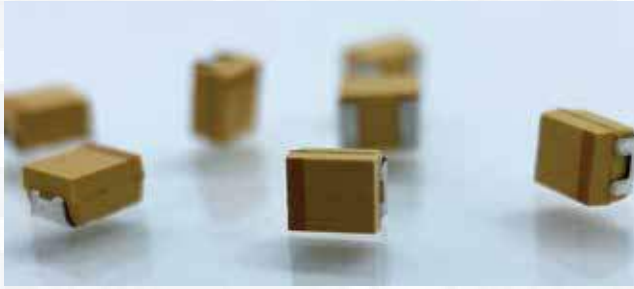


# STANDARD TANTALUM CAPACITORS

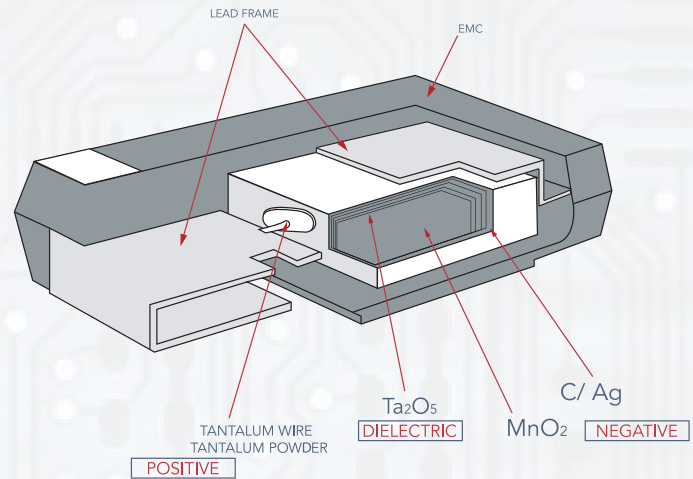
## - TC SERIES -

### FEATURES

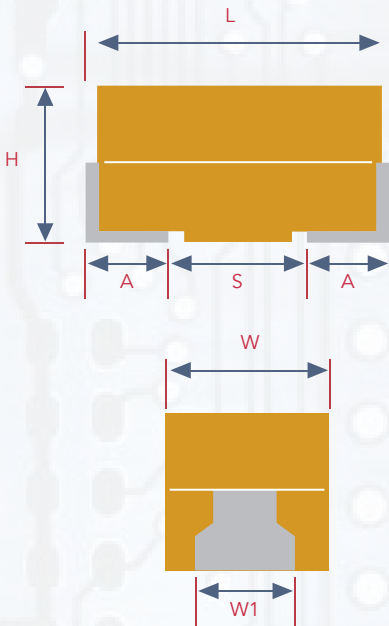
TC Series; The TC Series is designed for hybrid and low profile printed circuit boards where inductance is to be minimized, or where space is at a premium. These units have the further advantage of being compatible with automatic assembly equipment-minus the problems associated with flexible terminal lead wires. Our chip tantalums meet all EIA sizes and are environment friendly, Pb-free.



### CONFIGURATION



### DIMENSIONS



STANDARD CASE DIMENSIONS:

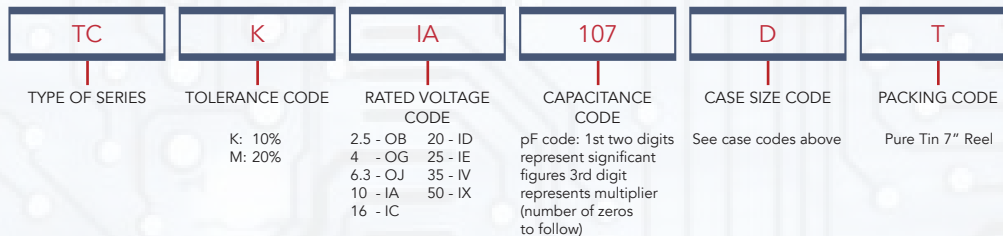
CODE	EIA CODE	EIA METRIC	L±0.20 (0.008)	W+0.20 (0.008) -0.10 (0.004)	H+0.20 (0.008) -0.10 (0.004)	W <sub>1</sub> ±0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
A	1206	3216-18	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (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	2924	7361-43	7.30 (0.287)	6.10 (0.240)	4.10 (0.162)	3.10 (0.122)	1.30 (0.051)	4.40 (0.173)
H	2924	7361-38	7.30 (0.287)	6.10 (0.240)	3.55 (0.140)	3.10 (0.122)	1.30 (0.051)	4.40 (0.173)

LOW PROFILE CASE DIMENSIONS:

CODE	EIA CODE	EIA METRIC	L±0.20 (0.008)	W+0.20 (0.008) -0.10 (0.004)	H MAX.	W <sub>1</sub> ±0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
F	2312	6032-20	6.00 (0.236)	3.20 (0.126)	2.00 (0.079)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
M	1210	3528-15	3.50 (0.138)	2.80 (0.110)	1.50 (0.059)	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)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
P	0805	2012-15	2.05 (0.081)	1.35 (0.053)	1.50 (0.059)	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)	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)	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)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
U	2312	6032-15	6.00 (0.236)	3.20 (0.126)	1.50 (0.059)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
W	2917	7343-15	7.30 (0.287)	4.30 (0.169)	1.50 (0.059)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
V	2917	7343-20	7.30 (0.287)	4.30 (0.169)	2.00 (0.079)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)

W<sub>1</sub> dimension applies to the termination width for A dimensional area only.

### PART NUMBERING CODE





## SPECIFICATIONS

<b>TECHNICAL DATA:</b>	All technical data relate to an ambient temperature of +25°C									
<b>CAPACITANCE RANGE:</b>	0.10 µF to 2200 µF									
<b>CAPACITANCE TOLERANCE:</b>	±10%; ±20%									
<b>RATED VOLTAGE (V<sub>R</sub>)</b>	≤ +85°C:	2.5	4	6.3	10	16	20	25	35	50
<b>CATEGORY VOLTAGE (V<sub>C</sub>)</b>	≤ +125°C:	1.7	2.7	4	7	10	13	17	23	33
<b>SURGE VOLTAGE (V<sub>S</sub>)</b>	≤ +85°C:	3.3	5.2	8	13	20	26	32	46	65
<b>SURGE VOLTAGE (V<sub>S</sub>)</b>	≤ +125°C:	2.2	3.4	5	8	13	16	20	28	40
<b>TEMPERATURE RANGE:</b>	-55°C to +125°C									
<b>RELIABILITY:</b>	1% per 1000 hours at 85°C, VR with 0.1Ω/V series impedance, 60% confidence level									
<b>QUALIFICATION:</b>	CECC 30801 - 005 issue 2 EIA 535BAAC for standard case sizes									
<b>TERMINATION FINISHED:</b>	Sn Plating (standard) For AEC-Q200 availability, please contact Cal-Chip Electronics									



## STANDARD VALUE AND CASE SIZE

CAP (µF)	R.V.	2.5V	4V (OG)	6.3V (OJ)	10V (IA)	16V (IC)	20V (ID)	25V (IE)	35 (IV)	50V (IX)
0.1	104								A	A
0.15	154								A	A, B
0.22	224								A	A, B
0.33	334								A	A, B
0.47	474							A	A, B	A, B, C
0.68	684							A	A, B	A, B, C
1	105					A	A	A, B	A, B	A, B, C
1.5	155				A	A	A	A, B	A, B, C	B, C, D
2.2	225			A	A	A, B	A, B	A, B	A, B, C	B, C, D
3.3	335			A	A	A, B	A, B	A, B, C	B, C	C, D
4.7	475			A	A, B	A, B	A, B, C	A, B, C	B, C, D	C, D
6.8	685			A, B	A, B	A, B, C	A, B, C	B, C	C, D	C, D
10	106		A	A, B	A, B, C	A, B, C	B, C	B, C, D	C, D, E	D, E, H
15	156		A	A, B	A, B, C	A, B, C	B, C, D	C, D	C, D	D, E, H
22	226		A	A, B, C	A, B, C	A, B, C, D	B, C, D	C, D	D, E	H
33	336	A	A, B	A, B, C	A, B, C, D	B, C, D	C, D	C, D, E	D, E, H	
47	476	A	A, B	A, B, C, D	B, C, D	C, D	C, D, E	D, E	D, E, H	
68	686	A	A, B	B, C, D	B, C, D	C, D	C, D, E	D, E, H	H	
100	107	A, B	A, B, C	B, C, D	B, C, D, E	C, D, E	D, E, H	E, H		
150	157	B	B, C	B, C, D	C, D, E	D, E, H	E, H	H		
220	227	B, D	B, C, D	C, D, E	C, D, E	D, E, H				
330	337	D	C, D	C, D, E	D, E, H	E				
470	477	C, D	C, D, E	D, E, H	E, G, H					
680	687	C, D, E	D, E	D, E, H	E, H					
1000	108	D, E	D, E, H	E, H						
1500	158	D, E, H	E, H							
2200	228	H								

RED DENOTES 20% ONLY.





## LOW PROFILE VALUE AND CASE SIZE

CAP (μF)	R.V.	2.5V	4V (OG)	6.3V (OJ)	10V (IA)	16V (IC)	20V (ID)	25V (IE)	35 (IV)	50V (IX)
0.1	104						R, S		R, S	S
0.15	154						R, S	R	R, S	S
0.22	224						R, S	R	R, S	P, R, S
0.33	334						R, S	R	R, S	P, R, S, T
0.47	474						R, S	R, S	R, S, T	S, T
0.68	684					R, S	R, S, T	R, S	P, S, T	
1	105				R, S	R, S, T	R, S, T	P, R, S	P, S, T	U
1.5	155			R, S	R, S	R, S	P, R, S, T	P, S, T	T	U
2.2	225		R, S	R, S	R, S	R, S, T	P, R, S, T	T	T	U
3.3	335		R, S	R, S	K, R, S, T	R, S, T	T	T, U	U	V
4.7	475	R	R, S	R, S, T	R, S, T	K, P, S, T	T	T, U	U	W, V
6.8	685	R	R, S, T	R, S, T	P, R, S, T	S, T	T	U	V	V
10	106	R, S	R, S, T	P, R, S, T	K, P, R, S, T	T, U	U	U	W, V	
15	156	R	R, S, T	K, P, R, S, T	S, T, U	T, U	U	V	V	
22	226	P, R	K, P, R, S, T	K, P, S, T, U	T, U	U	U, V	F, V	V	
33	336	K, P, S	K, P, S, T, U	T, U	U	U, V	W, V	F, V		
47	476	P, S	T, U	T, U	M, U, V	U, W, V	W, V	V		
68	686	T	T, U	U	U, V	F, W, V	V			
100	107	T, U	T, U	U, V	U, W, V	F, V				
150	157	T, U	U, V	U, W, V	F, X, V	V				
220	227	U, V	U, W, V	F, W, V	V					
330	337	U, V	F, W, V	V						
470	477	F, V	V	V						
680	687	V	V							
1000	1000	V								

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## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (°C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100Khz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
2.5 VOLT RATING @ +85°C (1.7 VOLT RATING @ +125°C)												
TC*OB475RT	R	4.7	2.5	85	1.7	125	0.5	6	20	52	47	21
TC*OB685RT	R	6.8	2.5	85	1.7	125	0.5	6	20	52	47	21
TC*OB106RT	R	10	2.5	85	1.7	125	0.5	8	4.5	111	99	44
TC*OB106ST	S	10	2.5	85	1.7	125	0.5	6	8	90	81	36
TC*OB156RT	R	15	2.5	85	1.7	125	0.5	8	4.1	116	104	46
TC*OB226PT	P	22	2.5	85	1.7	125	0.5	8	3.5	131	118	52
TC*OB226RT	R	22	2.5	85	1.7	125	0.5	8	3.8	120	108	48
TC*OB336AT	A	33	2.5	85	1.7	125	0.8	8	1.7	210	189	84
TC*OB336KT	K	33	2.5	85	1.7	125	0.8	8	1.7	196	176	78
TC*OB336PT	P	33	2.5	85	1.7	125	0.7	8	3.5	131	118	52
TC*OB336ST	S	33	2.5	85	1.7	125	0.7	8	1.5	208	187	83
TC*OB476AT	A	47	2.5	85	1.7	125	0.9	6	3	158	142	63
TCMOB476PT	P	47	2.5	85	1.7	125	1.2	12	3.2	137	123	55
TC*OB476ST	S	47	2.5	85	1.7	125	1.2	8	1.6	202	181	81
TC*OB686AT	A	68	2.5	85	1.7	125	1.4	8	1.5	224	201	89
TC*OB686TT	T	68	2.5	85	1.7	125	1.4	8	1.5	231	208	92
TC*OB107AT	A	100	2.5	85	1.7	125	2.5	30	1.4	231	208	93
TC*OB107BT	B	100	2.5	85	1.7	125	2.5	8	1.4	246	222	99
TC*OB107TT	T	100	2.5	85	1.7	125	2.5	15	1.3	248	223	99
TC*OB107UT	U	100	2.5	85	1.7	125	2.5	8	0.4	474	427	190
TC*OB157BT	B	150	2.5	85	1.7	125	3	10	1.6	230	207	92
TCMOB157TT	T	150	2.5	85	1.7	125	3.8	18	1.2	258	232	103
TC*OB157UT	U	150	2.5	85	1.7	125	3.8	8	0.3	548	493	219
TC*OB227BT	B	220	2.5	85	1.7	125	4.4	16	1.6	230	207	92
TC*OB227DT	D	220	2.5	85	1.7	125	5.5	8	0.3	707	636	283
TC*OB227UT	U	220	2.5	85	1.7	125	5.5	8	0.3	548	493	219
TC*OB227VT	V	220	2.5	85	1.7	125	5.5	8	0.3	645	581	258
TC*OB337DT	D	330	2.5	85	1.7	125	8.2	8	0.3	707	636	283
TCMOB337UT	U	330	2.5	85	1.7	125	8.2	12	0.3	548	493	219
TC*OB337VT	V	330	2.5	85	1.7	125	8.2	8	0.3	645	581	258
TC*OB477CT	C	470	2.5	85	1.7	125	9.4	12	0.2	742	667	297
TC*OB477DT	D	470	2.5	85	1.7	125	11.6	8	0.2	866	779	346
TC*OB477FT	F	470	2.5	85	1.7	125	11.8	12	0.3	577	520	231
TC*OB477VT	V	470	2.5	85	1.7	125	11	12	0.2	791	712	316
TC*OB687CT	C	680	2.5	85	1.7	125	17	18	0.2	742	667	297
TC*OB687DT	D	680	2.5	85	1.7	125	17	16	0.2	866	779	346
TC*OB687ET	E	680	2.5	85	1.7	125	17	10	0.2	908	817	363
TC*OB687VT	V	680	2.5	85	1.7	125	17	12	0.2	791	712	316
TCMOB108DT	D	1000	2.5	85	1.7	125	25	20	0.2	866	779	346
TC*OB108ET	E	1000	2.5	85	1.7	125	25	14	0.4	642	578	257
TCMOB108VT	V	1000	2.5	85	1.7	125	25	30	0.2	791	712	316
TC*OB158DT	D	1500	2.5	85	1.7	125	37.5	60	0.2	866	779	346
TC*OB158ET	E	1500	2.5	85	1.7	125	37	20	0.2	908	817	363
TCMOB158HT	H	1500	2.5	85	1.7	125	30	20	0.2	1118	1006	447
TCMOB228HT	H	2200	2.5	85	1.7	125	55	50	0.2	1118	1006	447
4 VOLT RATING @ +85°C (2.7 VOLT RATING @ +125°C)												
TC*OG225RT	R	2.2	4	85	2.7	125	0.5	6	25	47	42	19
TC*OG225ST	S	2.2	4	85	2.7	125	0.5	6	25	51	46	20
TC*OG335RT	R	3.3	4	85	2.7	125	0.5	6	20	52	47	21
TC*OG335ST	S	3.3	4	85	2.7	125	0.5	6	18	60	54	24
TC*OG475RT	R	4.7	4	85	2.7	125	0.5	6	12	68	61	27
TC*OG475ST	S	4.7	4	85	2.7	125	0.5	6	10	81	73	32
TC*OG685RT	R	6.8	4	85	2.7	125	0.5	6	5.2	103	93	41
TC*OG685ST	S	6.8	4	85	2.7	125	0.5	6	8	90	81	36
TC*OG685TT	T	6.8	4	85	2.7	125	0.5	6	6	115	104	46
TC*OG106AT	A	10	4	85	2.7	125	0.5	6	6	112	101	45



\* Insert K for +/-10% tolerance and M for +/-20%. | Capacitance and DF are measured at 120Hz, 0.5V RMS with maximum DC bias of 2.0 volts. DCL is measured at a rated voltage after 5 minutes. | Cal-chip reserves the right to substitute a higher voltage rated part. Additional values may be available, please contact your sales representative for more information.







## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100KHz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
4 VOLT RATING @ +85°C (2.7 VOLT RATING @ +125°C)												
TC*OG106RT	R	10	4	85	2.7	125	0.5	6	7	89	80	35
TC*OG106ST	S	10	4	85	2.7	125	0.5	6	6	104	94	42
TC*OG106TT	T	10	4	85	2.7	125	0.5	6	5	126	114	51
TC*OG156AT	A	15	4	85	2.7	125	0.6	6	4	137	123	55
TC*OG156RT	R	15	4	85	2.7	125	0.6	8	4	117	106	47
TC*OG156ST	S	15	4	85	2.7	125	0.6	8	4	127	115	51
TC*OG156TT	T	15	4	85	2.7	125	0.6	6	2	200	180	80
TC*OG226AT	A	22	4	85	2.7	125	0.9	6	3.5	146	132	59
TC*OG226KT	K	22	4	85	2.7	125	0.9	8	1.8	190	171	76
TC*OG226PT	P	22	4	85	2.7	125	0.9	8	4	122	110	49
TC*OG226RT	R	22	4	85	2.7	125	0.9	8	3.8	120	108	48
TC*OG226ST	S	22	4	85	2.7	125	0.9	8	3.5	136	123	55
TC*OG226TT	T	22	4	85	2.7	125	0.9	6	1.9	205	185	82
TC*OG336AT	A	33	4	85	2.7	125	1.3	6	3	158	142	63
TC*OG336BT	B	33	4	85	2.7	125	1.3	6	2.8	174	157	70
TC*OG336KT	K	33	4	85	2.7	125	1.3	10	1.7	196	176	78
TCMOG336PT	P	33	4	85	2.7	125	1.3	8	2.8	146	132	59
TC*OG336ST	S	33	4	85	2.7	125	1.3	8	1.7	196	176	78
TC*OG336TT	T	33	4	85	2.7	125	1.3	6	1.7	217	195	87
TC*OG336UT	U	33	4	85	2.7	125	1.3	6	0.6	387	349	155
TC*OG476AT	A	47	4	85	2.7	125	1.9	8	2.6	170	153	68
TC*OG476BT	B	47	4	85	2.7	125	1.9	6	2.4	188	169	75
TC*OG476TT	T	47	4	85	2.7	125	1.9	10	1.6	224	201	89
TC*OG476UT	U	47	4	85	2.7	125	1.9	6	0.5	424	382	170
TC*OG686AT	A	68	4	85	2.7	125	2.7	10	1.5	224	201	89
TC*OG686BT	B	68	4	85	2.7	125	2.7	6	1.8	217	196	87
TC*OG686TT	T	68	4	85	2.7	125	2.7	15	1.5	231	208	92
TC*OG686UT	U	68	4	85	2.7	125	2.7	6	0.4	474	427	190
TC*OG107AT	A	100	4	85	2.7	125	4	30	1.4	231	208	93
TC*OG107BT	B	100	4	85	2.7	125	4	8	0.9	307	277	123
TC*OG107CT	C	100	4	85	2.7	125	4	6	1.3	291	262	116
TCMOG107TT	T	100	4	85	2.7	125	4	14	1.4	239	215	96
TC*OG107UT	U	100	4	85	2.7	125	4	6	0.4	474	427	190
TC*OG157BT	B	150	4	85	2.7	125	6	10	1.5	238	214	95
TC*OG157CT	C	150	4	85	2.7	125	6	6	0.3	606	545	242
TC*OG157UT	U	150	4	85	2.7	125	6	6	0.5	424	382	170
TC*OG157VT	V	150	4	85	2.7	125	6	6	0.4	559	503	224
TC*OG227BT	B	220	4	85	2.7	125	8.8	12	1.1	278	250	111
TC*OG227CT	C	220	4	85	2.7	125	8.8	8	1.2	303	272	121
TC*OG227DT	D	220	4	85	2.7	125	8.8	8	0.9	408	367	163
TC*OG227UT	U	220	4	85	2.7	125	8.8	8	0.3	548	493	219
TC*OG227WT	W	220	4	85	2.7	125	8.8	8	0.3	577	520	231
TC*OG227VT	V	220	4	85	2.7	125	8.8	8	0.3	645	581	258
TC*OG337CT	C	330	4	85	2.7	125	13.2	8	0.3	606	545	242
TC*OG337DT	D	330	4	85	2.7	125	13.2	8	0.9	408	367	163
TC*OG337FT	F	330	4	85	2.7	125	13.2	10	0.3	577	520	231
TC*OG337WT	W	330	4	85	2.7	125	13.2	8	0.3	577	520	231
TC*OG337VT	V	330	4	85	2.7	125	13.2	12	0.4	559	503	224
TC*OG477CT	C	470	4	85	2.7	125	18.8	14	0.3	606	545	242
TC*OG477DT	D	470	4	85	2.7	125	18.8	12	0.9	408	367	163
TC*OG477ET	E	470	4	85	2.7	125	18.8	10	0.5	574	517	230
TC*OG477VT	V	470	4	85	2.7	125	18.8	14	0.4	559	503	224
TC*OG687DT	D	680	4	85	2.7	125	27.2	14	0.5	548	493	219
TC*OG687ET	E	680	4	85	2.7	125	27.2	10	0.9	428	385	171
TCMOG687VT	V	680	4	85	2.7	125	27.2	25	0.2	791	712	316
TC*OG108DT	D	1000	4	85	2.7	125	40	60	0.2	866	779	346
TC*OG108ET	E	1000	4	85	2.7	125	40	14	0.4	642	578	257
TC*OG108HT	H	1000	4	85	2.7	125	40	16	0.2	1118	1006	447
TC*OG158ET	E	1500	4	85	2.7	125	60	30	0.2	908	817	363
TC*OG158HT	H	1500	4	85	2.7	125	60	30	0.2	1118	1006	447



## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100KHz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
<b>6.3 VOLT RATING @ +85°C (4 VOLT RATING @125°C)</b>												
TC*OJ155RT	R	1.5	6.3	85	4	125	0.5	6	25	47	42	19
TC*OJ155ST	S	1.5	6.3	85	4	125	0.5	6	25	51	46	20
TC*OJ225AT	A	2.2	6.3	85	4	125	0.5	6	9	91	82	37
TC*OJ225RT	R	2.2	6.3	85	4	125	0.5	6	20	52	47	21
TC*OJ225ST	S	2.2	6.3	85	4	125	0.5	6	18	60	54	24
TC*OJ335AT	A	3.3	6.3	85	4	125	0.5	6	7	104	93	41
TC*OJ335RT	R	3.3	6.3	85	4	125	0.5	6	12	68	61	27
TC*OJ335ST	S	3.3	6.3	85	4	125	0.5	6	9	85	76	34
TC*OJ475AT	A	4.7	6.3	85	4	125	0.5	6	6	112	101	45
TC*OJ475RT	R	4.7	6.3	85	4	125	0.5	6	7	89	80	35
TC*OJ475ST	S	4.7	6.3	85	4	125	0.5	6	7.5	93	84	37
TC*OJ475TT	T	4.7	6.3	85	4	125	0.5	6	6	115	104	46
TC*OJ685AT	A	6.8	6.3	85	4	125	0.5	6	5	122	110	49
TC*OJ685BT	B	6.8	6.3	85	4	125	0.6	6	5	130	117	52
TC*OJ685RT	R	6.8	6.3	85	4	125	0.5	8	7	89	80	35
TC*OJ685ST	S	6.8	6.3	85	4	125	0.5	6	2.6	158	142	63
TC*OJ685TT	T	6.8	6.3	85	4	125	0.5	6	5	126	114	51
TC*OJ106AT	A	10	6.3	85	4	125	0.6	6	4	137	123	55
TC*OJ106BT	B	10	6.3	85	4	125	0.6	6	3	168	151	67
TC*OJ106PT	P	10	6.3	85	4	125	0.6	8	6	100	90	40
TC*OJ106RT	R	10	6.3	85	4	125	0.6	8	6	96	86	38
TC*OJ106ST	S	10	6.3	85	4	125	0.6	8	4	127	115	51
TC*OJ106TT	T	10	6.3	85	4	125	0.6	6	4	141	127	57
TC*OJ156AT	A	15	6.3	85	4	125	0.9	6	3.5	146	132	59
TC*OJ156BT	B	15	6.3	85	4	125	0.9	6	2	206	186	82
TC*OJ156KT	K	15	6.3	85	4	125	0.9	6	2	180	162	72
TC*OJ156PT	P	15	6.3	85	4	125	0.9	8	3.5	131	118	52
TC*OJ156RT	R	15	6.3	85	4	125	0.9	8	4.1	116	104	46
TC*OJ156ST	S	15	6.3	85	4	125	0.9	8	3.5	136	123	55
TC*OJ156TT	T	15	6.3	85	4	125	0.9	6	3.5	151	136	60
TC*OJ226AT	A	22	6.3	85	4	125	1.4	6	3	158	142	63
TC*OJ226BT	B	22	6.3	85	4	125	1.4	6	2.5	184	166	74
TC*OJ226CT	C	22	6.3	85	4	125	1.4	6	2	235	211	94
TC*OJ226KT	K	22	6.3	85	4	125	1.3	10	1.8	190	171	76
TCMOJ226PT	P	22	6.3	85	4	125	1.3	8	3.3	135	121	54
TC*OJ226ST	S	22	6.3	85	4	125	1.3	10	1.8	190	171	76
TC*OJ226TT	T	22	6.3	85	4	125	1.4	8	2.5	179	161	72
TC*OJ226UT	U	22	6.3	85	4	125	1.3	6	0.6	387	349	155
TC*OJ336AT	A	33	6.3	85	4	125	2.1	8	2.2	185	166	74
TC*OJ336BT	B	33	6.3	85	4	125	2.1	6	2.2	197	177	79
TC*OJ336CT	C	33	6.3	85	4	125	2.1	6	1.8	247	222	99
TC*OJ336TT	T	33	6.3	85	4	125	2.1	10	2.5	179	161	72
TC*OJ336UT	U	33	6.3	85	4	125	2	6	0.5	424	382	170
TC*OJ476AT	A	47	6.3	85	4	125	2.8	10	1.6	217	195	87
TC*OJ476BT	B	47	6.3	85	4	125	3	6	2	206	186	82
TC*OJ476CT	C	47	6.3	85	4	125	3	6	1.6	262	236	105
TC*OJ476DT	D	47	6.3	85	4	125	3	6	1.1	369	332	148
TC*OJ476TT	T	47	6.3	85	4	125	2.8	10	1.6	224	201	89
TC*OJ476UT	U	47	6.3	85	4	125	2.8	6	0.5	424	382	170
TC*OJ686BT	B	68	6.3	85	4	125	4	8	0.9	307	277	123
TC*OJ686CT	C	68	6.3	85	4	125	4.3	6	1.5	271	244	108
TC*OJ686DT	D	68	6.3	85	4	125	4.3	6	0.9	408	367	163
TC*OJ686UT	U	68	6.3	85	4	125	4.3	6	1.5	245	220	98
TC*OJ107BT	B	100	6.3	85	4	125	6.3	10	1.7	224	201	89
TC*OJ107CT	C	100	6.3	85	4	125	6.3	6	0.9	350	315	140
TC*OJ107DT	D	100	6.3	85	4	125	6.3	6	0.9	408	367	163
TC*OJ107UT	U	100	6.3	85	4	125	6.3	6	0.9	316	285	126
TC*OJ107VT	V	100	6.3	85	4	125	6.3	6	0.7	423	380	169
TCMOJ157BT	B	150	6.3	85	4	125	9.5	10	1.2	266	240	106
TC*OJ157CT	C	150	6.3	85	4	125	9.5	6	1.3	291	262	116



\* Insert K for +/-10% tolerance and M for +/-20%. | Capacitance and DF are measured at 120Hz, 0.5V RMS with maximum DC bias of 2.0 volts. DCL is measured at a rated voltage after 5 minutes. | Cal-chip reserves the right to substitute a higher voltage rated part. Additional values may be available, please contact your sales representative for more information.



## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100Khz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
<b>6.3 VOLT RATING @ +85°C (4 VOLT RATING @125°C)</b>												
TC*OJ157DT	D	150	6.3	85	4	125	9.5	6	0.9	408	367	163
TC*OJ157UT	U	150	6.3	85	4	125	9	8	0.3	548	493	219
TC*OJ157WT	W	150	6.3	85	4	125	9	6	0.4	500	450	200
TC*OJ157VT	V	150	6.3	85	4	125	9.5	6	0.4	559	503	224
TC*OJ227CT	C	220	6.3	85	4	125	13.9	8	1.2	303	272	121
TC*OJ227DT	D	220	6.3	85	4	125	13.9	8	0.4	612	551	245
TC*OJ227ET	E	220	6.3	85	4	125	13.9	8	0.4	642	578	257
TC*OJ227FT	F	220	6.3	85	4	125	13.2	10	0.3	577	520	231
TC*OJ227WT	W	220	6.3	85	4	125	13.2	8	0.3	577	520	231
TC*OJ227VT	V	220	6.3	85	4	125	13.9	8	0.7	423	380	169
TC*OJ337CT	C	330	6.3	85	4	125	19.8	12	0.5	469	422	188
TC*OJ337DT	D	330	6.3	85	4	125	20.8	8	0.4	612	551	245
TC*OJ337ET	E	330	6.3	85	4	125	20.8	8	0.4	642	578	257
TC*OJ337VT	V	330	6.3	85	4	125	20.8	12	0.4	559	503	224
TC*OJ477DT	D	470	6.3	85	4	125	28	12	0.4	612	551	245
TC*OJ477ET	E	470	6.3	85	4	125	28	10	0.4	642	578	257
TC*OJ477HT	H	470	6.3	85	4	125	28	10	0.4	791	712	316
TC*OJ477VT	V	470	6.3	85	4	125	28.2	20	0.2	791	712	316
TC*OJ687DT	D	680	6.3	85	4	125	40.8	20	0.5	548	493	219
TC*OJ687ET	E	680	6.3	85	4	125	42.8	10	0.5	574	517	230
TC*OJ687HT	H	680	6.3	85	4	125	42.8	10	0.5	707	636	283
TCMOJ108ET	E	1000	6.3	85	4	125	60	20	0.2	908	817	363
TCMOJ108HT	H	1000	6.3	85	4	125	60	16	0.2	1118	1006	447
<b>10 VOLT RATING@+85C(7 VOLT RATING@+125C)</b>												
TC*IA105AT	A	1	10	85	7	125	0.5	4	10	87	78	35
TC*IA105RT	R	1	10	85	7	125	0.5	4	25	47	42	19
TC*IA105ST	S	1	10	85	7	125	0.5	4	25	51	46	20
TC*IA155AT	A	1.5	10	85	7	125	0.5	6	10	87	78	35
TC*IA155RT	R	1.5	10	85	7	125	0.5	6	20	52	47	21
TC*IA155ST	S	1.5	10	85	7	125	0.5	6	20	57	51	23
TC*IA225AT	A	2.2	10	85	7	125	0.5	6	7	104	93	41
TC*IA225RT	R	2.2	10	85	7	125	0.5	6	15	61	54	24
TC*IA225ST	S	2.2	10	85	7	125	0.5	6	12	74	66	29
TC*IA335AT	A	3.3	10	85	7	125	0.5	6	5.5	117	105	47
TC*IA335KT	K	3.3	10	85	7	125	0.5	6	5.5	109	98	43
TC*IA335RT	R	3.3	10	85	7	125	0.5	6	8	83	75	33
TC*IA335ST	S	3.3	10	85	7	125	0.5	6	8	90	81	36
TC*IA335TT	T	3.3	10	85	7	125	0.5	6	6	115	104	46
TC*IA475AT	A	4.7	10	85	7	125	0.5	6	5	122	110	49
TC*IA475BT	B	4.7	10	85	7	125	0.5	6	4	146	131	58
TC*IA475RT	R	4.7	10	85	7	125	0.5	6	9	78	70	31
TC*IA475ST	S	4.7	10	85	7	125	0.5	6	5	114	103	46
TC*IA475TT	T	4.7	10	85	7	125	0.5	6	5	126	114	51
TC*IA685AT	A	6.8	10	85	7	125	0.7	6	4	137	123	55
TC*IA685BT	B	6.8	10	85	7	125	0.7	6	3	168	151	67
TC*IA685PT	P	6.8	10	85	7	125	0.6	6	5	110	99	44
TC*IA685RT	R	6.8	10	85	7	125	0.7	6	5.2	103	93	41
TC*IA685ST	S	6.8	10	85	7	125	0.7	6	4	127	115	51
TC*IA685TT	T	6.8	10	85	7	125	0.7	6	4	141	127	57
TC*IA106AT	A	10	10	85	7	125	1	6	3	158	142	63
TC*IA106BT	B	10	10	85	7	125	1	6	2.1	201	181	80
TC*IA106CT	C	10	10	85	7	125	1	6	2.5	210	189	84
TC*IA106KT	K	10	10	85	7	125	1	6	2.2	172	155	69
TC*IA106PT	P	10	10	85	7	125	1	8	6	100	90	40
TCMIA106RT	R	10	10	85	7	125	1	20	6	96	86	38
TC*IA106ST	S	10	10	85	7	125	1	8	3	147	132	59
TC*IA106TT	T	10	10	85	7	125	1	6	3	163	147	65
TC*IA156AT	A	15	10	85	7	125	1.5	6	3.2	153	138	61
TC*IA156BT	B	15	10	85	7	125	1.5	6	2.8	174	157	70

\* Insert K for +/-10% tolerance and M for +/-20%. | Capacitance and DF are measured at 120Hz, 0.5V RMS with maximum DC bias of 2.0 volts. DCL is measured at a rated voltage after 5 minutes. | Cal-chip reserves the right to substitute a higher voltage rated part. Additional values may be available, please contact your sales representative for more information.





## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100KHz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
<b>10 VOLT RATING@+85C(7 VOLT RATING@+125C)</b>												
TC*IA156CT	C	15	10	85	7	125	1.5	6	2	235	211	94
TC*IA156ST	S	15	10	85	7	125	1.5	6	2	180	162	72
TC*IA156TT	T	15	10	85	7	125	1.5	8	2.8	169	152	68
TC*IA156UT	U	15	10	85	7	125	1.5	6	0.7	359	323	143
TC*IA226AT	A	22	10	85	7	125	2.2	8	3	158	142	63
TC*IA226BT	B	22	10	85	7	125	2.2	6	2.4	188	169	75
TC*IA226CT	C	22	10	85	7	125	2.2	6	1.8	247	222	99
TC*IA226TT	T	22	10	85	7	125	2.2	8	2.2	191	172	76
TC*IA226UT	U	22	10	85	7	125	2.2	6	0.6	387	349	155
TC*IA336AT	A	33	10	85	7	125	3.3	8	1.7	210	189	84
TC*IA336BT	B	33	10	85	7	125	3.3	6	1.8	217	196	87
TC*IA336CT	C	33	10	85	7	125	3.3	6	1.6	262	236	105
TC*IA336DT	D	33	10	85	7	125	3.3	6	1.1	369	332	148
TC*IA336UT	U	33	10	85	7	125	3.3	6	1.6	237	213	95
TC*IA476BT	B	47	10	85	7	125	4.7	8	1	292	262	117
TC*IA476CT	C	47	10	85	7	125	4.7	1.2	1.2	303	272	121
TC*IA476DT	D	47	10	85	7	125	4.7	0.4	0.4	612	551	245
TC*IA476MT	M	47	10	85	7	125	4.7	1	1	283	255	113
TC*IA476UT	U	47	10	85	7	125	4.7	1.4	1.4	254	228	101
TC*IA476VT	V	47	10	85	7	125	4.7	0.5	0.5	500	450	200
TC*IA686BT	B	68	10	85	7	125	6.8	8	1.4	246	222	99
TC*IA686CT	C	68	10	85	7	125	6.8	6	1.3	291	262	116
TC*IA686DT	D	68	10	85	7	125	6.8	6	0.9	408	367	163
TC*IA686UT	U	68	10	85	7	125	6.8	6	1.2	274	246	110
TC*IA686VT	V	68	10	85	7	125	6.8	6	0.9	373	335	149
TC*IA107BT	B	100	10	85	7	125	10	8	1.4	246	222	99
TC*IA107CT	C	100	10	85	7	125	10	8	1.2	303	272	121
TC*IA107DT	D	100	10	85	7	125	10	6	0.9	408	367	163
TC*IA107ET	E	100	10	85	7	125	10	6	0.9	428	385	171
TC*IA107UT	U	100	10	85	7	125	10	6	0.4	474	427	190
TC*IA107WT	W	100	10	85	7	125	10	8	0.9	333	300	133
TC*IA107VT	V	100	10	85	7	125	10	6	0.9	373	335	149
TC*IA157CT	C	150	10	85	7	125	15	8	0.9	350	315	140
TC*IA157DT	D	150	10	85	7	125	15	8	0.9	408	367	163
TC*IA157ET	E	150	10	85	7	125	15	8	0.9	428	385	171
TC*IA157FT	F	150	10	85	7	125	15	10	0.3	577	520	231
TCMIA157WT	W	150	10	85	7	125	15	6	0.3	577	520	231
TC*IA157VT	V	150	10	85	7	125	15	6	1.2	323	290	129
TCKIA227CT	C	220	10	85	7	125	22	16	0.5	469	422	188
TC*IA227DT	D	220	10	85	7	125	22	8	0.5	548	493	219
TC*IA227ET	E	220	10	85	7	125	22	8	0.5	574	517	230
TC*IA227VT	V	220	10	85	7	125	22	10	0.5	500	450	200
TC*IA337DT	D	330	10	85	7	125	33	8	0.9	408	367	163
TC*IA337ET	E	330	10	85	7	125	33	8	0.9	428	385	171
TC*IA337HT	H	330	10	85	7	125	33	10	0.9	527	474	211
TC*IA477ET	E	470	10	85	7	125	47	10	0.5	574	517	230
TC*IA477GT	G	470	10	85	7	125	47	12	0.5	574	517	230
TC*IA477HT	H	470	10	85	7	125	47	10	0.5	707	636	283
TCMIA687ET	E	680	10	85	7	125	68	18	0.4	642	578	257
TCMIA687HT	H	680	10	85	7	125	68	18	0.4	791	712	316
<b>16 VOLT RATING@+85C(10 VOLT RATING@+125C)</b>												
TC*IC684RT	R	0.68	16	85	10	125	0.5	4	25	47	42	19
TC*IC684ST	S	0.68	16	85	10	125	0.5	4	25	51	46	20
TC*IC105AT	A	1	16	85	10	125	0.5	4	11	83	74	33
TC*IC105RT	R	1	16	85	10	125	0.5	4	20	52	47	21
TC*IC105ST	S	1	16	85	10	125	0.5	4	15	66	59	26
TC*IC105TT	T	1	16	85	10	125	0.5	4	5	126	114	51
TC*IC155AT	A	1.5	16	85	10	125	0.5	6	8	97	87	39
TC*IC155RT	R	1.5	16	85	10	125	0.5	6	10	74	67	30
TC*IC155ST	S	1.5	16	85	10	125	0.5	6	12	74	66	29
TC*IC225AT	A	2.2	16	85	10	125	0.5	6	6.5	107	97	43



\* Insert K for +/-10% tolerance and M for +/-20%. | Capacitance and DF are measured at 120Hz, 0.5V RMS with maximum DC bias of 2.0 volts. DCL is measured at a rated voltage after 5 minutes. | Cal-chip reserves the right to substitute a higher voltage rated part. Additional values may be available, please contact your sales representative for more information.





## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (°C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (µA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100KHz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
16 VOLT RATING@+85C (10 VOLT RATING@+125C)												
TC*IC225BT	B	2.2	16	85	10	125	0.5	6	2.3	192	173	77
TC*IC225RT	R	2.2	16	85	10	125	0.5	6	6.5	92	83	37
TC*IC225ST	S	2.2	16	85	10	125	0.5	6	6	104	94	42
TC*IC225TT	T	2.2	16	85	10	125	0.5	6	6.5	111	100	44
TC*IC335AT	A	3.3	16	85	10	125	0.5	6	5	122	110	49
TC*IC335BT	B	3.3	16	85	10	125	0.5	6	4.5	137	124	55
TC*IC335RT	R	3.3	16	85	10	125	0.5	8	5	105	94	42
TC*IC335ST	S	3.3	16	85	10	125	0.5	6	5	114	103	46
TC*IC335TT	T	3.3	16	85	10	125	0.5	6	5	126	114	51
TC*IC475AT	A	4.7	16	85	10	125	0.8	6	4	137	123	55
TC*IC475BT	B	4.7	16	85	10	125	0.8	6	3.5	156	140	62
TC*IC475CT	C	4.7	16	85	10	125	0.8	6	2.4	214	193	86
TC*IC475KT	K	4.7	16	85	10	125	0.8	6	3.1	145	130	58
TC*IC475PT	P	4.7	16	85	10	125	0.8	8	5	110	99	44
TC*IC475ST	S	4.7	16	85	10	125	0.8	8	4	127	115	51
TC*IC475TT	T	4.7	16	85	10	125	0.8	6	3.1	161	145	64
TC*IC685AT	A	6.8	16	85	10	125	1.1	6	3.5	146	132	59
TC*IC685BT	B	6.8	16	85	10	125	1.1	6	2.5	184	166	74
TC*IC685CT	C	6.8	16	85	10	125	1.1	6	2.5	210	189	84
TC*IC685ST	S	6.8	16	85	10	125	1.1	8	2.4	165	148	66
TC*IC685TT	T	6.8	16	85	10	125	1.1	6	3.5	151	136	60
TC*IC106AT	A	10	16	85	10	125	1.6	6	3	158	142	63
TC*IC106BT	B	10	16	85	10	125	1.6	6	2.8	174	157	70
TC*IC106CT	C	10	16	85	10	125	1.6	6	2	235	211	94
TC*IC106DT	D	10	16	85	10	125	1.6	6	1	158	142	63
TC*IC106TT	T	10	16	85	10	125	1.6	8	2.2	191	172	76
TC*IC106UT	U	10	16	85	10	125	1.6	6	2	212	191	85
TC*IC156AT	A	15	16	85	10	125	2.4	6	2	194	174	77
TC*IC156BT	B	15	16	85	10	125	2.4	6	2.5	184	166	74
TC*IC156CT	C	15	16	85	10	125	2.4	6	1.8	247	222	99
TCMIC156TT	T	15	16	85	10	125	2.4	6	2	200	180	80
TC*IC156UT	U	15	16	85	10	125	2.4	6	0.7	359	323	143
TCMIC226AT	A	22	16	85	10	125	3.5	10	2.3	181	163	72
TC*IC226BT	B	22	16	85	10	125	3.5	6	2.3	192	173	77
TC*IC226CT	C	22	16	85	10	125	3.5	6	1	332	298	133
TC*IC226DT	D	22	16	85	10	125	3.5	6	1.1	369	332	148
TC*IC226UT	U	22	16	85	10	125	3.5	6	1.6	237	213	95
TC*IC336BT	B	33	16	85	10	125	5.3	8	2.1	201	181	80
TC*IC336CT	C	33	16	85	10	125	5.3	6	1.5	271	244	108
TC*IC336DT	D	33	16	85	10	125	5.3	6	0.9	408	367	163
TC*IC336UT	U	33	16	85	10	125	5.3	6	1.5	245	220	98
TC*IC336VT	V	33	16	85	10	125	5.3	6	0.9	373	335	149
TC*IC476CT	C	47	16	85	10	125	7.5	6	0.5	469	422	188
TC*IC476DT	D	47	16	85	10	125	7.5	6	0.9	408	367	163
TC*IC476UT	U	47	16	85	10	125	7.5	6	0.4	474	427	190
TC*IC476WT	W	47	16	85	10	125	7.5	6	0.75	365	329	146
TC*IC476VT	V	47	16	85	10	125	7.5	6	0.7	423	380	169
TC*IC686CT	C	68	16	85	10	125	10.9	6	1.3	291	262	116
TC*IC686DT	D	68	16	85	10	125	10.9	6	0.9	408	367	163
TC*IC686FT	F	68	16	85	10	125	10.9	10	0.4	500	450	200
TC*IC686WT	W	68	16	85	10	125	10.9	8	0.6	408	367	163
TC*IC686VT	V	68	16	85	10	125	10.9	6	0.9	373	335	149
TC*IC107CT	C	100	16	85	10	125	16	8	1	332	298	133
TC*IC107DT	D	100	16	85	10	125	16	6	0.6	500	450	200
TC*IC107ET	E	100	16	85	10	125	16	6	0.9	428	385	171
TCMIC107FT	F	100	16	85	10	125	16	10	0.4	500	450	200
TC*IC107VT	V	100	16	85	10	125	16	8	0.9	373	335	149
TC*IC157DT	D	150	16	85	10	125	24	6	0.9	408	367	163
TC*IC157ET	E	150	16	85	10	125	24	8	0.3	742	667	297
TC*IC157HT	H	150	16	85	10	125	24	8	0.5	527	474	211

## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100Khz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
<b>16 VOLT RATING@+85C (10 VOLT RATING@+125C)</b>												
TCMIC157VT	V	150	16	85	10	125	24	15	0.3	645	581	258
TCMIC227DT	D	220	16	85	10	125	35.2	10	0.5	548	493	219
TC*IC227ET	E	220	16	85	10	125	35.2	10	0.5	574	517	230
TC*IC227HT	H	220	16	85	10	125	35.2	8	0.9	527	474	211
TCMIC337ET	E	330	16	85	10	125	52.8	30	0.4	642	578	257
<b>20 VOLT RATING@+85C(13 VOLT RATING@+125C)</b>												
TC*ID104RT	R	0.1	20	85	13	125	0.5	4	25	47	42	19
TC*ID104ST	S	0.1	20	85	13	125	0.5	4	25	51	46	20
TC*ID154RT	R	0.15	20	85	13	125	0.5	4	25	47	42	19
TC*ID154ST	S	0.15	20	85	13	125	0.5	4	25	51	46	20
TC*ID224RT	R	0.22	20	85	13	125	0.5	4	25	47	42	19
TC*ID224ST	S	0.22	20	85	13	125	0.5	4	25	51	46	20
TC*ID334RT	R	0.33	20	85	13	125	0.5	4	25	47	42	19
TC*ID334ST	S	0.33	20	85	13	125	0.5	4	25	51	46	20
TC*ID474RT	R	0.47	20	85	13	125	0.5	4	25	47	42	19
TC*ID474ST	S	0.47	20	85	13	125	0.5	4	25	51	46	20
TC*ID684AT	A	0.68	20	85	13	125	0.5	4	12	79	71	32
TC*ID684RT	R	0.68	20	85	13	125	0.5	4	20	52	47	21
TC*ID684ST	S	0.68	20	85	13	125	0.5	4	25	51	46	20
TC*ID684TT	T	0.68	20	85	13	125	0.5	4	15	73	66	29
TC*ID105AT	A	1	20	85	13	125	0.5	4	9	91	82	37
TC*ID105RT	R	1	20	85	13	125	0.5	4	20	52	47	21
TC*ID105ST	S	1	20	85	13	125	0.5	4	12	74	66	29
TC*ID105TT	T	1	20	85	13	125	0.5	4	9	94	85	38
TC*ID155AT	A	1.5	20	85	13	125	0.5	6	6.5	107	97	43
TC*ID155PT	P	1.5	20	85	13	125	0.5	6	9.6	79	71	32
TC*ID155RT	R	1.5	20	85	13	125	0.5	6	9.6	76	68	30
TC*ID155ST	S	1.5	20	85	13	125	0.5	6	5.4	110	99	44
TC*ID155TT	T	1.5	20	85	13	125	0.5	6	6.5	111	100	44
TC*ID225AT	A	2.2	20	85	13	125	0.5	6	5.3	119	107	48
TC*ID225BT	B	2.2	20	85	13	125	0.5	6	3.5	156	140	62
TC*ID225PT	P	2.2	20	85	13	125	0.5	6	8.3	85	77	34
TC*ID225RT	R	2.2	20	85	13	125	0.5	6	6	96	86	38
TC*ID225ST	S	2.2	20	85	13	125	0.5	6	4.5	120	108	48
TC*ID225TT	T	2.2	20	85	13	125	0.5	6	6	115	104	46
TC*ID335AT	A	3.3	20	85	13	125	0.7	6	4.5	129	116	52
TC*ID335BT	B	3.3	20	85	13	125	0.7	6	3	168	151	67
TC*ID335TT	T	3.3	20	85	13	125	0.7	6	3	163	147	65
TC*ID475AT	A	4.7	20	85	13	125	0.9	6	4	137	123	55
TC*ID475BT	B	4.7	20	85	13	125	0.9	6	3	168	151	67
TC*ID475CT	C	4.7	20	85	13	125	0.9	6	2.8	198	178	79
TC*ID475TT	T	4.7	20	85	13	125	0.9	6	3.1	161	145	64
TC*ID685AT	A	6.8	20	85	13	125	1.4	6	2.4	177	159	71
TC*ID685BT	B	6.8	20	85	13	125	1.4	6	2.5	184	166	74
TC*ID685CT	C	6.8	20	85	13	125	1.4	6	2	235	211	94
TC*ID685TT	T	6.8	20	85	13	125	1.4	6	2.6	175	158	70
TC*ID106BT	B	10	20	85	13	125	2	6	2.1	201	181	80
TC*ID106CT	C	10	20	85	13	125	2	6	1.2	303	272	121
TC*ID106DT	D	10	20	85	13	125	2.5	6	1	387	348	155
TC*ID106UT	U	10	20	85	13	125	2	6	1.9	218	196	87
TC*ID156BT	B	15	20	85	13	125	3	6	2	206	186	82
TC*ID156CT	C	15	20	85	13	125	3	6	1.7	254	229	102
TC*ID156DT	D	15	20	85	13	125	3	6	1.1	369	332	148
TC*ID156UT	U	15	20	85	13	125	3	6	1.7	230	207	92
TC*ID226BT	B	22	20	85	13	125	4.4	6	1.8	217	196	87
TC*ID226CT	C	22	20	85	13	125	4.4	6	1.6	262	236	105
TC*ID226DT	D	22	20	85	13	125	4.4	6	0.9	408	367	163
TC*ID226UT	U	22	20	85	13	125	4.4	6	1.6	237	213	95
TC*ID226VT	V	22	20	85	13	125	4.4	6	0.9	373	335	149
TC*ID336CT	C	33	20	85	13	125	6.6	6	1.5	271	244	108
TC*ID336DT	D	33	20	85	13	125	6.6	6	0.9	408	367	163



\* Insert K for +/-10% tolerance and M for +/-20%. | Capacitance and DF are measured at 120Hz, 0.5V RMS with maximum DC bias of 2.0 volts. DCL is measured at a rated voltage after 5 minutes. | Cal-chip reserves the right to substitute a higher voltage rated part. Additional values may be available, please contact your sales representative for more information.





## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (°C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100Khz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
<b>20 VOLT RATING@+85C(13 VOLT RATING@+125C)</b>												
TC*ID336WT	W	33	20	85	13	125	6.6	6	0.5	447	402	179
TC*ID336VT	V	33	20	85	13	125	6.6	6	0.6	456	411	183
TC*ID476CT	C	47	20	85	13	125	9.4	6	0.5	469	422	188
TC*ID476DT	D	47	20	85	13	125	9.4	6	0.9	408	367	163
TC*ID476ET	E	47	20	85	13	125	9.4	6	0.9	428	385	171
TC*ID476WT	W	47	20	85	13	125	9.4	6	0.4	500	450	200
TC*ID476VT	V	47	20	85	13	125	9.4	6	0.9	373	335	149
TC*ID686CT	C	68	20	85	13	125	13.6	8	0.5	469	422	188
TC*ID686DT	D	68	20	85	13	125	13.6	6	0.4	612	551	245
TC*ID686ET	E	68	20	85	13	125	13.6	6	0.9	428	385	171
TC*ID686VT	V	68	20	85	13	125	13.6	6	0.9	373	335	149
TC*ID107DT	D	100	20	85	13	125	20	6	0.5	548	493	219
TC*ID107ET	E	100	20	85	13	125	20	6	0.4	642	578	257
TC*ID107HT	H	100	20	85	13	125	20	8	0.9	527	474	211
TC*ID157ET	E	150	20	85	13	125	30	8	0.3	742	667	297
TC*ID157HT	H	150	20	85	13	125	30	8	0.3	913	822	365
<b>25 VOLT RATING@+85C(17 VOLT RATING@+125C)</b>												
TC*IE154RT	R	0.15	25	85	17	125	0.5	4	24	48	43	19
TC*IE224RT	R	0.22	25	85	17	125	0.5	4	21	51	46	20
TC*IE334AT	A	0.33	25	85	17	125	0.5	4	17	71	64	28
TC*IE334RT	R	0.33	25	85	17	125	0.5	4	17	57	51	23
TC*IE474AT	A	0.47	25	85	17	125	0.5	4	14	73	66	29
TC*IE474RT	R	0.47	25	85	17	125	0.5	4	15	61	54	24
TC*IE474ST	S	0.47	25	85	17	125	0.5	4	9	85	76	34
TC*IE684AT	A	0.68	25	85	17	125	0.5	4	10	87	78	35
TC*IE684RT	R	0.68	25	85	17	125	0.5	4	13	65	59	26
TC*IE684ST	S	0.68	25	85	17	125	0.5	4	8	90	81	36
TC*IE105AT	A	1	25	85	17	125	0.5	4	8	97	87	39
TC*IE105BT	B	1	25	85	17	125	0.5	4	7.5	114	103	46
TC*IE105PT	P	1	25	85	17	125	0.5	4	11	74	66	30
TC*IE105RT	R	1	25	85	17	125	0.5	4	8	83	75	33
TC*IE105ST	S	1	25	85	17	125	0.5	4	8	90	81	36
TC*IE155AT	A	1.5	25	85	17	125	0.5	6	7.5	100	90	40
TC*IE155BT	B	1.5	25	85	17	125	0.5	6	5	130	117	52
TC*IE155PT	P	1.5	25	85	17	125	0.5	6	9.6	79	71	32
TC*IE155ST	S	1.5	25	85	17	125	0.5	6	5.4	110	99	44
TC*IE155TT	T	1.5	25	85	17	125	0.5	6	5	126	114	51
TC*IE225AT	A	2.2	25	85	17	125	0.6	6	7	104	93	41
TC*IE225BT	B	2.2	25	85	17	125	0.6	6	4.5	137	124	55
TC*IE225TT	T	2.2	25	85	17	125	0.6	6	4.5	133	120	53
TC*IE335AT	A	3.3	25	85	17	125	0.8	6	3.7	142	128	57
TC*IE335BT	B	3.3	25	85	17	125	0.8	6	3.5	156	140	62
TC*IE335CT	C	3.3	25	85	17	125	0.8	6	2.8	198	178	79
TC*IE335TT	T	3.3	25	85	17	125	0.8	6	3.5	151	136	60
TC*IE335UT	U	3.3	25	85	17	125	0.8	6	1.6	237	213	95
TC*IE475AT	A	4.7	25	85	17	125	1.2	6	3.1	156	140	62
TC*IE475BT	B	4.7	25	85	17	125	1.2	6	1.5	238	214	95
TC*IE475CT	C	4.7	25	85	17	125	1.2	6	2.4	214	193	86
TC*IE475TT	T	4.7	25	85	17	125	1.2	6	3.1	161	145	64
TC*IE475UT	U	4.7	25	85	17	125	1.2	6	1.2	274	246	110
TC*IE685BT	B	6.8	25	85	17	125	1.7	6	2.8	174	157	70
TC*IE685CT	C	6.8	25	85	17	125	1.7	6	2	235	211	94
TC*IE685UT	U	6.8	25	85	17	125	1.7	6	2	212	191	85
TC*IE106BT	B	10	25	85	17	125	2.5	6	2.5	184	166	74
TC*IE106CT	C	10	25	85	17	125	2.5	6	1.8	247	222	99
TC*IE106DT	D	10	25	85	17	125	2.5	6	1.2	354	318	141
TC*IE106UT	U	10	25	85	17	125	2.5	6	1.8	224	201	89
TC*IE156CT	C	15	25	85	17	125	3.8	6	1.6	262	236	105
TC*IE156DT	D	15	25	85	17	125	3.8	6	1	387	349	155
TC*IE156VT	V	15	25	85	17	125	3.8	6	1	354	318	141
TC*IE226CT	C	22	25	85	17	125	5.5	6	1.4	280	252	112
TC*IE226DT	D	22	25	85	17	125	5.5	6	0.9	408	367	163

\* Insert K for +/-10% tolerance and M for +/-20%. | Capacitance and DF are measured at 120Hz, 0.5V RMS with maximum DC bias of 2.0 volts. DCL is measured at a rated voltage after 5 minutes. | Cal-chip reserves the right to substitute a higher voltage rated part. Additional values may be available, please contact your sales representative for more information.







## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (°C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100KHz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
<b>25 VOLT RATING@+85C(17 VOLT RATING@+125C)</b>												
TC*IE226FT	F	22	25	85	17	125	5.5	6	1	316	285	126
TC*IE226VT	V	22	25	85	17	125	5.5	6	0.8	395	356	158
TC*IE336CT	C	33	25	85	17	125	8.3	6	0.9	350	315	140
TC*IE336DT	D	33	25	85	17	125	8.3	6	0.9	408	367	163
TC*IE336ET	E	33	25	85	17	125	8.3	6	0.9	428	385	171
TC*IE336FT	F	33	25	85	17	125	8.3	6	0.9	333	300	133
TC*IE336VT	V	33	25	85	17	125	8.3	6	0.5	500	450	200
TC*IE476DT	D	47	25	85	17	125	11.8	6	0.9	408	367	163
TC*IE476ET	E	47	25	85	17	125	11.8	6	0.9	428	385	171
TC*IE476VT	V	47	25	85	17	125	11.8	6	0.9	373	335	149
TC*IE686DT	D	68	25	85	17	125	17	6	0.9	408	367	163
TC*IE686ET	E	68	25	85	17	125	17	6	0.9	428	385	171
TC*IE686HT	H	68	25	85	17	125	17	6	0.9	527	474	211
TC*IE107ET	E	100	25	85	17	125	25	10	0.3	742	667	297
TC*IE107HT	H	100	25	85	17	125	25	8	0.4	791	712	316
TCMIE157HT	H	150	25	85	17	125	37.5	10	0.4	791	712	316
<b>35 VOLT RATING@+85C(23 VOLT RATING@+125C)</b>												
TC*IV104AT	A	0.1	35	85	23	125	0.5	4	24	56	50	22
TC*IV104RT	R	0.1	35	85	23	125	0.5	4	29	44	39	17
TC*IV104ST	S	0.1	35	85	23	125	0.5	4	24	52	47	21
TC*IV154AT	A	0.15	35	85	23	125	0.5	4	21	60	54	24
TC*IV154RT	R	0.15	35	85	23	125	0.5	4	24	48	43	19
TC*IV154ST	S	0.15	35	85	23	125	0.5	4	21	56	50	22
TC*IV224AT	A	0.22	35	85	23	125	0.5	4	18	65	58	26
TC*IV224RT	R	0.22	35	85	23	125	0.5	4	21	51	46	20
TC*IV224ST	S	0.22	35	85	23	125	0.5	4	18	60	54	24
TC*IV334AT	A	0.33	35	85	23	125	0.5	4	15	71	64	28
TC*IV334RT	R	0.33	35	85	23	125	0.5	4	17	57	51	23
TC*IV334ST	S	0.33	35	85	23	125	0.5	4	15	66	59	26
TC*IV474AT	A	0.47	35	85	23	125	0.5	4	12	79	71	32
TC*IV474BT	B	0.47	35	85	23	125	0.5	4	10	92	83	37
TC*IV474RT	R	0.47	35	85	23	125	0.5	4	15	61	54	24
TC*IV474ST	S	0.47	35	85	23	125	0.5	4	12	74	66	29
TC*IV474TT	T	0.47	35	85	23	125	0.5	4	10	89	80	36
TC*IV684AT	A	0.68	35	85	23	125	0.5	4	8	97	87	39
TC*IV684BT	B	0.68	35	85	23	125	0.5	4	8	103	93	41
TC*IV684PT	P	0.68	35	85	23	125	0.5	4	13	68	61	27
TC*IV684ST	S	0.68	35	85	23	125	0.5	4	8	90	81	36
TC*IV684TT	T	0.68	35	85	23	125	0.5	4	8	100	90	40
TC*IV105AT	A	1	35	85	23	125	0.5	4	7.5	100	90	40
TC*IV105BT	B	1	35	85	23	125	0.5	4	6.5	114	103	46
TC*IV105PT	P	1	35	85	23	125	0.5	4	11	74	66	30
TC*IV105ST	S	1	35	85	23	125	0.5	4	7.5	93	84	37
TC*IV105TT	T	1	35	85	23	125	0.5	4	6.5	111	100	44
TC*IV155AT	A	1.5	35	85	23	125	0.5	6	7.5	100	90	40
TC*IV155BT	B	1.5	35	85	23	125	0.5	6	5.2	128	115	51
TC*IV155CT	C	1.5	35	85	23	125	0.5	6	4.5	156	141	63
TC*IV155TT	T	1.5	35	85	23	125	0.5	6	5.2	124	112	50
TC*IV225AT	A	2.2	35	85	23	125	0.8	6	4.5	129	116	52
TC*IV225BT	B	2.2	35	85	23	125	0.8	6	4.2	142	128	57
TC*IV225CT	C	2.2	35	85	23	125	0.8	6	3.5	177	160	71
TC*IV225TT	T	2.2	35	85	23	125	0.8	6	4.2	138	124	55
TC*IV335BT	B	3.3	35	85	23	125	1.2	6	3.5	156	140	62
TC*IV335CT	C	3.3	35	85	23	125	1.2	6	2.5	210	189	84
TC*IV335UT	U	3.3	35	85	23	125	1.2	6	1.6	237	213	95
TC*IV475BT	B	4.7	35	85	23	125	1.6	6	3.1	166	149	66
TC*IV475CT	C	4.7	35	85	23	125	1.6	6	2.2	224	201	89
TC*IV475DT	D	4.7	35	85	23	125	1.6	6	1.5	316	285	126
TC*IV475UT	U	4.7	35	85	23	125	1.6	6	2.2	202	182	81
TC*IV685CT	C	6.8	35	85	23	125	2.4	6	1.8	247	222	99
TC*IV685DT	D	6.8	35	85	23	125	2.4	6	1.3	340	306	136
TC*IV685VT	V	6.8	35	85	23	125	2.3	6	0.9	373	335	149



\* Insert K for +/-10% tolerance and M for +/-20%. | Capacitance and DF are measured at 120Hz, 0.5V RMS with maximum DC bias of 2.0 volts. DCL is measured at a rated voltage after 5 minutes. | Cal-chip reserves the right to substitute a higher voltage rated part. Additional values may be available, please contact your sales representative for more information.





## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (µF)	RATED VOLTAGE (V)	RATED TEMP. (°C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100KHz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
<b>35 VOLT RATING@+85C(23 VOLT RATING@+125C)</b>												
TC*IV106CT	C	10	35	85	23	125	3.5	6	1.6	262	236	105
TC*IV106DT	D	10	35	85	23	125	3.5	6	1	387	349	155
TC*IV106ET	E	10	35	85	23	125	3.5	6	0.9	428	385	171
TC*IV106WT	W	10	35	85	23	125	3.5	6	0.7	378	340	151
TC*IV106VT	V	10	35	85	23	125	3.5	6	1	354	318	141
TC*IV156CT	C	15	35	85	23	125	5.3	6	1.4	280	252	112
TC*IV156DT	D	15	35	85	23	125	5.3	6	0.9	408	367	163
TC*IV156VT	V	15	35	85	23	125	5.3	6	0.6	456	411	183
TC*IV226DT	D	22	35	85	23	125	7.7	6	0.9	408	367	163
TC*IV226ET	E	22	35	85	23	125	7.7	6	0.5	574	517	230
TC*IV226VT	V	22	35	85	23	125	7.7	6	0.5	500	450	200
TC*IV336DT	D	33	35	85	23	125	11.6	6	0.9	408	367	163
TC*IV336ET	E	33	35	85	23	125	11.6	6	0.9	428	385	171
TC*IV336HT	H	33	35	85	23	125	11.6	6	0.5	707	636	283
TC*IV476DT	D	47	35	85	23	125	16.5	6	0.9	408	367	163
TC*IV476ET	E	47	35	85	23	125	16.5	6	0.9	428	385	171
TC*IV476HT	H	47	35	85	23	125	16.5	6	0.4	791	712	316
TC*IV686HT	H	68	35	85	23	125	23.8	6	0.5	707	636	283
<b>50 VOLT RATING@+85C(33 VOLT RATING@+125C)</b>												
TC*IX104AT	A	0.1	50	85	33	125	0.5	4	22	58	53	23
TC*IX104ST	S	0.1	50	85	33	125	0.5	4	19	58	53	23
TC*IX154AT	A	0.15	50	85	33	125	0.5	4	15	71	64	28
TC*IX154BT	B	0.15	50	85	33	125	0.5	4	17	71	64	28
TC*IX154ST	S	0.15	50	85	33	125	0.5	4	16	64	57	25
TC*IX224AT	A	0.24	50	85	33	125	0.5	4	18	65	58	26
TC*IX224BT	B	0.24	50	85	33	125	0.5	4	14	78	70	31
TC*IX224PT	P	0.24	50	85	33	125	0.5	4	17	59	53	24
TC*IX224RT	R	0.24	50	85	33	125	0.5	4	17	57	51	23
TC*IX224ST	S	0.24	50	85	33	125	0.5	4	13	71	64	28
TC*IX334AT	A	0.33	50	85	33	125	0.5	4	17	66	60	27
TC*IX334BT	B	0.33	50	85	33	125	0.5	4	12	84	76	34
TC*IX334PT	P	0.33	50	85	33	125	0.5	4	17	59	53	24
TCMIX334RT	R	0.33	50	85	33	125	0.5	4	17	57	51	23
TC*IX334ST	S	0.33	50	85	33	125	0.5	4	11	77	69	31
TC*IX334TT	T	0.33	50	85	33	125	0.5	4	11	85	77	34
TC*IX474AT	A	0.47	50	85	33	125	0.5	4	9.5	89	80	36
TC*IX474BT	B	0.47	50	85	33	125	0.5	4	9.5	95	85	38
TC*IX474CT	C	0.47	50	85	33	125	0.5	4	8	117	106	47
TC*IX474ST	S	0.47	50	85	33	125	0.5	4	9.5	83	74	33
TC*IX474TT	T	0.47	50	85	33	125	0.5	4	9.5	92	83	37
TC*IX684AT	A	0.68	50	85	33	125	0.5	4	7.9	97	88	39
TC*IX684BT	B	0.68	50	85	33	125	0.5	4	8	103	93	41
TC*IX684CT	C	0.68	50	85	33	125	0.5	4	7	125	113	50
TC*IX105AT	A	1	50	85	33	125	0.5	4	6.6	107	96	43
TC*IX105BT	B	1	50	85	33	125	0.5	6	7	110	99	44
TC*IX105CT	C	1	50	85	33	125	0.5	4	5.5	141	127	57
TC*IX105UT	U	1	50	85	33	125	0.5	6	4.4	143	129	57
TC*IX155BT	B	1.5	50	85	33	125	0.8	8	5.4	125	113	50
TC*IX155CT	C	1.5	50	85	33	125	0.8	6	4.5	156	141	63
TC*IX155DT	D	1.5	50	85	33	125	0.8	6	4	194	174	77
TC*IX155UT	U	1.5	50	85	33	125	0.8	6	3.1	170	153	68
TC*IX225BT	B	2.5	50	85	33	125	1.1	8	4.5	137	124	55
TC*IX225CT	C	2.5	50	85	33	125	1.1	8	2.5	210	189	84
TC*IX225DT	D	2.5	50	85	33	125	1.1	6	2.5	245	220	98
TC*IX225UT	U	2.5	50	85	33	125	1.1	8	2.5	190	171	76
TC*IX335CT	C	3.3	50	85	33	125	1.6	6	2.5	210	189	84
TC*IX335DT	D	3.3	50	85	33	125	1.7	6	2	274	246	110
TC*IX335VT	V	3.3	50	85	33	125	1.7	4	1.5	289	260	115
TC*IX475CT	C	4.7	50	85	33	125	2.4	6	1.4	280	252	112

\* Insert K for +/-10% tolerance and M for +/-20%. | Capacitance and DF are measured at 120Hz, 0.5V RMS with maximum DC bias of 2.0 volts. DCL is measured at a rated voltage after 5 minutes. | Cal-chip reserves the right to substitute a higher voltage rated part. Additional values may be available, please contact your sales representative for more information.



## RATINGS & PART NUMBER REFERENCE

PART NUMBER	CASE SIZE	CAPACITANCE (μF)	RATED VOLTAGE (V)	RATED TEMP. (°C)	CATEGORY VOLTAGE (V)	CATEGORY TEMP. (°C)	DC LEAKAGE (UA) @+25°C MAX	DF (%) @+25°C 120Hz MAX	ESR (Ohm) @+25°C 100KHz MAX	100KHZ RMS CURRENT (MA)		
										25°C	85°C	125°C
50 VOLT RATING@+85C(33 VOLT RATING@+125C)												
TC*IX475DT	D	4.7	50	85	33	125	2.4	6	1.4	327	295	131
TC*IX475WT	W	4.7	50	85	33	125	2.4	6	1	316	285	126
TC*IX475VT	V	4.7	50	85	33	125	2.4	6	1.2	323	290	129
TC*IX685CT	C	6.8	50	85	33	125	3.4	6	1	332	298	133
TC*IX685DT	D	6.8	50	85	33	125	3.4	6	1	387	349	155
TC*IX685VT	V	6.8	50	85	33	125	3.4	6	0.9	373	335	149
TC*IX106DT	D	10	50	85	33	125	5	6	0.8	433	390	173
TC*IX106ET	E	10	50	85	33	125	5	6	0.8	454	409	182
TC*IX106HT	H	10	50	85	33	125	5	6	0.65	620	558	248
TC*IX156DT	D	15	50	85	33	125	7.5	6	0.6	500	450	200
TC*IX156ET	E	15	50	85	33	125	7.5	6	0.6	524	472	210
TC*IX156HT	H	15	50	85	33	125	7.5	6	0.6	645	581	258
TC*IX226ET	E	22	50	85	33	125	11	10	0.6	524	472	210
TC*IX226HT	H	22	50	85	33	125	11	8	0.6	645	581	258

\* Insert K for +/-10% tolerance and M for +/-20%. | Capacitance and DF are measured at 120Hz, 0.5V RMS with maximum DC bias of 2.0 volts. DCL is measured at a rated voltage after 5 minutes. | Cal-chip reserves the right to substitute a higher voltage rated part. Additional values may be available, please contact your sales representative for more information.

## TAPE AND REEL PACKAGING INFORMATION

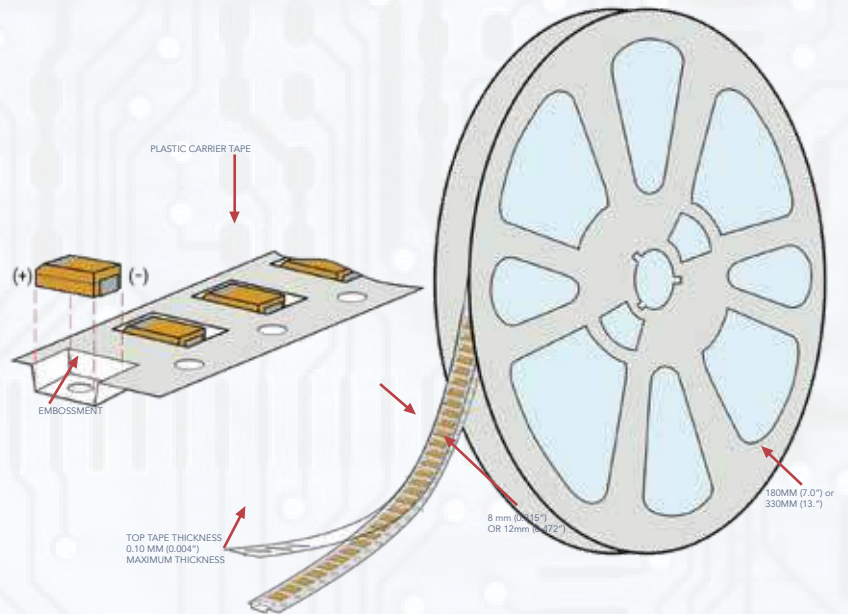
Cal-Chip's molded tantalum and aluminum chip capacitor families are packaged in 8 and 12 mm plastic tape on 7" reels in accordance with EIA Standard 481: Embossed Carrier Taping of Surface Mount Components for Automatic Handling. This packaging system is compatible with all tape-fed automatic pick-and-place systems.

### STANDARD CASE

CASE CODE		TAPE WIDTH (MM)	7" REEL
CCE	EIA		
A	3216-18	8	2,000
B	3528-21	8	2,000
C	6032-28	12	500
D	7343-31	12	500
E	7343-43	12	400/500
G	7361-43	12	400
H	7361-38	12	400

### LOW PROFILE CASE

CASE CODE		TAPE WIDTH (MM)	7" REEL
CCE	EIA		
R	2012-12	8	2,000
P	2012-15	8	2,000
K	3216-10	8	3000
S	3216-12	8	2500
T	3528-12	8	2500
M	3528-15	8	2500
U	6032-15	12	1000
F	6032-20	12	1000
W	7343-15	12	1000
V	7343-20	12	1000







# QUALIFICATION TABLE

TEST	TC SERIES (TEMPERATURE RANGE -55oC to +125oC)									
	CONDITION			CHARACTERISTICS						
ENDURANCE	Apply rated voltage (Ur) at 85oC and / or category voltage (Uc) at 125oC for 2000 hours through a circuit impedance of ≤0.1Ω/V. Stabilize at room temperature for 1-2 hours before measuring.			Visual Examination	no visible damage					
				DCL	1.25 x initial limit					
				ΔC/C	within ±10% of initial value					
				DF	initial limit					
HUMIDITY	Store at 65oC and 95% relative humidity for 500 hours, with no applied voltage. Stabilize at room temperature and humidity for 1-2 hours before measuring.			Visual Examination	no visible damage					
				DCL	1.5 x initial limit					
				ΔC/C	within ±10% of initial value					
				DF	1.2 x initial limit					
TEMPERATURE STABILITY	STEP	TEMP. °C	DURATION (MIN)		+20°C	-55°C	+20°C	+85°C	+125°C	+20°C
	1	+20	15	DCL	IL*	N/A	IL*	10 X IL*	12.5 X IL*	IL*
	2	-55	15		ΔC/C	N/A	+0/-10%	±5%	+10/-0%	+12/-0%
	3	+20	15	DF	IL*	1.5xIL*	IL*	1.5xIL*	2xIL*	IL*
	4	+85	15							
	5	+125	15							
6	+20	15								
SURGE VOLTAGE	Apply 1.3x category voltage (Uc) at 125oC for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000Ω			Visual Examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±5% of initial value					
				DF	initial limit					
MECHANICAL SHOCK	MIL-STD-202, Method 213, Condition C			Visual Examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±5% of initial value					
				DF	initial limit					
				ESR	initial limit					
VIBRATION	MIL-STD-202, Method 204, Condition D			Visual Examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±5% of initial value					
				DF	initial limit					
				ESR	initial limit					