

# TANTALUM SURFACE MOUNT CAPACITORS

## - LOW ESR -

TC SERIES: The TC Series is designed for hybrid circuit and low profile printed circuit board applications where inductance is to be minimized, or where substrate space is at a premium. They can be attached to substrates or circuit boards by dip soldering, welding, re-flow soldering or other conventional methods. 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.



### ■ BENEFITS

- Meets or exceeds EIA Standard 535BAAC
- Tape & Reel standard packaging per EIA 481
- High surge current capability
- Optional gold-plated terminations
- High ripple current capability
- 100% surge current test on B, C, D, E, U, V, and X sizes
- 100% steady-state accelerated aging
- Capacitance values of 0.15 – 1,500  $\mu$ F
- Tolerances of  $\pm$ 10% and  $\pm$ 20%
- Voltage rating of 2.5 – 50 VDC
- Extended range values
- RoHS compliant and lead-free terminations
- Operating temperature range of  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

### ■ APPLICATIONS

- Typical applications include decoupling and filtering in automotive end applications, such as DC/DC converters, portable electronics, telecommunications, and control units requiring high ripple current capability.

### ■ ENVIRONMENTAL COMPLIANCE

- RoHS compliant (6/6) according to Directive 2002/95/EC when ordered with 100% Sn solder, Gold-plated or Non-magnetic 100% Sn solder.

### ■ ORDERING INFORMATION

TC	K	IA	107	D	T	LSR 045	G
CAPACITOR CLASS	TOLERANCE	VOLTAGE (VDC)	CAPACITANCE CODE (Pf) First two digits represent significant figures. Third digit specifies number of zeros	CASE SIZE	TERMINATION FINISH	LOW ESR RATING	PACKAGING CODE
T = Tantalum	K = $\pm$ 10% M = $\pm$ 20%	OB = 2.5 OG = 4 OJ = 6.3 IA = 10 IC = 16 ID = 20 IE = 25 IV = 35 IX = 50		A R B S C T D H E U F W P V	T = 100% Matte tin (Sn)-plated	LSR = ESR last three digits specify ESR in $\text{m}\Omega$ (45 = 45 $\text{m}\Omega$ )	Blank: 7" reel G: 13" reel

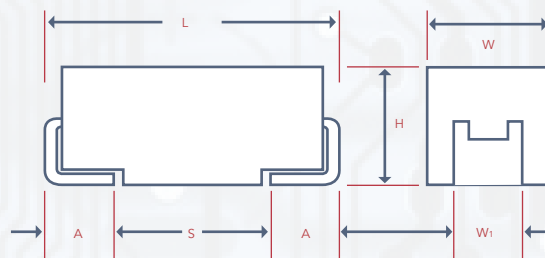
### ■ PERFORMANCE CHARACTERISTICS

ITEM	PERFORMANCE CHARACTERISTICS
Operating Temperature	$-55^{\circ}\text{C}$ to $125^{\circ}\text{C}$
Rated Capacitance Range	0.1 – 1,500 $\mu$ F at 120 Hz / $25^{\circ}\text{C}$
Capacitance Tolerance	K tolerance (10%), M tolerance (20%)
Rated Voltage Range	2.5 – 50 V
DF (120 Hz)	Refer to Part Number Electrical Specification Table
ESR (100 kHz)	Refer to Part Number Electrical Specification Table
Leakage Current	$\leq$ 0.01 CV ( $\mu$ A) at rated voltage after 5 minutes

## ■ QUALIFICATION

TEST	CONDITION	CHARACTERISTICS																				
Endurance	85°C at rated voltage, 2,000 hours 125°C at 2/3 rated voltage, 2,000 hours	Δ C/C - Within ±10% of initial value DF - Within initial limits DCL - Within 1.25 x initial limit ESR - Within initial limits																				
Storage Life	125°C at 0 volts, 2,000 hours	Δ C/C - Within ±10% of initial value DF - Within initial limits DCL - Within 1.25 x initial limit ESR - Within initial limits																				
Thermal Shock	MIL-STD-202, Method 107, Condition B, mounted, -55°C to 125°C, 1,000 cycles	Δ C/C - Within ±10% of initial value DF - Within initial limits DCL - Within 1.25 x initial limit ESR - Within initial limits																				
Temperature Stability	Extreme temperature exposure at a succession of continuous steps at +25°C, -55°C, +25°C, +85°C, +125°C, +25°C.	<table border="1"> <thead> <tr> <th></th> <th>+25°C</th> <th>-55°C</th> <th>+85°C</th> <th>+125°C</th> </tr> </thead> <tbody> <tr> <td>Δ C/C</td> <td>IL* ±</td> <td>10%</td> <td>±10%</td> <td>±20%</td> </tr> <tr> <td>DF</td> <td>IL</td> <td>IL</td> <td>1.5 x IL</td> <td>1.5 x IL</td> </tr> <tr> <td>DCL</td> <td>IL</td> <td>N/A</td> <td>10 x IL</td> <td>12 x IL</td> </tr> </tbody> </table>		+25°C	-55°C	+85°C	+125°C	Δ C/C	IL* ±	10%	±10%	±20%	DF	IL	IL	1.5 x IL	1.5 x IL	DCL	IL	N/A	10 x IL	12 x IL
	+25°C	-55°C	+85°C	+125°C																		
Δ C/C	IL* ±	10%	±10%	±20%																		
DF	IL	IL	1.5 x IL	1.5 x IL																		
DCL	IL	N/A	10 x IL	12 x IL																		
Surge Voltage	85°C, 1.32 x rated voltage 1,000 cycles (125°C, 1.2 x rated voltage)	Δ C/C - Within ±5% of initial value DF - Within initial limits DCL - Within initial limits ESR - Within initial limits																				
Mechanical Shock/ Vibration	MIL-STD-202, Method 213, Condition I, 100 G peak MIL-STD-202, Method 204, Condition D, 10 Hz to 2,000 Hz, 20 G peak	Δ C/C - Within ±10% of initial value DF - Within initial limits DCL - Within initial limits																				

## ■ 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 <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)
F	2312	6032-20	6.00 (0.236)	3.20 (0.126)	2.00 (0.079) max.	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
M	1210	3528-15	3.20 - 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)
P	0805	2012-15	2.05 (0.081)	1.35 (0.053)	1.50 (0.059) max.	1.00 ±0.10 (0.039±0.004)	0.50 (0.020)	0.85 (0.033)
R	1206	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	0805	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)
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)
U	2312	6032-15	6.00 (0.236)	3.20 (0.126)	1.50 (0.059) max.	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
W	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)
V	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)



## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°CMax /5Min	% at +20°CMax 120 Hz Max	mΩ at 20°C 120kHz	mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz	°C	Reflow Temp ≤ 260°C
2.5	100	B/3528-21	TC(1)OB107BTLRSR200	2.5	8	200	652	587	261	125	1
2.5	150	B/3528-21	TC(1)OB157BTLRSR150	3	10	150	753	677	301	125	1
2.5	220	B/3528-21	TC(1)OB227BTLRSR150	4.4	15	150	753	677	301	125	1
2.5	220	B/3528-21	TC(1)OB227BTLRSR200	4.4	15	200	652	587	261	125	1
2.5	220	B/3528-21	TC(1)OB227BTLRSR600	4.4	15	600	376	339	151	125	1
2.5	330	V/7343-20	TC(1)OB337VTLRSR040	8.2	8	40	1768	1591	707	125	1
2.5	470	F/6032-20	TC(1)OB477FTLRSR200	11.8	12	200	707	636	283	125	1
2.5	470	V/7343-20	TC(1)OB477VTLRSR100	11	12	100	1118	1006	447	125	1
2.5	680	D/7343-21	TC(1)OB687DTLSR035	17	16	35	2070	1863	828	125	1
2.5	680	D/7343-21	TC(1)OB687DTLSR050	17	16	50	1732	1559	693	125	1
2.5	680	E/7343-43	TC(1)OB687ETLSR035	17	10	35	2171	1954	686	125	1
2.5	680	E/7343-43	TC(1)OB687ETLSR050	17	10	50	1817	1635	727	125	1
2.5	680	V/7343-20	TC(1)OB687VTLRSR100	17	12	100	1118	1006	447	125	1
2.5	1000	V/7343-31	TCMOB108VTLRSR100	25	30	100	1118	1006	447	125	1
2.5	15000	D/7343-31	TC(1)OB158DTLSR100	37.5	60	100	1225	1102	490	125	1
2.5	15000	E/7343-43	TC(1)OB158ETLSR050	37.5	20	50	1817	1635	727	125	1
2.5	15000	H/7361-38	TCMOB158HTLSR030	30	20	30	2887	2598	1155	125	1
2.5	15000	H/7361-38	TCMOB158HLSR040	30	20	40	2500	2250	1000	125	1
2.5	220	D/7343-31	TC(1)OB227DTLSR045	5.5	8	45	1826	1643	730	125	1
2.5	470	D/7343-31	TC(1)OB477DTLSR035	11.8	8	35	2070	1863	828	125	1
2.5	1000	E/7343-43	TC(1)OB108ETLSR030	25	15	30	2345	2111	938	125	1
2.5	1000	E/7343-43	TC(1)OB108ETLSR040	25	15	40	2031	1828	812	125	1
4	6.8	A/3216-18	TC(1)OG685ATLSR2K0	0.5	6	2000	194	175	78	125	1
4	10	R/2012-12	TC(1)OG106RTLSR3K0	0.5	6	3000	135	122	54	125	1
4	22	C/6032-28	TC(1)OG226CTLSR380	0.9	6	380	538	484	215	125	1
4	22	C/6032-28	TC(1)OG226CTLSR2K4	0.9	6	2400	214	193	86	125	1
4	33	T/3528-12	TC(1)OG336TTLRSR1K2	1.3	8	1200	242	218	97	125	1
4	47	A/3216-18	TC(1)OG476ATLSR500	1.9	8	500	387	349	156	125	1
4	68	T/3528-12	TC(1)OG686TTLRSR1K5	2.7	20	1500	216	194	86	125	1
4	68	V/7343-20	TC(1)OG686VTLRSR150	2.7	6	150	913	822	365	125	1
4	100	B/3528-21	TC(1)OG107BTLRSR200	4	8	200	652	587	261	125	1
4	100	B/3528-21	TC(1)OG107BTLRSR250	4	8	250	583	525	233	125	1
4	100	B/3528-21	TC(1)OG107BTLRSR350	4	8	350	493	444	197	125	1
4	100	B/3528-21	TC(1)OG107BTLRSR500	4	8	500	412	371	165	125	1
4	100	D/7343-31	TC(1)OG107DTLSR800	4	6	800	433	390	173	125	1
4	100	T/3528-12	TCMOG107TTLRSR500	4	14	500	400	360	160z v	125	1
4	100	U/6032-15	TC(1)OG107UTLSR100	4	6	100	949	854	379	125	1
4	100	V/7343-20	TC(1)OG107VTLRSR100	4	6	100	1118	1006	447	125	1
4	150	B/3528-21	TC(1)OG157BTLRSR250	4	10	250	583	525	233	125	1
4	150	B/3528-21	TC(1)OG157BTLRSR900	4	12	900	307	276	123	125	1
4	150	C/6032-28	TC(1)OG157CTLSR070	6	12	70	1254	1128	501	125	1
4	150	C/6032-28	TC(1)OG157CTLSR080	6	6	80	1173	1055	469	125	1
4	150	C/6032-28	TC(1)OG157CTLSR250	6	8	250	663	597	265	125	1
4	150	U/6032-15	TC(1)OG157UTLSR200	6	8	200	671	604	268	125	1
4	220	D/7343-31	TC(1)OG227DTLSR040	8.8	8	40	1936	1743	775	125	1
4	220	D/7343-31	TC(1)OG227DTLSR050	8.8	8	50	1732	1559	693	125	1
4	220	V/7343-20	TC(1)OG227VTLRSR040	8.8	8	40	1768	1591	707	125	1
4	220	V/7343-20	TC(1)OG227VTLRSR050	8.8	8	50	1581	1423	632	125	1
4	220	V/7343-20	TC(1)OG227VTLRSR075	8.8	8	75	1291	1162	516	125	1
4	220	D/7343-31	TC(1)OG227DTLSR100	8.8	8	100	1225	1102	490	125	1
4	330	C/6032-28	TC(1)OG337CTLSR300	13.2	10	300	606	545	242	125	1
4	330	C/6032-28	TC(1)OG337CTLSR700	13.2	12	700	396	356	158	125	1
4	330	D/7343-31	TC(1)OG337DTLSR030	13.2	8	30	2236	2012	894	125	1
4	330	D/7343-31	TC(1)OG337DTLSR045	13.2	8	45	1826	1643	730	125	1
4	330	D/7343-31	TC(1)OG337DTLSR100	13.2	8	100	1225	1102	490	125	1
4	330	F/6032-20	TC(1)OG337FTLRSR200	13.2	10	200	707	636	283	125	1
4	330	W/7343-15	TC(1)OG337WTLRSR100	13.2	8	100	1000	900	400	125	1
4	470	D/7343-31	TC(1)OG477DTLSR045	18.8	12	45	1826	1643	730	125	1
4	470	D/7343-31	TC(1)OG477DTLSR100	18.8	12	100	1225	1102	490	125	1
4	470	E/7343-43	TC(1)OG477ETLSR035	18.8	10	35	2171	1954	868	125	1
4	470	E/7343-43	TC(1)OG477ETLSR045	18.8	8	45	1915	1723	766	125	1
4	470	E/7343-43	TC(1)OG477ETLSR060	18.8	10	60	1658	1492	663	125	1
4	470	E/7343-43	TC(1)OG477ETLSR100	18.8	8	100	1285	1156	514	125	1
4	680	D/7343-31	TC(1)OG687DTLSR045	27.2	14	45	1826	1643	730	125	1
4	680	D/7343-31	TC(1)OG687DTLSR060	27.2	14	60	1581	1423	632	125	1
4	680	D/7343-31	TC(1)OG687DTLSR100	27.2	14	100	1225	1102	490	125	1
4	680	E/7343-43	TC(1)OG687ETLSR040	27.2	10	40	2031	1828	812	125	1
4	680	E/7343-43	TC(1)OG687ETLSR060	27.2	10	60	1658	1492	663	125	1
4	680	E/7343-43	TC(1)OG687ETLSR100	27.2	10	100	1285	1156	514	125	1
4	1000	E/7343-43	TC(1)OG108ETLSR030	40	10	30	2345	2111	938	125	1

NOTE: (1) denotes part available in both K and M tolerance.

## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°CMax /5Min	% at +20°CMax 120 Hz Max	mΩ at 20°C 120kHz	mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz	°C	Reflow Temp ≤ 260°C
4	1000	E/7343-43	TC(1)OG108ETLSR040	40	10	40	2031	1828	812	125	1
4	1000	E/7343-43	TC(1)OG108ETLSR060	40	10	60	1658	1492	663	125	1
4	1000	E/7343-43	TC(1)OG108ETLSR070	40	10	70	1535	1382	614	125	1
4	1000	E/7343-43	TC(1)OG108ETLSR090	40	10	90	1354	1219	542	125	1
4	1000	E/7343-43	TC(1)OG108ETLSR100	40	10	100	1285	1157	514	125	1
4	1000	H/7360-38	TC(1)OG108HTLSR035	40	16	35	2673	2405	1069	125	1
4	1000	H/7360-38	TC(1)OG108HTLSR050	40	16	50	2236	2012	894	125	1
6.3	2.2	R/2012-15	TC(1)OJ225RTLSR7K0	0.5	6	7000	89	80	35	125	1
6.3	2.2	A/3216-18	TC(1)OJ225ATLSR5K0	0.5	6	5000	122	110	49	125	1
6.3	3.3	A/3216-18	TC(1)OJ335ATLSR2K1	0.5	6	2100	189	170	76	125	1
6.3	3.3	A/3216-18	TC(1)OJ335ATLSR3K0	0.5	6	3000	158	142	63	125	1
6.3	4.7	S/3216-12	TC(1)OJ475STLSR4K0	0.5	6	4000	127	115	51	125	1
6.3	6.8	A/3216-18	TC(1)OJ685ATLSR1K8	0.5	6	1800	204	184	82	125	1
6.3	6.8	A/3216-18	TC(1)OJ685ATLSR2K0	0.5	6	2000	194	175	78	125	1
6.3	6.8	A/3216-18	TC(1)OJ685ATLSR4K5	0.5	6	4500	129	116	52	125	1
6.3	6.8	C/6032-28	TC(1)OJ685CTLSR480	0.5	6	480	479	431	192	125	1
6.3	10	A/3216-18	TC(1)OJ106ATLSR800	0.6	6	800	306	275	122	125	1
6.3	10	A/3216-18	TC(1)OJ106ATLSR1K0	0.6	6	1000	274	247	110	125	1
6.3	10	A/3216-18	TC(1)OJ106ATLSR1K5	0.6	6	1500	224	201	89	125	1
6.3	10	A/3216-18	TC(1)OJ106ATLSR2K0	0.6	6	2000	194	175	78	125	1
6.3	10	B/3528-21	TC(1)OJ106BTLSR1K5	0.6	6	1500	238	214	95	125	1
6.3	10	R/2012-12	TC(1)OJ106RTLSR1K0	0.6	8	1000	235	211	94	125	1
6.3	10	R/2012-12	TC(1)OJ106RTLSR1K5	0.6	8	1500	191	172	77	125	1
6.3	10	R/2012-12	TC(1)OJ106RTLSR3K0	0.6	8	3000	135	122	54	125	1
6.3	10	T/3528-12	TC(1)OJ106TTLR1K0	0.6	6	1000	283	255	113	125	1
6.3	10	B/3528-21	TC(1)OJ106BTLSR1K0	0.6	6	1000	292	263	117	125	1
6.3	10	T/3528-12	TC(1)OJ106TTLR1K2	0.6	6	1200	242	218	97	125	1
6.3	15	A/3216-18	TC(1)OJ156ATLSR700	0.9	6	700	327	295	131	125	1
6.3	15	A/3216-18	TC(1)OJ156ATLSR1K5	0.9	6	1500	224	201	89	125	1
6.3	15	A/3216-18	TC(1)OJ156ATLSR2K0	0.9	6	2000	194	175	78	125	1
6.3	15	T/3528-12	TC(1)OJ156TTLR1K0	0.9	6	1000	265	239	106	125	1
6.3	22	S/3216-12	TC(1)OJ226STLSR900	1.3	10	900	269	242	107	125	1
6.3	22	A/3216-18	TC(1)OJ226ATLSR300	1.4	6	300	500	450	200	125	1
6.3	22	A/3216-18	TC(1)OJ226ATLSR500	1.4	6	500	387	349	155	125	1
6.3	22	A/3216-18	TC(1)OJ226ATLSR900	1.4	8	900	289	260	115	125	1
6.3	22	A/3216-18	TC(1)OJ226ATLSR1K5	1.4	8	1500	224	202	90	125	1
6.3	22	B/3528-21	TC(1)OJ226BTLSR375	1.4	6	375	289	260	115	125	1
6.3	22	B/3528-21	TC(1)OJ226BTLSR500	1.4	6	500	412	371	165	125	1
6.3	22	C/6032-28	TC(1)OJ226CTLSR380	1.4	6	380	538	484	215	125	1
6.3	22	C/6032-28	TC(1)OJ226CTLSR500	1.4	6	500	469	422	188	125	1
6.3	33	A/3216-18	TC(1)OJ336ATLSR600	2.1	12	600	354	319	142	125	1
6.3	33	B/3528-21	TC(1)OJ336BTLSR250	2.1	6	250	583	525	233	125	1
6.3	33	B/3528-21	TC(1)OJ336BTLSR600	2.1	6	600	376	339	151	125	1
6.3	33	T/3528-12	TC(1)OJ336TTLR800	2.1	6	800	316	285	126	125	1
6.3	33	C/6032-28	TC(1)OJ336CTLSR350	2.1	6	350	561	505	224	125	1
6.3	47	A/3216-18	TC(1)OJ476ATLSR800	2.8	10	800	306	276	122	125	1
6.3	47	T/3528-12	TC(1)OJ476TTLR1K2	2.8	10	1200	258	232	103	125	1
6.3	47	B/3528-21	TC(1)OJ476BTLSR250	3	6	250	583	525	233	125	1
6.3	47	B/3528-21	TC(1)OJ476BTLSR400	3	6	400	461	415	184	125	1
6.3	47	B/3528-21	TC(1)OJ476BTLSR450	3	6	450	435	392	174	125	1
6.3	47	B/3528-21	TC(1)OJ476BTLSR500	3	6	500	583	525	233	125	1
6.3	47	C/6032-28	TC(1)OJ476CTLSR250	3	6	250	663	597	265	125	1
6.3	47	C/6032-28	TC(1)OJ476CTLSR300	3	6	300	606	545	242	125	1
6.3	47	C/6032-28	TC(1)OJ476CTLSR330	3	6	330	577	519	231	125	1
6.3	47	V/7343-20	TC(1)OJ476VTLR150	3	6	150	913	822	365	125	1
6.3	68	B/3528-21	TC(1)OJ686BTLSR250	4	8	250	583	525	233	125	1
6.3	68	B/3528-21	TC(1)OJ686BTLSR500	4.3	8	500	412	371	165	125	1
6.3	68	C/6032-28	TC(1)OJ686CTLSR150	4.3	6	150	856	771	343	125	1
6.3	68	C/6032-28	TC(1)OJ686CTLSR400	4.3	6	400	524	472	210	125	1
6.3	68	U/6032-15	TC(1)OJ686UTLSR110	4.3	6	110	905	814	362	125	1
6.3	68	U/6032-15	TC(1)OJ686UTLSR125	4.3	6	125	849	764	339	125	1
6.3	68	U/6032-15	TC(1)OJ686UTLSR250	4.3	6	250	600	540	240	125	1
6.3	68	U/6032-15	TC(1)OJ686UTLSR400	4.3	6	400	474	427	190	125	1
6.3	68	D/7343-31	TC(1)OJ686DTLSR175	4.3	4	175	926	833	370	125	1
6.3	68	D/7343-31	TC(1)OJ686DTLSR180	4.3	4	180	913	822	365	125	1
6.3	100	B/3528-21	TC(1)OJ107BTLSR250	6.3	10	250	583	525	233	125	1
6.3	100	B/3528-21	TC(1)OJ107BTLSR400	6.3	15	400	461	415	184	125	1
6.3	100	B/3528-21	TC(M)OJ107BTLSR700	6.3	15	700	348	313	139	125	1
6.3	100	M/3528-15	TC(1)OJ107MTLSR500	6.3	20	500	490	441	196	125	1
6.3	100	M/3528-15	TC(1)OJ107MTLSR1K0	6.3	20	1000	346	311	138	125	1
6.3	100	U/6032-15	TC(1)OJ107UTLSR100	6.3	6	100	949	854	379	125	1

NOTE: (1) denotes part available in both K and M tolerance.





## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°CMax /5Min	% at +20°CMax 120 Hz Max	mΩ at 20°C 120kHz	mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz	°C	Reflow Temp ≤ 260°C
6.3	100	U/6032-15	TC(1)OJ107UTLSR150	6.3	6	150	775	697	310	125	1
6.3	100	D/7343-31	TC(1)OJ107DTLSR300	6.3	6	300	707	636	283	125	1
6.3	100	C/6032-28	TC(1)OJ107CTLSR075	6.3	8	75	1211	1090	484	125	1
6.3	100	C/6032-28	TC(1)OJ107CTLSR150	6.3	8	150	856	771	343	125	1
6.3	100	D/7343-31	TC(1)OJ107DTLSR050	6.3	6	50	1732	1559	693	125	1
6.3	100	D/7343-31	TC(1)OJ107DTLSR130	6.3	6	130	1074	967	430	125	1
6.3	100	D/7343-31	TC(1)OJ107DTLSR150	6.3	8	150	1000	900	400	125	1
6.3	100	D/7343-31	TC(1)OJ107DTLSR800	6.3	6	800	433	390	173	125	1
6.3	100	V/7343-20	TC(1)OJ107VTLRSR090	6.3	8	90	1179	1061	472	125	1
6.3	100	V/7343-20	TC(1)OJ107VTLRSR100	6.3	6	100	1118	1006	447	125	1
6.3	100	V/7343-20	TC(1)OJ107VTLRSR150	6.3	8	150	913	822	365	125	1
6.3	150	B/3528-21	TC(1)OJ157BTLRSR800	9.5	6	800	326	293	130	125	1
6.3	150	C/6032-28	TC(1)OJ157CTLSR050	9.5	8	50	1483	1335	593	125	1
6.3	150	C/6032-28	TC(1)OJ157CTLSR200	9.5	8	200	742	667	297	125	1
6.3	150	U/6032-15	TC(1)OJ157UTLSR200	9.5	8	200	671	604	268	125	1
6.3	150	V/7343-20	TC(1)OJ157VTLRSR040	9.5	8	40	1768	1591	707	125	1
6.3	150	V/7343-20	TC(1)OJ157VTLRSR070	9.5	8	70	1336	1202	534	125	1
6.3	150	V/7343-20	TC(1)OJ157VTLRSR150	9.5	8	150	913	822	365	125	1
6.3	150	D/7343-31	TC(1)OJ157DTLSR050	9.5	6	50	1732	1559	693	125	1
6.3	150	D/7343-31	TC(1)OJ157DTLSR065	9.5	6	65	1519	1367	608	125	1
6.3	150	D/7343-31	TC(1)OJ157DTLSR080	9.5	6	80	1369	1232	548	125	1
6.3	150	D/7343-31	TC(1)OJ157DTLSR100	9.5	6	100	1225	1103	490	125	1
6.3	150	D/7343-31	TC(1)OJ157DTLSR125	9.5	6	125	1095	986	438	125	1
6.3	150	E/7343-43	TC(1)OJ157ETLSR100	9.5	6	100	1285	1157	514	125	1
6.3	220	C/6032-28	TC(1)OJ227CTLSR225	13.9	10	225	699	629	280	125	1
6.3	220	C/6032-28	TC(1)OJ227CTLSR200	13.9	10	200	742	668	297	125	1
6.3	220	C/6032-28	TC(1)OJ227CTLSR100	13.9	10	100	1049	944	420	125	1
6.3	220	D/7343-31	TC(1)OJ227DTLSR045	13.9	8	45	1826	1643	730	125	1
6.3	220	D/7343-31	TC(1)OJ227DTLSR050	13.9	8	50	1732	1559	693	125	1
6.3	220	D/7343-31	TC(1)OJ227DTLSR100	13.9	8	100	1225	1102	490	125	1
6.3	220	W/7343-15	TC(1)OJ227WTLRSR250	13.9	8	250	849	764	340	125	1
6.3	220	E/7343-43	TC(1)OJ227ETLSR070	13.9	8	70	1535	1382	614	125	1
6.3	220	E/7343-43	TC(1)OJ227ETLSR080	13.9	8	8000	1436	1292	574	125	1
6.3	220	F/6032-20	TC(1)OJ227FTLRSR200	13.2	10	200	707	636	283	125	1
6.3	220	C/6032-28	TC(1)OJ227CTLSR070	13.9	8	70	1254	1128	501	125	1
6.3	220	E/7343-43	TC(1)OJ227ETLSR100	13.9	8	100	1285	1156	514	125	1
6.3	220	V/7343-20	TC(1)OJ227VTLRSR100	13.9	8	100	1118	1006	447	125	1
6.3	220	V/7343-20	TC(1)OJ227VTLRSR150	13.9	8	150	913	822	365	125	1
6.3	330	C/6032-28	TC(1)OJ337CTLSR080	19.8	12	80	1173	1055	469	125	1
6.3	330	C/6032-28	TC(1)OJ337CTLSR100	19.8	12	100	1049	944	420	125	1
6.3	330	C/6032-28	TC(1)OJ337CTLSR200	20.8	18	200	742	668	297	125	1
6.3	330	D/7343-31	TC(1)OJ337DTLSR040	20.8	8	40	1936	1742	774	125	1
6.3	330	D/7343-31	TC(1)OJ337DTLSR045	20.8	8	45	1826	1643	730	125	1
6.3	330	D/7343-31	TC(1)OJ337DTLSR050	20.8	8	50	1732	1559	693	125	1
6.3	330	D/7343-31	TC(1)OJ337DTLSR070	20.8	8	70	1464	1317	586	125	1
6.3	330	D/7343-31	TC(1)OJ337DTLSR100	20.8	8	100	1225	1102	490	125	1
6.3	330	V/7343-20	TC(1)OJ337VTLRSR075	20.8	12	75	1291	1162	516	125	1
6.3	330	V/7343-20	TC(1)OJ337VTLRSR100	20.8	12	100	1118	1006	447	125	1
6.3	330	V/7343-20	TC(1)OJ337VTLRSR150	20.8	8	150	913	822	365	125	1
6.3	330	E/7343-43	TC(1)OJ337ETLSR045	20.8	8	45	1915	1724	766	125	1
6.3	330	E/7343-43	TC(1)OJ337ETLSR050	20.8	8	50	1817	1635	727	125	1
6.3	330	E/7343-43	TC(1)OJ337ETLSR065	20.8	8	65	1593	1434	637	125	1
6.3	330	E/7343-43	TC(1)OJ337ETLSR080	20.8	8	80	1436	1292	574	125	1
6.3	330	E/7343-43	TC(1)OJ337ETLSR100	20.8	8	100	1285	1156	514	125	1
6.3	330	H/7360-38	TC(1)OJ337HTLSR060	20.8	8	60	1581	1423	632	125	1
6.3	330	H/7360-38	TC(1)OJ337HTLSR100	20.8	8	100	1581	1423	632	125	1
6.3	470	D/7343-31	TC(1)OJ477DTLSR045	29.6	12	45	1826	1643	730	125	1
6.3	470	D/7343-31	TC(1)OJ477DTLSR100	29.6	12	100	1225	1102	490	125	1
6.3	470	D/7343-31	TC(1)OJ477DTLSR125	29.6	12	125	1095	986	438	125	1
6.3	470	D/7343-31	TC(1)OJ477DTLSR150	29.6	12	150	1000	900	400	125	1
6.3	470	V/7343-20	TC(1)OJ477VTLRSR150	29.6	15	150	913	822	365	125	1
6.3	470	E/7343-43	TC(1)OJ477ETLSR030	29.6	10	30	2345	2111	938	125	1
6.3	470	E/7343-43	TC(1)OJ477ETLSR045	29.6	10	45	1915	1723	766	125	1
6.3	470	E/7343-43	TC(1)OJ477ETLSR050	29.6	10	50	1817	1635	727	125	1
6.3	470	E/7343-43	TC(1)OJ477ETLSR060	29.6	10	60	1658	1492	663	125	1
6.3	470	E/7343-43	TC(1)OJ477ETLSR065	29.6	10	65	1593	1434	637	125	1
6.3	470	E/7343-43	TC(1)OJ477ETLSR100	29.6	10	100	1285	1156	514	125	1
6.3	470	E/7343-43	TC(1)OJ477ETLSR125	29.6	10	125	1149	1034	460	125	1
6.3	470	H/7360-38	TC(1)OJ477HTLSR040	29.6	10	40	2500	2250	1000	125	1
6.3	470	H/7360-38	TC(1)OJ477HTLSR055	29.6	10	55	2132	1919	853	125	1

NOTE: (1) denotes part available in both K and M tolerance.

## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°CMax /5Min	% at +20°CMax 120 Hz Max	mΩ at 20°C 120kHz	mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz	°C	Reflow Temp ≤ 260°C
6.3	470	H/7360-38	TC(1)OJ477HTLSR100	29.6	10	100	1581	1423	632	125	1
6.3	680	E/7343-43	TC(1)OJ687ETLSR045	42.8	12	45	1915	1723	766	125	1
6.3	680	E/7343-43	TC(1)OJ687ETLSR060	42.8	12	60	1658	1492	663	125	1
6.3	680	E/7343-43	TC(1)OJ687ETLSR100	42.8	12	100	1285	1156	514	125	1
6.3	680	H/7360-38	TC(1)OJ687HTLSR035	42.8	10	35	2673	2405	1069	125	1
6.3	680	H/7360-38	TC(1)OJ687HTLSR040	42.8	10	40	2500	2250	1000	125	1
6.3	680	H/7360-38	TC(1)OJ687HTLSR050	42.8	10	50	2236	2012	894	125	1
6.3	1000	E/7343-43	TC(1)OJ108ETLSR100	63	20	100	1285	1156	514	125	1
6.3	1000	H/7360-38	TC(1)OJ108HTLSR040	63	15	40	2500	2250	1000	125	1
6.3	1000	H/7360-38	TC(1)OJ108HTLSR050	63	15	50	2000	1800	800	125	1
10	1	R/2012-15	TC(1)IA105RTLSR9K0	0.5	4	9000	78	70	31	125	1
10	2.2	A/3216-18	TC(1)IA225ATLSR1K8	0.5	6	1800	204	184	82	125	1
10	2.2	A/3216-18	TC(1)IA225ATLSR7K0	0.5	6	7000	104	94	42	125	1
10	3.3	A/3216-18	TC(1)IA335ATLSR2K0	0.5	6	2000	194	175	78	125	1
10	3.3	T/3528-12	TC(1)IA335TTLR1K5	0.5	6	1500	231	208	92	125	1
10	4.7	R/2012-12	TC(1)IA475RTLSR3K0	0.5	6	3000	135	122	54	125	1
10	4.7	R/2012-12	TC(1)IA475RTLSR5K0	0.5	6	5000	105	94	42	125	1
10	4.7	A/3216-18	TC(1)IA475ATLSR1K2	0.5	6	1200	250	225	100	125	1
10	4.7	A/3216-18	TC(1)IA475ATLSR1K3	0.5	6	1300	240	216	96	125	1
10	4.7	A/3216-18	TC(1)IA475ATLSR1K4	0.5	6	1400	231	208	93	125	1
10	4.7	A/3216-18	TC(1)IA475ATLSR1K8	0.5	6	1800	204	184	82	125	1
10	4.7	B/3528-21	TC(1)IA475BTLR1K3	0.5	15	1300	256	230	102	125	1
10	4.7	B/3528-21	TC(1)IA475BTLR1K4	0.5	6	1400	246	222	99	125	1
10	4.7	B/3528-21	TC(1)IA475BTLR1K5	0.5	6	1500	238	214	95	125	1
10	6.8	A/3216-18	TC(1)IA685ATLSR1K8	0.7	6	1800	204	184	82	125	1
10	6.8	T/3528-12	TC(1)IA685TTLR1K8	0.7	6	1800	211	190	84	125	1
10	6.8	B/3528-21	TC(1)IA685BTLR900	0.7	6	900	307	176	123	125	1
10	6.8	B/3528-21	TC(1)IA685BTLR1K1	0.7	6	1100	278	250	111	125	1
10	6.8	B/3528-21	TC(1)IA685BTLR1K3	0.7	6	1300	256	230	102	125	1
10	10	P/2012-15	TCMIA106PTLSR2K0	1	8	2000	173	156	69	125	1
10	10	S-3216-12	TC(1)IA106STLSR900	1	8	900	269	242	107	125	1
10	10	A/3216-18	TC(1)IA106ATLSR900	1	6	900	289	260	115	125	1
10	10	A/3216-18	TC(1)IA106ATLSR1K8	1	6	1800	204	184	82	125	1
10	10	A/3216-18	TC(1)IA106ATLSR2K0	1	6	2000	194	175	78	125	1
10	10	A/3216-18	TC(1)IA106ATLSR2K5	1	6	2500	173	156	69	125	1
10	10	A/3216-18	TC(1)IA106ATLSR3K8	1	6	3800	140	126	56	125	1
10	10	B/3528-21	TC(1)IA106BTLR600	1	6	600	376	338	150	125	1
10	10	B/3528-21	TC(1)IA106BTLR750	1	6	750	337	303	135	125	1
10	10	B/3528-21	TC(1)IA106BTLR1K0	1	6	1000	292	262	117	125	1
10	10	B/3528-21	TC(1)IA106BTLR3K0	1	6	3000	168	151	67	125	1
10	10	C/6032-28	TC(1)IA106CTLSR400	1	6	400	524	472	210	125	1
10	10	T/3528-12	TC(1)IA106TTLR1K0	1	6	1000	283	255	113	125	1
10	10	T/3528-12	TC(1)IA106TTLR1K5	1	6	1500	216	194	86	125	1
10	15	A/3216-18	TC(1)IA156ATLSR1K0	1.5	6	1000	274	246	110	125	1
10	15	A/3216-18	TC(1)IA156ATLSR1K8	1.5	6	1800	204	184	82	125	1
10	15	B/3528-21	TC(1)IA156BTLR450	1.5	6	450	435	391	174	125	1
10	15	B/3528-21	TC(1)IA156BTLR600	1.5	6	600	376	339	151	125	1
10	15	B/3528-21	TC(1)IA156BTLR900	1.5	6	900	307	276	123	125	1
10	15	B/3528-21	TC(1)IA156BTLR500	1.5	6	500	412	371	165	125	1
10	15	T/3528-12	TC(1)IA156TTLR1K2	1.5	6	1200	258	232	103	125	1
10	15	C/6032-28	TC(1)IA156CTLSR375	1.5	6	375	542	488	217	125	1
10	15	C/6032-28	TC(1)IA156CTLSR400	1.5	6	400	524	472	210	125	1
10	15	C/6032-28	TC(1)IA156CTLSR700	1.5	8	700	396	357	159	125	1
10	22	A/3216-18	TC(1)IA226ATLSR900	2.2	8	900	289	260	115	125	1
10	22	A/3216-18	TC(1)IA226ATLSR1K2	2.2	8	1200	250	225	100	125	1
10	22	A/3216-18	TC(1)IA226ATLSR1K5	2.2	8	1500	224	202	90	125	1
10	22	B/3528-21	TC(1)IA226BTLR400	2.2	6	400	461	415	184	125	1
10	22	B/3528-21	TC(1)IA226BTLR500	2.2	6	500	412	371	165	125	1
10	22	B/3528-21	TC(1)IA226BTLR700	2.2	6	700	348	314	139	125	1
10	22	B/3528-21	TC(1)IA226BTLR800	2.2	6	800	326	293	130	125	1
10	22	B/3528-21	TC(1)IA226BTLR2K3	2.2	6	2300	192	173	77	125	1
10	22	C/6032-28	TC(1)IA226CTLSR200	2.2	6	200	742	668	297	125	1
10	22	C/6032-28	TC(1)IA226CTLSR245	2.2	6	245	670	603	268	125	1
10	22	C/6032-28	TC(1)IA226CTLSR290	2.2	6	290	616	554	246	125	1
10	22	C/6032-28	TC(1)IA226CTLSR300	2.2	6	300	606	545	242	125	1
10	22	C/6032-28	TC(1)IA226CTLSR345	2.2	6	345	565	509	226	125	1
10	22	C/6032-28	TC(1)IA226CTLSR350	2.2	6	350	561	505	224	125	1
10	22	C/6032-28	TC(1)IA226CTLSR380	2.2	6	380	538	484	215	125	1
10	22	T/3528-12	TC(1)IA226TTLR800	2.2	8	800	316	285	126	125	1
10	33	A/3216-18	TC(1)IA336ATLSR700	3.3	8	700	327	295	131	125	1

NOTE: (1) denotes part available in both K and M tolerance.





## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°CMax /5Min	% at +20°CMax 120 Hz Max	mΩ at 20°C 120kHz	mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz	°C	Reflow Temp ≤ 260°C
10	33	B/3528-21	TC(1)JA336BTLRSR250	3.3	6	250	583	525	233	125	1
10	33	B/3528-21	TC(1)JA336BTLRSR425	3.3	6	425	447	402	179	125	1
10	33	B/3528-21	TC(1)JA336BTLRSR500	3.3	6	500	412	371	165	125	1
10	33	B/3528-21	TC(1)JA336BTLRSR650	3.3	6	650	362	325	145	125	1
10	33	C/6032-28	TC(1)JA336CTLSR150	3.3	6	150	856	771	343	125	1
10	33	C/6032-28	TC(1)JA336CTLSR375	3.3	6	375	542	487	217	125	1
10	33	C/6032-28	TC(1)JA336CTLSR500	3.3	6	500	469	422	188	125	1
10	33	U/6032-15	TC(1)JA336UTLSR350	3.3	6	350	507	456	203	125	1
10	33	V/7343-20	TC(1)JA336VTLSR100	3.3	6	100	1118	1006	447	125	1
10	33	V/7343-20	TC(1)JA336VTLSR150	3.3	6	150	913	822	365	125	1
10	47	B/3528-21	TC(1)JA476BTLRSR250	4.7	8	250	583	525	233	125	1
10	47	B/3528-21	TC(1)JA476BTLRSR350	4.7	8	350	493	444	197	125	1
10	47	B/3528-21	TC(1)JA476BTLRSR500	4.7	6	500	412	371	165	125	1
10	47	B/3528-21	TC(1)JA476BTLRSR650	4.7	6	650	362	325	145	125	1
10	47	C/6032-28	TC(1)JA476CTLSR200	4.7	6	200	742	667	297	125	1
10	47	U/6032-15	TC(1)JA476UTLSR125	4.7	6	125	849	764	339	125	1
10	47	U/6032-15	TC(1)JA476UTLSR250	4.7	6	250	600	540	240	125	1
10	47	U/6032-15	TC(1)JA476UTLSR400	4.7	6	400	474	427	190	125	1
10	47	D/7343-31	TC(1)JA476DTLSR080	4.7	4	80	1360	1232	548	125	1
10	47	D/7343-31	TC(1)JA476DTLSR090	4.7	4.7	90	1291	1162	516	125	1
10	47	D/7343-31	TC(1)JA476DTLSR100	4.7	4.7	100	1225	1102	490	125	1
10	47	D/7343-31	TC(1)JA476DTLSR200	4.7	4.7	200	866	779	346	125	1
10	47	V/7343-20	TC(1)JA476VTLSR200	4.7	4.7	200	791	712	316	125	1
10	68	B/3528-21	TC(1)JA686BTLRSR600	6.8	8	600	376	339	151	125	1
10	68	B/3528-21	TC(1)JA686BTLRSR750	6.8	8	750	337	303	135	125	1
10	68	B/3528-21	TC(M)JA686BTLRSR900	6.8	8	900	307	276	123	125	1
10	68	C/6032-28	TC(1)JA686CTLSR080	6.8	6	80	1173	1055	469	125	1
10	68	C/6032-28	TC(1)JA686CTLSR200	6.8	6	200	742	667	297	125	1
10	68	C/6032-28	TC(1)JA686CTLSR225	6.8	6	225	699	629	280	125	1
10	68	C/6032-28	TC(1)JA686CTLSR250	6.8	6	250	663	597	265	125	1
10	68	U/6032-15	TC(1)JA686UTLSR100	6.8	6	100	949	854	379	125	1
10	68	U/6032-15	TC(1)JA686UTLSR150	6.8	6	150	775	697	310	125	1
10	68	V/7343-20	TC(1)JA686VTLSR070	6.8	6	70	1335	1202	534	125	1
10	68	V/7343-20	TC(1)JA686VTLSR100	6.8	6	100	1118	1006	447	125	1
10	68	V/7343-20	TC(1)JA686VTLSR140	6.8	6	140	945	851	378	125	1
10	68	V/7343-20	TC(1)JA686VTLSR200	6.8	6	200	791	712	316	125	1
10	68	D/7343-31	TC(1)JA686DTLSR070	6.8	6	70	1464	1318	586	125	1
10	68	D/7343-31	TC(1)JA686DTLSR090	6.8	6	90	1291	1162	516	125	1
10	68	D/7343-31	TC(1)JA686DTLSR100	6.8	6	100	1225	1102	490	125	1
10	68	D/7343-31	TC(1)JA686DTLSR150	6.8	6	150	1000	900	400	125	1
10	68	E/7343-43	TC(1)JA686ETLSR150	6.8	4	150	1049	944	420	125	1
10	100	B/3528-21	TC(M)JA107BTLRSR350	10	12	350	493	444	197	125	1
10	100	B/3528-21	TC(M)JA107BTLRSR400	10	8	400	461	415	184	125	1
10	100	B/3528-21	TC(M)JA107BTLRSR700	10	30	700	348	313	139	125	1
10	100	C/6032-28	TC(1)JA107CTLSR075	10	8	75	1211	1090	484	125	1
10	100	C/6032-28	TC(1)JA107CTLSR100	10	8	100	1049	944	420	125	1
10	100	C/6032-28	TC(1)JA107CTLSR150	10	8	150	856	771	343	125	1
10	100	C/6032-28	TC(1)JA107CTLSR180	10	8	180	782	704	313	125	1
10	100	C/6032-28	TC(1)JA107CTLSR200	10	8	200	742	667	297	125	1
10	100	C/6032-28	TC(1)JA107CTLSR250	10	8	250	663	597	265	125	1
10	100	U/6032-15	TC(1)JA107UTLSR085	10	8	85	1080	697	443	125	1
10	100	U/6032-15	TC(1)JA107UTLSR150	10	8	150	707	636	283	125	1
10	100	W/7343-15	TC(1)JA107WTLSR200	10	8	200	949	854	380	125	1
10	100	V/7343-20	TC(1)JA107VTLSR100	10	8	100	1118	1006	447	125	1
10	100	V/7343-20	TC(1)JA107VTLSR150	10	8	150	913	822	365	125	1
10	100	V/7343-20	TC(1)JA107VTLSR200	10	8	200	791	712	316	125	1
10	100	D/7343-31	TC(1)JA107DTLSR050	10	8	50	1732	1559	693	125	1
10	100	D/7343-31	TC(1)JA107DTLSR065	10	8	65	1519	1367	608	125	1
10	100	D/7343-31	TC(1)JA107DTLSR080	10	8	80	1369	1232	548	125	1
10	100	D/7343-31	TC(1)JA107DTLSR100	10	8	100	1225	1102	490	125	1
10	100	D/7343-31	TC(1)JA107DTLSR120	10	8	120	1118	1006	447	125	1
10	100	D/7343-31	TC(1)JA107DTLSR125	10	8	125	1095	986	438	125	1
10	100	E/7343-43	TC(1)JA107ETLSR100	10	6	100	1285	1157	514	125	1
10	100	E/7343-43	TC(1)JA107ETLSR125	10	6	125	1149	1034	460	125	1
10	150	F/6032-28	TC(1)JA157FTLSR200	15	10	200	707	636	283	125	1
10	150	C/6032-28	TC(1)JA157CTLSR150	15	8	150	856	771	343	125	1
10	150	C/6032-28	TC(1)JA157CTLSR200	15	10	200	742	668	297	125	1
10	150	W/7343-15	TC(1)JA157WTLSR100	15	6	100	1000	900	400	125	1
10	150	V/7343-20	TC(1)JA157VTLSR100	15	8	100	1118	1006	447	125	1
10	150	V/7343-20	TC(1)JA157VTLSR150	15	8	150	913	822	365	125	1

NOTE: (1) denotes part available in both K and M tolerance.

## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C	mA at +85°C	mA at +125°C		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°CMax /5Min	% at +20°CMax 120 Hz Max	mΩ at 20°C 120kHz	mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz	°C	Reflow Temp ≤ 260°C
10	150	V/7343-20	TC(1)IA157VTLR200	15	8	200	791	712	316	125	1
10	150	D/7343-31	TC(1)IA157D2LSR050	15	8	50	1732	1559	693	125	1
10	150	D/7343-31	TC(1)IA157D2LSR060	15	8	60	1581	1432	632	125	1
10	150	D/7343-31	TC(1)IA157D2LSR080	15	8	80	1369	1232	548	125	1
10	150	D/7343-31	TC(1)IA157D2LSR100	15	8	100	1225	1102	490	125	1
10	150	E/7343-43	TC(1)IA157ETLSR070	15	8	70	1535	13882	614	125	1
10	150	E/7343-43	TC(1)IA157ETLSR080	15	8	80	1436	1292	574	125	1
10	150	E/7343-43	TC(1)IA157E2LSR085	15	8	85	1393	1254	557	125	1
10	150	E/7343-43	TC(1)IA157ETLSR100	15	8	100	1285	1156	514	125	1
10	220	D/7343-31	TC(1)IA227D2LSR040	22	8	40	1936	1743	775	125	1
10	220	D/7343-31	TC(1)IA227D2LSR050	22	9	50	1732	1559	693	125	1
10	220	D/7343-31	TC(1)IA227D2LSR075	22	8	75	1414	1273	566	125	1
10	220	D/7343-31	TC(1)IA227D2LSR100	22	8	100	1225	1102	490	125	1
10	220	D/7343-31	TC(1)IA227D2LSR125	22	8	125	1095	986	438	125	1
10	220	V/7343-20	TC(1)IA227VTLR150	22	10	150	913	822	365	125	1
10	220	V/7343-20	TC(1)IA227VTLR200	22	10	200	791	712	316	125	1
10	220	E/7343-43	TC(1)IA227ETLSR045	22	8	45	1915	1724	766	125	1
10	220	E/7343-43	TC(1)IA227ETLSR050	22	8	50	1817	1635	727	125	1
10	220	E/7343-43	TC(1)IA227ETLSR060	22	8	60	1658	1492	663	125	1
10	220	E/7343-43	TC(1)IA227ETLSR070	22	8	70	1535	1382	614	125	1
10	220	E/7343-43	TC(1)IA227ETLSR080	22	8	80	1436	1292	574	125	1
10	220	E/7343-43	TC(1)IA227ETLSR100	22	8	100	1285	1156	514	125	1
10	330	D/7343-31	TC(1)IA337D2LSR035	33	8	35	2699	2429	1080	125	1
10	330	D/7343-31	TC(1)IA337D2LSR050	33	8	50	1732	1559	693	125	1
10	330	D/7343-31	TC(1)IA337D2LSR100	33	8	100	1225	1102	490	125	1
10	330	D/7343-31	TC(1)IA337D2LSR125	33	10	125	1095	986	438	125	1
10	330	D/7343-31	TC(1)IA337D2LSR150	33	10	150	1000	900	400	125	1
10	330	E/7343-43	TC(1)IA337ETLSR035	33	10	35	2171	1954	868	125	1
10	330	E/7343-43	TC(1)IA337ETLSR040	33	10	40	2031	1828	812	125	1
10	330	E/7343-43	TC(1)IA337ETLSR050	33	10	50	1817	1635	727	125	1
10	330	E/7343-43	TC(1)IA337ETLSR060	33	10	60	1658	1492	663	125	1
10	330	E/7343-43	TC(1)IA337ETLSR080	33	10	80	1436	1292	574	125	1
10	330	E/7343-43	TC(1)IA337ETLSR100	33	10	100	1285	1156	514	125	1
10	330	H/7360-38	TC(1)IA337HTLSR040	33	8	40	2500	2250	1000	125	1
10	330	H/7360-38	TC(1)IA337HTLSR060	33	10	60	2041	1837	816	125	1
10	330	H/7360-38	TC(1)IA337HTLSR100	33	10	100	1581	1423	632	125	1
10	470	E/7343-43	TC(1)IA477ETLSR045	47	10	45	1915	1723	766	125	1
10	470	E/7343-43	TC(1)IA477ETLSR050	47	10	50	1817	1635	727	125	1
10	470	E/7343-43	TC(1)IA477ETLSR060	47	10	60	1658	1492	663	125	1
10	470	E/7343-43	TC(1)IA477ETLSR080	47	10	80	1436	1292	574	125	1
10	470	E/7343-43	TC(1)IA477ETLSR100	47	10	100	1285	1156	514	125	1
10	470	H/7360-38	TC(1)IA477HTLSR040	47	10	40	2500	2250	1000	125	1
10	470	H/7360-38	TC(1)IA477HTLSR060	47	10	60	2041	1827	816	125	1
10	470	H/7360-38	TC(1)IA477HTLSR100	47	10	100	1582	1423	632	125	1
10	680	H/7360-38	TCMIA687HTLSR100	68	18	100	1049	944	420	125	3
10	680	E/7343-43	TCMIA687ETLSR150	68	18	150	1049	944	420	125	3
10	1	A/3216-18	TC(1)IC105ATLSR5K0	0.5	6	5000	122	110	49	125	1
10	1	A/3216-18	TC(1)IC105ATLSR6K2	0.5	4	6200	110	99	44	125	1
16	1.5	A/3216-18	TC(1)IC155ATLS5K0	0.5	6	5000	122	110	49	125	1
16	2.2	A/3216-18	TC(1)IC225ATLSR1K8	0.5	6	1800	204	184	82	125	1
16	2.2	A/3216-18	TC(1)IC225ATLSR2K5	0.5	6	2500	173	156	69	125	1
16	3.3	T/3528-12	TC(1)IC225TTLR2K0	0.5	6	2000	200	180	80	125	1
16	3.3	A/3216-18	TC(1)IC335ATLSR3K5	0.5	6	3500	146	132	59	125	1
16	3.3	B/3528-21	TC(1)IC335BTLR2K5	0.5	6	2500	184	166	74	125	1
16	4.7	A/3216-18	TC(1)IC475ATLSR2K0	0.8	6	2000	194	174	77	125	1
16	4.7	B/3528-21	TC(1)IC475BTLR700	0.8	6	700	348	313	139	125	1
16	4.7	B/3528-21	TC(1)IC475BTLR800	0.8	6	800	326	293	130	125	1
16	4.7	B/3528-21	TC(1)IC475BTLR1K0	0.8	6	1000	292	263	117	125	1
16	4.7	B/3528-21	TC(1)IC475BTLR1K5	0.8	6	1500	238	214	95	125	1
16	6.8	A/3216-18	TC(1)IC685ATLSR1K5	1.1	6	1500	224	201	89	125	1
16	6.8	B/3528-21	TC(1)IC685BTLR600	1.1	6	600	376	339	151	125	1
16	6.8	B/3528-21	TC(1)IC685BTLR1K2	1.1	6	1200	266	240	106	125	1
16	6.8	C/6032-28	TC(1)IC685CTLR750	1.1	6	750	383	345	153	125	1
16	10	A/3216-18	TC(1)IC106ATLSR1K0	1.6	6	1000	274	246	110	125	1
16	10	B/3528-21	TC(1)IC106BTLR500	1.6	6	500	412	371	165	125	1
16	10	B/3528-21	TC(1)IC106BTLR650	1.6	6	650	362	326	145	125	1
16	10	B/3528-21	TC(1)IC106BTLR800	1.6	6	800	326	293	130	125	1
16	10	B/3528-21	TC(1)IC106BTLR2K5	1.6	6	2500	184	166	74	125	1
16	10	C/6032-28	TC(1)IC106CTLR500	1.6	6	500	469	422	188	125	1
16	10	T/3528-12	TC(1)IC106TTLR800	1.6	8	800	316	285	126	125	1

NOTE: (1) denotes part available in both K and M tolerance.





# RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C	mA at +85°C	mA at +125°C		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°CMax /5Min	% at +20°CMax 120 Hz Max	mΩ at 20°C 120kHz	mA at 100 kHz	mA at 100 kHz	mA at 100 kHz	°C	Reflow Temp ≤ 260°C
16	10	T/3528-12	TC(1)IC106TTLR1K0	1.6	8	1000	283	255	113	125	1
16	10	T/3528-12	TC(1)IC106TTLR4K0	1.6	8	4000	132	119	53	125	1
16	10	U/6032-15	TC(1)IC106UTLSR500	1.6	6	500	424	382	170	125	1
16	10	U/6032-15	TC(1)IC106UTLSR600	1.6	6	600	387	349	155	125	1
16	15	A/3216-18	TC(1)IC156ATLSR2K5	2.4	8	2500	173	156	69	125	1
16	15	B/3528-21	TC(1)IC156BTLR500	2.4	6	500	412	371	165	125	1
16	15	B/3528-21	TC(1)IC156BTLR650	2.4	6	650	362	326	145	125	1
16	15	B/3528-21	TC(1)IC156BTLR800	2.4	6	800	326	293	130	125	1
16	15	C/6032-28	TC(1)IC156CTLSR300	2.4	6	300	606	545	240	125	1
16	15	C/6032-28	TC(1)IC156CTLSR700	2.4	6	700	396	357	159	125	1
16	22	B/3528-21	TC(1)IC226BTLR400	3.5	6	400	461	415	184	125	1
16	22	B/3528-21	TC(1)IC226BTLR600	3.5	6	600	376	339	151	125	1
16	22	C/6032-28	TC(1)IC226CTLSR150	3.5	6	150	856	771	343	125	1
16	22	C/6032-28	TC(1)IC226CTLSR250	3.5	6	250	663	597	265	125	1
16	22	C/6032-28	TC(1)IC226CTLSR300	3.5	6	300	606	545	224	125	1
16	22	C/6032-28	TC(1)IC226CTLSR350	3.5	6	350	561	505	505	125	1
16	22	D/7373-31	TC(1)IC226DTLSR700	3.5	6	700	463	417	185	125	1
16	22	U/6032-15	TC(1)IC226UTLSR500	3.5	6	500	424	382	170	125	1
16	33	B/3528-21	TC(1)IC336BTLR350	5.3	6	350	493	444	197	125	1
16	33	C/6032-28	TC(1)IC336CTLSR100	5.3	6	100	1049	944	420	125	1
16	33	C/6032-28	TC(1)IC336CTLSR200	5.3	6	200	742	668	297	125	1
16	33	C/6032-28	TC(1)IC336CTLSR225	5.3	6	225	699	629	280	125	1
16	33	C/6032-28	TC(1)IC336CTLSR275	5.3	6	275	632	569	253	125	1
16	33	C/6032-28	TC(1)IC336CTLSR300	5.3	6	300	606	545	242	125	1
16	33	U/6032-15	TC(1)IC336UTLSR140	5.3	6	140	802	722	321	125	1
16	33	U/6032-15	TC(1)IC336UTLSR200	5.3	6	200	671	604	268	125	1
16	33	U/6032-15	TC(1)IC336UTLSR400	5.3	6	400	474	427	190	125	1
16	33	D/7343-31	TC(1)IC336DTLSR150	5.3	6	150	1000	900	400	125	1
16	33	D/7343-31	TC(1)IC336DTLSR175	5.3	6	175	926	833	370	125	1
16	33	D/7343-31	TC(1)IC336DTLSR200	5.3	6	200	866	779	346	125	1
16	33	D/7343-31	TC(1)IC336DTLSR225	5.3	4	225	816	734	326	125	1
16	33	D/7343-31	TC(1)IC336DTLSR250	5.3	6	250	775	698	310	125	1
16	33	V/7343-20	TC(1)IC336VTLR300	5.3	6	300	645	581	258	125	1
16	33	V/7343-20	TC(1)IC336VTLR400	5.3	6	400	559	503	224	125	1
16	47	C/6032-28	TC(1)IC476CTLSR110	7.5	6	110	1000	900	400	125	1
16	47	C/6032-28	TC(1)IC476CTLSR350	7.5	6	350	561	505	224	125	1
16	47	D/7343-31	TC(1)IC476DTLSR080	7.5	6	80	1369	1232	548	125	1
16	47	D/7343-31	TC(1)IC476DTLSR100	7.5	6	100	1225	1102	490	125	1
16	47	D/7343-31	TC(1)IC476DTLSR150	7.5	6	150	1000	900	400	125	1
16	47	D/7343-31	TC(1)IC476DTLSR180	7.5	6	180	913	822	365	125	1
16	47	D/7343-31	TC(1)IC476DTLSR800	7.5	6	800	433	390	173	125	1
16	47	U/6032-15	TC(1)IC476UTLSR200	7.5	6	200	671	604	268	125	1
16	47	W/7343-15	TC(1)IC476WTLR180	7.5	6	180	745	671	298	125	1
16	47	V/7343-20	TC(1)IC476VTLR250	7.5	6	250	707	636	283	125	1
16	68	C/6032-28	TC(1)IC686CTLSR125	10.9	6	125	938	844	375	125	1
16	68	C/6032-28	TC(1)IC686CTLSR200	10.9	6	200	742	667	297	125	1
16	68	C/6032-28	TC(1)IC686CTLSR250	10.9	6	250	663	597	265	125	1
16	68	W/7343-15	TC(1)IC686WTLR150	10.9	8	150	816	735	327	125	1
16	68	F/6032-20	TC(1)IC686FTLSR200	10.9	10	200	707	636	283	125	1
16	68	V/7343-20	TC(1)IC686VTLR150	10.9	6	150	913	822	365	125	1
16	68	V/7343-20	TC(1)IC686VTLR200	10.9	6	200	791	712	316	125	1
16	68	V/7343-20	TC(1)IC686VTLR250	10.9	6	250	707	636	283	125	1
16	68	V/7343-20	TC(1)IC686VTLR180	10.9	6	300	645	581	258	125	1
16	68	D/7343-31	TC(1)IC686DTLSR070	10.9	6	70	1464	1317	586	125	1
16	68	D/7343-31	TC(1)IC686DTLSR100	10.9	6	100	1225	1102	490	125	1
16	68	D/7343-31	TC(1)IC686DTLSR150	10.9	6	150	1000	900	400	125	1
16	68	E/7343-43	TC(1)IC686ETLSR150	10.9	5	150	1049	944	420	125	1
16	100	F/6032-20	TCMIC107FTLSR150	16	10	150	816	735	327	125	1
16	100	F/6032-20	TCMIC107FTLSR200	16	10	200	707	636	283	125	1
16	100	C/6032-28	TC(1)IC107CTLSR200	16	10	200	742	667	297	125	1
16	100	D/7343-31	TC(1)IC107DTLSR060	16	8	60	1581	1423	632	125	1
16	100	D/7343-31	TC(1)IC107DTLSR100	16	8	100	1225	1102	490	125	1
16	100	D/7343-31	TC(1)IC107DTLSR125	16	8	125	1095	986	438	125	1
16	100	D/7343-31	TC(1)IC107DTLSR130	16	8	130	1074	967	430	125	1
16	100	D/7343-31	TC(1)IC107DTLSR150	16	8	150	1000	900	400	125	1
16	100	D/7343-31	TC(1)IC107DTLSR800	16	8	800	433	390	173	125	1
16	100	E/7343-43	TC(1)IC107ETLSR055	16	6	55	1732	1559	693	125	1
16	100	E/7343-43	TC(1)IC107ETLSR080	16	8	80	1436	1292	574	125	1
16	100	E/7343-43	TC(1)IC107ETLSR100	16	8	100	1285	1156	514	125	1
16	100	V/7343-20	TC(1)IC107VTLR100	16	8	100	1118	1006	447	125	1

NOTE: (1) denotes part available in both K and M tolerance.

## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz		
VDC at 85°C	μF	CCE/EIA	(see below for part options)	μA +20°CMax /5MIn	% at +20°CMax 120 Hz Max	mΩ at 20°C 120kHz	mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz	°C	Reflow Temp ≤ 260°C
16	100	V/7343-20	TC(1)C107VTLR150	16	8	150	913	822	365	125	1
16	100	V/7343-20	TC(1)C107VTLR200	16	8	200	791	712	316	125	1
16	100	D/7343-31	TC(1)C157DTLSR060	24	12	60	1581	1423	632	125	1
16	100	D/7343-31	TC(1)C157DTLSR085	24	8	85	1328	1196	531	125	1
16	150	D/7343-31	TC(1)C157DTLSR100	24	8	100	1225	1102	490	125	1
16	150	D/7343-31	TC(1)C157DTLSR125	24	8	125	1095	986	438	125	1
16	150	D/7343-31	TC(1)C157DTLSR130	24	8	130	1074	967	430	125	1
16	150	D/7343-31	TC(1)C157DTLSR150	24	8	150	1000	900	400	125	1
16	150	E/7343-43	TC(1)C157ETLSR050	24	8	50	1817	1635	727	125	3
16	150	E/7343-43	TC(1)C157ETLSR100	24	8	100	1285	1156	514	125	1
16	150	V/7343-20	TCMIC157VTLR200	24	15	200	791	712	316	125	1
16	150	H/7360-38	TC(1)C157HTLSR045	24	8	45	2357	2121	943	125	1
16	150	H/7360-38	TC(1)C157HTLSR075	24	8	75	1826	1643	730	125	1
16	220	D/7343-31	TC(1)C227DTLSR150	35.2	12	150	1000	900	400	125	3
16	220	D/7343-31	TC(1)C227DTLSR200	35.2	12	200	866	779	346	125	3
16	220	D/7343-31	TC(1)C227DTLSR220	35.2	12	220	826	743	330	125	1
16	220	E/7343-43	TC(1)C227ETLSR100	35.2	8	100	1285	1156	514	125	1
16	220	H/7360-38	TC(1)C227HTLSR050	35.2	12	50	2236	2012	894	125	1
16	220	H/7360-38	TC(1)C227HTLSR075	35.2	8	75	1633	1470	653	125	1
16	220	H/7360-38	TC(1)C227HTLSR100	35.2	7.2	100	1581	1423	632	125	1
16	220	H/7360-38	TC(1)C227HTLSR150	35.2	7.2	150	1291	1162	632	125	1
16	330	E/7343-43	TCMIC337ETLSR200	52.8	3	200	908	817	363	125	1
20	1	R/2012-12	TC(1)D105RTLSR6K0	0.5	4	6000	96	86	38	125	1
20	1	S/3216-12	TC(1)D105STLSR6K0	0.5	4	6000	104	94	42	125	1
20	1	A/3216-18	TC(1)D105ATLSR3K0	0.5	4	3000	158	142	63	125	1
20	1	A/3216-18	TC(1)D105ATLSR5K0	0.5	4	5000	122	110	49	125	1
20	1	T/3528-12	TC(1)D105TTLSR2K0	0.5	4	2000	200	180	80	125	1
20	1.5	A/3216-18	TC(1)D155ATLSR3K0	0.5	6	3000	158	142	63	125	1
20	2.2	A/3216-18	TC(1)D225ATLSR3K0	0.5	6	3000	158	142	63	125	1
20	2.2	B/3528-21	TC(1)D225BTLR1K7	0.5	6	1700	224	201	89	125	1
20	3.3	A/3216-18	TC(1)D335ATLSR2K5	0.7	6	2500	173	156	69	125	1
20	3.3	B/3528-21	TC(1)D335BTLR1K3	0.7	6	1300	256	230	102	125	1
20	4.7	A/3216-18	TC(1)D475ATLSR1K0	0.9	6	2000	194	175	78	125	1
20	4.7	A/3216-18	TC(1)D475ATLSR1K8	0.9	6	1800	204	184	82	125	1
20	4.7	B/3528-21	TC(1)D475BTLR750	0.9	6	750	337	303	135	125	1
20	4.7	B/3528-21	TC(1)D475BTLR1K0	0.9	6	1000	292	262	117	125	1
20	6.8	A/3216-18	TC(1)D685ATLSR1K0	1.4	6	1000	274	246	110	125	1
20	6.8	B/3528-21	TC(1)D685BTLR600	1.4	6	600	376	339	151	125	1
20	6.8	B/3528-21	TC(1)D685BTLR1K0	1.4	6	1000	292	262	117	125	1
20	6.8	C/6032-28	TC(1)D685CTLSR700	1.4	6	700	396	357	159	125	1
20	10	B/3528-21	TC(1)D106BTLR500	2	6	500	412	371	165	125	1
20	10	B/3528-21	TC(1)D106BTLR800	2	6	800	326	293	130	125	1
20	10	B/3528-21	TC(1)D106BTLR1K0	2	6	1000	292	262	117	125	1
20	10	C/6032-28	TC(1)D106CTLSR300	2	6	300	606	545	242	125	1
20	10	C/6032-28	TC(1)D106CTLSR350	2	6	350	561	505	224	125	1
20	10	C/6032-28	TC(1)D106CTLSR400	2	6	400	524	472	210	125	1
20	10	C/6032-28	TC(1)D106CTLSR450	2	6	450	494	445	198	125	1
20	10	C/6032-28	TC(1)D106CTLSR500	2	6	500	469	422	188	125	1
20	10	U/6032-15	TC(1)D106UTLSR250	2	6	250	600	540	240	125	1
20	10	U/6032-15	TC(1)D106UTLSR500	2	6	500	424	382	170	125	1
20	15	B/3528-21	TC(1)D156BTLR500	3	6	500	412	371	165	125	1
20	15	C/6032-28	TC(1)D156CTLSR375	3	6	375	542	488	217	125	1
20	15	C/6032-28	TC(1)D156CTLSR400	3	6	400	524	472	210	125	1
20	15	D/7343-31	TC(1)D156DTLSR275	3	4	275	739	665	296	125	1
20	15	D/7343-31	TC(1)D156DTLSR1K2	3	4	1200	354	319	142	125	1
20	22	B/3528-21	TC(1)D226BTLR400	4.4	6	400	461	415	184	125	1
20	22	B/3528-21	TC(1)D226BTLR600	4.4	6	600	376	339	151	125	1
20	22	C/6032-28	TC(1)D226CTLSR100	4.4	6	100	1049	944	420	125	1
20	22	C/6032-28	TC(1)D226CTLSR150	4.4	6	150	856	771	343	125	1
20	22	C/6032-28	TC(1)D226CTLSR400	4.4	6	400	524	472	210	125	1
20	22	D/7343-31	TC(1)D226DTLSR180	4.4	4	180	913	822	365	125	1
20	22	D/7343-31	TC(1)D226DTLSR200	4.4	4	200	866	779	346	125	1
20	22	D/7343-31	TC(1)D226DTLSR225	4.4	4	225	816	734	326	125	1
20	22	V/7343-20	TC(1)D226VTLR400	4.4	6	400	559	503	224	125	1
20	33	C/6032-28	TC(1)D336CTLSR300	6.6	6	300	606	545	242	125	1
20	33	D/7343-31	TC(1)D336DTLSR100	6.6	6	100	1225	1102	490	125	1
20	33	D/7343-31	TC(1)D336DTLSR150	6.6	6	150	1000	900	400	125	1
20	33	D/7343-31	TC(1)D336DTLSR200	6.6	6	200	866	779	346	125	1
20	33	E/7343-43	TC(1)D336ETLSR200	6.6	6	200	908	817	363	125	1
20	47	D/7343-31	TC(1)D476DTLSR075	9.4	6	75	1414	1273	566	125	1

NOTE: (1) denotes part available in both K and M tolerance.





## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°CMax /5Min	% at +20°CMax 120 Hz Max	mΩ at 20°C 120kHz			°C	Reflow Temp ≤ 260°C	
20	47	D/7343-31	TC(1)ID476DTLSR100	9.4	6	100	1225	1102	490	125	1
20	47	D/7343-31	TC(1)ID476DTLSR150	9.4	6	150	1000	900	400	125	1
20	47	D/7343-31	TC(1)ID476DTLSR175	9.4	6	175	926	833	370	125	1
20	47	D/7343-31	TC(1)ID476DTLSR200	9.4	6	200	866	779	346	125	1
20	47	D/7343-31	TC(1)ID476DTLSR250	9.4	6	250	775	698	310	125	1
20	47	E/7343-43	TC(1)ID476ETLSR065	9.4	8	65	1593	1434	637	125	1
20	47	E/7343-43	TC(1)ID476ETLSR070	9.4	6	70	1535	1382	614	125	1
20	47	E/7343-43	TC(1)ID476ETLSR100	9.4	6	100	1285	1157	514	125	1
20	47	E/7343-43	TC(1)ID476ETLSR125	9.4	6	125	1149	1034	460	125	1
20	47	E/7343-43	TC(1)ID476ETLSR130	9.4	6	130	1127	1014	451	125	1
20	47	E/7343-43	TC(1)ID476ETLSR150	9.4	6	150	1049	944	420	125	1
20	47	W/7343-15	TC(1)ID476WTLRSR200	9.4	6	200	707	636	283	125	1
20	68	C/6032-28	TC(1)ID686CTLSR250	13.6	8	250	663	597	265	125	1
20	68	D/7343-31	TC(1)ID686DTLSR070	13.6	6	70	1464	1317	586	125	1
20	68	D/7343-31	TC(1)ID686DTLSR100	13.6	6	100	1225	1103	490	125	1
20	68	D/7343-31	TC(1)ID686DTLSR150	13.6	6	150	1000	900	400	125	1
20	68	D/7343-31	TC(1)ID686DTLSR200	13.6	6	200	866	779	346	125	1
20	68	D/7343-31	TC(1)ID686DTLSR300	13.6	6	300	707	636	283	125	1
20	68	E/7343-43	TC(1)ID686ETLSR125	13.6	6	125	1149	1034	460	125	1
20	68	E/7343-43	TC(1)ID686ETLSR130	13.6	6	130	1127	1014	451	125	1
20	68	E/7343-43	TC(1)ID686ETLSR150	13.6	6	150	1049	944	420	125	1
20	68	E/7343-43	TC(1)ID686ETLSR200	13.6	6	200	908	817	363	125	1
20	68	V/7343-20	TC(1)ID686VTLRSR200	13.6	6	200	791	712	316	125	1
20	100	D/7343-31	TC(1)ID107DTLSR085	20	6	85	1328	1196	531	125	1
20	100	D/7343-31	TC(1)ID107DTLSR100	20	6	100	1225	1102	490	125	1
20	100	D/7343-31	TC(1)ID107DTLSR150	20	6	150	1000	900	400	125	1
20	100	E/7343-43	TC(1)ID107ETLSR100	20	6	100	1285	1156	514	125	1
20	100	E/7343-43	TC(1)ID107ETLSR150	20	6	150	1049	944	420	125	1
20	100	H/7360-38	TC(1)ID107HTLSR060	20	8	60	2041	1837	816	125	1
20	100	H/7360-38	TC(1)ID107HTLSR085	20	8	85	1715	1543	686	125	1
20	100	H/7360-38	TC(1)ID107HTLSR100	20	8	100	1581	1423	632	125	1
20	100	H/7360-38	TC(1)ID107HTLSR200	20	8	200	1118	1006	447	125	1
20	150	H/7360-38	TC(1)ID157HTLSR080	30	8	80	1768	1591	707	125	1
25	0.47	A/3216-18	TC(1)IE474ATLSR4K5	0.5	4	4500	129	116	52	125	1
25	0.47	A/3216-18	TC(1)IE474ATLSR7K0	0.5	4	7000	104	93	41	125	1
25	0.68	A/3216-18	TC(1)IE684ATLSR6K0	0.5	4	6000	112	101	45	125	1
25	1	A/3216-18	TC(1)IE105ATLSR2K5	0.5	4	2500	173	156	69	125	1
25	1	A/3216-18	TC(1)IE105ATLSR3K0	0.5	4	3000	158	142	63	125	1
25	1	A/3216-18	TC(1)IE105ATLSR4K0	0.5	4	4000	137	123	55	125	1
25	1	A/3216-18	TC(1)IE105ATLSR5K0	0.5	4	5000	122	110	49	125	1
25	1	R/2012-12	TC(1)IE105RTLSR2K5	0.5	4	2500	148	133	59	125	1
25	1	R/2012-12	TC(1)IE105RTLSR4K0	0.5	4	4000	117	106	47	125	1
25	1.5	A/3216-18	TC(1)IE155ATLSR3K0	0.5	6	3000	158	142	63	125	1
25	1.5	B/3528-21	TC(1)IE155BTLRSR1K8	0.5	6	1800	217	196	87	125	1
25	2.2	A/3216-18	TC(1)IE225ATLSR2K5	0.6	6	2500	173	156	69	125	1
25	2.2	B/3528-21	TC(1)IE225BTLRSR900	0.6	6	900	307	277	123	125	1
25	2.2	B/3528-21	TC(1)IE225BTLRSR1K2	0.6	6	1200	266	240	106	125	1
25	2.2	C/6032-28	TC(1)IE225CTLSR1K3	0.6	6	1300	291	262	116	125	1
25	3.3	A/3216-18	TC(1)IE335ATLSR1K0	0.8	6	1000	274	246	110	125	1
25	3.3	A/3216-18	TC(1)IE335ATLSR1K5	0.8	6	1500	224	201	89	125	1
25	3.3	B/3528-21	TC(1)IE335BTLRSR750	0.8	6	750	337	303	135	125	1
25	3.3	B/3528-21	TC(1)IE335BTLRSR1K5	0.8	6	1k5	238	214	95	125	1
25	3.3	B/3528-21	TC(1)IE335BTLRSR2K0	0.8	6	2k0	206	186	82	125	1
25	3.3	C/6032-28	TC(1)IE335CTLSR750	0.8	6	750	383	345	153	125	1
25	4.7	B/3528-21	TC(1)IE475BTLRSR700	1.2	6	700	348	314	139	125	1
25	4.7	B/3528-21	TC(1)IE475BTLRSR750	1.2	6	750	337	303	135	125	1
25	4.7	B/3528-21	TC(1)IE475BTLRSR800	1.2	6	800	326	293	130	125	1
25	4.7	B/3528-21	TC(1)IE475BTLRSR900	1.2	6	900	307	277	123	125	1
25	4.7	B/3528-21	TC(1)IE475BTLRSR1K0	1.2	6	1000	292	263	117	125	1
25	4.7	C/6032-28	TC(1)IE475CTLSR530	1.2	6	530	456	410	182	125	1
25	4.7	C/6032-28	TC(1)IE475CTLSR575	1.2	6	575	437	393	175	125	1
25	6.8	B/3528-21	TC(1)IE685BTLRSR700	1.7	6	700	348	314	139	125	1
25	6.8	B/3528-21	TC(1)IE685BTLRSR1K0	1.7	6	1000	292	263	117	125	1
25	6.8	B/3528-21	TC(1)IE685BTLRSR1K5	1.7	6	1500	238	214	95	125	1
25	6.8	C/6032-28	TC(1)IE685CTLSR400	1.7	6	400	524	472	210	125	1
25	6.8	C/6032-28	TC(1)IE685CTLSR490	1.7	6	490	474	427	190	125	1
25	6.8	C/6032-28	TC(1)IE685CTLSR500	1.7	6	500	469	422	188	125	1
25	10	B/3528-21	TC(1)IE106BTLRSR750	2.5	6	750	337	303	135	125	1
25	10	B/3528-21	TC(1)IE106BTLRSR1K8	2.5	6	1800	217	196	87	125	1
25	10	C/6032-28	TC(1)IE106CTLSR275	2.5	6	275	632	569	253	125	1

NOTE: (1) denotes part available in both K and M tolerance.

## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°CMax /5Min	% at +20°CMax 120 HzMax	mΩ at 20°C 120kHz				°C	Reflow Temp ≤ 260°C
25	10	C/6032-28	TC(1)IE106CTLSR300	2.5	6	300	606	545	242	125	1
25	10	C/6032-28	TC(1)IE106CTLSR500	2.5	6	500	469	422	188	125	1
25	10	D/7343-31	TC(1)IE106DTLSR500	2.5	6	500	548	493	219	125	1
25	15	C/6032-28	TC(1)IE156CTLSR220	3.8	6	220	707	636	283	125	1
25	15	C/6032-28	TC(1)IE156CTLSR300	3.8	6	300	606	545	242	125	1
25	15	D/7343-31	TC(1)IE156DTLSR100	3.8	6	100	1225	1102	490	125	1
25	15	D/7343-31	TC(1)IE156DTLSR230	3.8	4	230	808	727	323	125	1
25	15	D/7343-31	TC(1)IE156DTLSR275	3.8	6	275	739	665	296	125	1
25	15	V/7343-20	TC(1)IE156VTLRSR500	3.8	6	500	500	450	200	125	1
25	15	E/7343-43	TC(1)IE156ETLSR200	3.8	4	200	908	817	363	125	1
25	22	F/6032-20	TC(1)IE226FTLSR300	5.5	6	300	577	520	231	125	1
25	22	C/6032-28	TC(1)IE226CTLSR275	5.5	6	275	632	569	253	125	1
25	22	C/6032-28	TC(1)IE226CTLSR280	5.5	6	280	627	564	251	125	1
25	22	C/6032-28	TC(1)IE226CTLSR300	5.5	8	300	606	545	242	125	1
25	22	C/6032-28	TC(1)IE226CTLSR900	5.5	6	900	350	315	140	125	1
25	22	D/7343-31	TC(1)IE226DTLSR100	5.5	6	100	1225	1102	490	125	1
25	22	D/7343-31	TC(1)IE226DTLSR200	5.5	6	200	866	779	346	125	1
25	22	D/7343-31	TC(1)IE226DTLSR300	5.5	6	300	707	636	283	125	1
25	22	E/7343-43	TC(1)IE226ETLSR225	5.5	4	225	856	770	342	125	1
25	33	C/6032-28	TC(1)IE336CTLSR400	8.3	6	400	524	472	210	125	1
25	33	D/7343-31	TC(1)IE336DTLSR090	8.3	6	90	1291	1162	516	125	1
25	33	D/7343-31	TC(1)IE336DTLSR100	8.3	6	100	1225	1102	490	125	1
25	33	D/7343-31	TC(1)IE336DTLSR150	8.3	6	150	1000	900	400	125	1
25	33	D/7343-31	TC(1)IE336DTLSR200	8.3	6	200	866	779	346	125	1
25	33	D/7343-31	TC(1)IE336DTLSR225	8.3	6	225	816	734	326	125	1
25	33	D/7343-31	TC(1)IE336DTLSR230	8.3	6	230	808	727	323	125	1
25	33	D/7343-31	TC(1)IE336DTLSR300	8.3	6	300	707	636	283	125	1
25	33	E/7343-43	TC(1)IE336ETLSR100	8.3	6	100	1285	1156	514	125	1
25	33	E/7343-43	TC(1)IE336ETLSR175	8.3	6	175	971	874	388	125	1
25	33	E/7343-43	TC(1)IE336ETLSR180	8.3	6	180	957	861	383	125	1
25	33	E/7343-43	TC(1)IE336ETLSR200	8.3	6	200	908	817	363	125	1
25	33	F/6032-20	TC(1)IE336FTLSR150	8.3	6	150	816	735	327	125	1
25	33	F/6032-20	TC(1)IE336FTLSR200	8.3	6	200	707	636	283	125	1
25	33	F/6032-20	TC(1)IE336FTLSR400	8.3	6	400	500	450	200	125	1
25	33	V/7343-20	TC(1)IE336VTLRSR200	8.3	6	200	791	712	316	125	1
25	47	D/7343-31	TC(1)IE476DTLSR100	11.8	6	100	1225	1103	490	125	1
25	47	D/7343-31	TC(1)IE476DTLSR125	11.8	6	125	1095	986	438	125	1
25	47	D/7343-31	TC(1)IE476DTLSR130	11.8	6	130	1074	967	430	125	1
25	47	D/7343-31	TC(1)IE476DTLSR150	11.8	6	150	1000	900	400	125	1
25	47	D/7343-31	TC(1)IE476DTLSR250	11.8	6	250	775	697	310	125	1
25	47	E/7343-43	TC(1)IE476ETLSR080	11.8	6	80	1436	1293	574	125	1
25	47	E/7343-43	TC(1)IE476ETLSR100	11.8	6	100	1285	1156	514	125	1
25	47	E/7343-43	TC(1)IE476ETLSR120	11.8	6	120	1173	1056	469	125	1
25	47	E/7343-43	TC(1)IE476ETLSR150	11.8	6	150	1049	944	420	125	1
25	47	E/7343-43	TC(1)IE476ETLSR185	11.8	6	185	944	850	378	125	1
25	47	E/7343-43	TC(1)IE476ETLSR200	11.8	6	200	908	817	363	125	1
25	47	V/7343-20	TC(1)IE476VTLRSR250	11.8	6	250	707	636	283	125	1
25	68	D/7343-31	TC(1)IE686DTLSR150	17	10	150	1000	900	400	125	1
25	68	D/7343-31	TC(1)IE686DTLSR200	17	10	200	866	779	346	125	1
25	68	H/7360-38	TC(1)IE686HTLSR080	17	6	80	1768	1591	707	125	1
25	68	H/7360-38	TC(1)IE686HTLSR095	17	6	95	1622	1460	649	125	1
25	68	H/7360-38	TC(1)IE686HTLSR150	17	6	150	1291	1162	516	125	1
25	68	H/7360-38	TC(1)IE686HTLSR200	17	6	200	1118	1006	447	125	1
25	68	E/7343-43	TC(1)IE686ETLSR125	17	6	125	1149	1034	460	125	1
25	68	E/7343-43	TC(1)IE686ETLSR130	17	6	130	1127	1014	451	125	1
25	68	E/7343-43	TC(1)IE686ETLSR150	17	6	150	1049	944	420	125	1
25	68	E/7343-43	TC(1)IE686ETLSR200	17	6	200	908	817	363	125	1
25	100	E/7343-43	TC(1)IE107ETLSR150	25	10	150	1049	944	420	125	1
25	100	H/7360-38	TC(1)IE107HTLSR100	25	8	100	1581	1423	632	125	1
25	100	H/7360-38	TCMIE157HTLSR150	37.5	10	150	1291	1162	516	125	1
35	0.22	A/3216-18	TC(1)IV224ATLSR6K0	0.5	4	6000	112	101	45	125	1
35	0.33	A/3216-18	TC(1)IV334ATLSR6K0	0.5	4	6000	112	101	45	125	1
35	0.47	A/3216-18	TC(1)IV474ATLSR6K0	0.5	4	6000	112	101	45	125	1
35	0.47	B/3528-21	TC(1)IV474BTLSR1K5	0.5	4	1500	238	214	95	125	1
35	0.47	B/3528-21	TC(1)IV474BTLSR2K2	0.5	4	2200	197	177	79	125	1
35	0.47	B/3528-21	TC(1)IV474BTLSR2K5	0.5	4	2500	184	166	74	125	1
35	0.47	B/3528-21	TC(1)IV474BTLSR4K0	0.5	4	4000	146	131	58	125	1
35	0.68	A/3216-18	TC(1)IV684ATLSR6K0	0.5	4	6000	112	101	45	125	1
35	1	A/3216-18	TC(1)IV105ATLSR3K0	0.5	4	3000	158	142	63	125	1
35	1	B/3528-21	TC(1)IV105BTLSR1K5	0.5	4	1500	238	214	95	125	1

NOTE: (1) denotes part available in both K and M tolerance.



# RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C 100 kHz	mA at +85°C 100 kHz	mA at +125°C 100 kHz		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°C Max /5Min	% at +20°C Max 120Hz Max	mΩ at 20°C 120kHz			°C	Reflow Temp ≤ 260°C	
35	1	B/3528-21	TC(1)IV105BTLR1K7	0.5	4	1700	224	202	90	125	1
35	1	B/3528-21	TC(1)IV105BTLR2K0	0.5	4	2000	206	186	82	125	1
35	1	B/3528-21	TC(1)IV105BTLR7K0	0.5	4	7000	110	99	44	125	1
35	1	A/3216-18	TC(1)IV155ATLSR3K0	0.5	6	3000	158	142	63	125	1
35	1	B/3528-21	TC(1)IV155BTLR2K5	0.5	6	2500	184	166	74	125	1
35	1	A/3216-18	TC(1)IV225ATLSR1K5	0.8	6	1500	224	201	89	125	1
35	2.2	B/3528-21	TC(1)IV225BTLR075	0.8	6	75	337	303	135	125	1
35	2.2	B/3528-21	TC(1)IV225BTLR1K5	0.8	6	1500	238	214	95	125	1
35	2.2	B/3528-21	TC(1)IV225BTLR2K0	0.8	6	2000	206	186	82	125	1
35	2.2	C/6032-28	TC(1)IV225CTLSR100	0.8	6	1000	332	298	133	125	1
35	3.3	B/3528-21	TC(1)IV335BTLR900	1.2	6	900	332	276	123	125	1
35	3.3	B/3528-21	TC(1)IV335BTLR1K0	1.2	6	1000	292	262	117	125	1
35	3.3	C/6032-28	TC(1)IV335CTLSR525	1.2	6	525	458	412	183	125	1
35	3.3	C/6032-28	TC(1)IV335CTLSR550	1.2	6	550	447	402	179	125	1
35	3.3	C/6032-28	TC(1)IV335CTLSR700	1.2	6	700	396	357	159	125	1
35	4.7	B/3528-21	TC(1)IV475BTLR700	1.6	6	700	348	314	139	125	1
35	4.7	B/3528-21	TC(1)IV475BTLR850	1.6	6	850	316	284	126	125	1
35	4.7	B/3528-21	TC(1)IV475BTLR1K0	1.6	6	1000	292	263	117	125	1
35	4.7	C/6032-28	TC(1)IV475CTLSR450	1.6	6	450	494	445	198	125	1
35	4.7	C/6032-28	TC(1)IV475CTLSR500	1.6	6	500	469	422	188	125	1
35	4.7	C/6032-28	TC(1)IV475CTLSR600	1.6	6	600	428	385	171	125	1
35	4.7	D/7343-31	TC(1)IV475DTLSR700	1.6	6	700	463	417	185	125	1
35	6.8	C/6032-28	TC(1)IV685CTLSR350	2.4	6	350	561	505	224	125	1
35	6.8	D/7343-31	TC(1)IV685DTLSR150	2.4	6	150	1000	900	400	125	1
35	6.8	D/7343-31	TC(1)IV685DTLSR300	2.4	6	300	707	636	283	125	1
35	6.8	D/7343-31	TC(1)IV685DTLSR400	2.4	6	400	612	551	245	125	1
35	6.8	V/7343-20	TC(1)IV685VTLR600	2.4	6	600	456	410	182	125	1
35	6.8	E/7343-43	TC(1)IV685ETLSR300	2.4	4	300	742	668	297	125	1
35	10	C/6032-28	TC(1)IV106CTLSR600	3.5	6	600	428	385	171	125	1
35	10	D/7343-31	TC(1)IV106DTLSR120	3.5	4	120	1118	1006	447	125	1
35	10	D/7343-31	TC(1)IV106DTLSR125	3.5	6	125	1095	986	438	125	1
35	10	D/7343-31	TC(1)IV106DTLSR130	3.5	6	130	1074	967	430	125	1
35	10	D/7343-31	TC(1)IV106DTLSR250	3.5	6	250	775	698	310	125	1
35	10	D/7343-31	TC(1)IV106DTLSR260	3.5	6	260	760	684	304	125	1
35	10	D/7343-31	TC(1)IV106DTLSR300	3.5	6	300	707	636	283	125	1
35	10	D/7343-31	TC(1)IV106DTLSR1K0	3.5	6	1000	387	348	155	125	1
35	10	V/7343-20	TC(1)IV106VTLR250	3.5	6	250	707	636	283	125	1
35	10	V/7343-20	TC(1)IV106VTLR600	3.5	6	600	456	410	182	125	1
35	10	E/7343-43	TC(1)IV106ETLSR100	3.5	6	100	1285	1156	514	125	3
35	10	E/7343-43	TC(1)IV106ETLSR175	3.5	6	175	971	874	388	125	1
35	10	E/7343-43	TC(1)IV106ETLSR200	3.5	6	200	908	817	363	125	1
35	10	E/7343-43	TC(1)IV106ETLSR250	3.5	4	250	812	731	325	125	1
35	10	E/7343-43	TC(1)IV106ETLSR260	3.5	4	260	797	717	319	125	1
35	15	C/6032-28	TC(1)IV156CTLSR350	5.3	6	350	561	505	224	125	1
35	15	V/7343-20	TC(1)IV156VTLR250	5.3	6	250	707	636	283	125	1
35	15	D/7343-31	TC(1)IV156DTLSR100	5.3	6	100	1225	1102	490	125	1
35	15	D/7343-31	TC(1)IV156DTLSR260	5.3	6	260	760	684	304	125	1
35	15	D/7343-31	TC(1)IV156DTLSR300	5.3	6	300	707	636	283	125	1
35	15	E/7343-43	TC(1)IV156ETLSR200	5.3	6	200	908	817	363	125	1
35	15	E/7343-43	TC(1)IV156ETLSR225	5.3	6	225	856	770	342	125	1
35	15	E/7343-43	TC(1)IV156ETLSR250	5.3	6	250	812	731	325	125	1
35	15	E/7343-43	TC(1)IV156ETLSR260	5.3	6	260	797	717	319	125	1
35	22	V-7343-20	TC(1)IV226VTLR200	7.7	6	200	791	712	316	125	1
35	22	D/7343-31	TC(1)IV226DTLSR125	7.7	6	125	1095	986	438	125	1
35	22	D/7343-31	TC(1)IV226DTLSR200	7.7	6	200	866	779	346	125	1
35	22	D/7343-31	TC(1)IV226DTLSR250	7.7	6	250	775	698	310	125	1
35	22	D/7343-31	TC(1)IV226DTLSR260	7.7	6	260	760	684	304	125	1
35	22	D/7343-31	TC(1)IV226DTLSR300	7.7	6	300	707	636	283	125	1
35	22	E/7343-43	TC(1)IV226ETLSR125	7.7	6	125	1149	1034	460	125	1
35	22	E/7343-43	TC(1)IV226ETLSR130	7.7	6	130	1127	1014	451	125	1
35	22	E/7343-43	TC(1)IV226ETLSR180	7.7	6	180	957	861	383	125	1
35	22	E/7343-43	TC(1)IV226ETLSR200	7.7	6	200	908	817	363	125	1
35	22	E/7343-43	TC(1)IV226ETLSR260	7.7	6	260	797	717	319	125	1
35	22	E/7343-43	TC(1)IV226ETLSR275	7.7	6	275	775	698	310	125	1
35	22	E/7343-43	TC(1)IV226ETLSR300	7.7	6	300	742	667	297	125	1
35	33	D/7343-31	TC(1)IV336DTLSR200	11.6	6	200	866	779	346	125	1
35	33	D/7343-31	TC(1)IV336DTLSR300	11.6	6	300	707	636	283	125	1
35	33	E/7343-43	TC(1)IV336ETLSR100	11.6	6	100	1285	1156	514	125	1
35	33	E/7343-43	TC(1)IV336ETLSR175	11.6	6	175	971	874	388	125	1
35	33	E/7343-43	TC(1)IV336ETLSR250	11.6	6	250	812	731	325	125	1

NOTE: (1) denotes part available in both K and M tolerance.



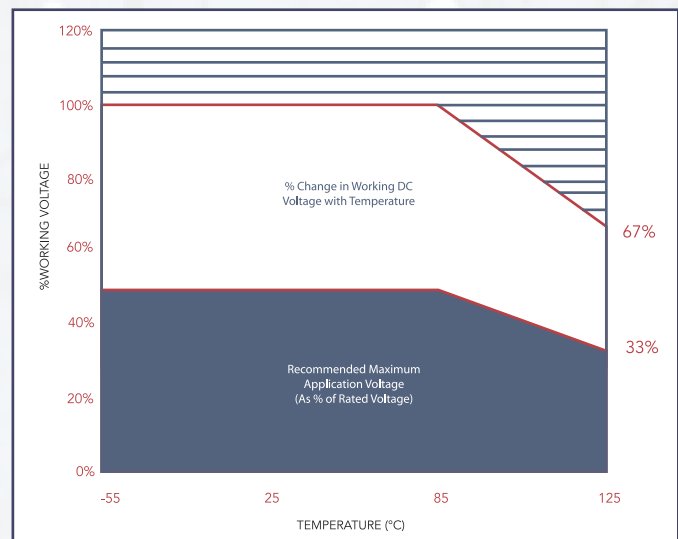
## RATINGS & PART NUMBER REFERENCE

RATED VOLTAGE	RATED CAP	CASE CODE/ CASE SIZE	CCE PART NUMBER	DC LEAKAGE	DF	ESR	MAXIMUM ALLOWABLE RIPPLE CURRENT (RMS)			MAXIMUM OPERATING TEMP	MSL
							mA at +25°C	mA at +85°C	mA at +125°C		
VDC at 85°C	µF	CCE/EIA	(see below for part options)	µA +20°C Max /5Min	% at +20°C Max 120Hz Max	mΩ at 20°C 120kHz	mA at 100 kHz	mA at 100 kHz	mA at 100 kHz	°C	Reflow Temp ≤ 260°C
35	33	E/7343-43	TC(1)IV336ETLSR260	11.6	6	260	797	717	319	125	1
35	33	H/7361-38	TC(1)IV336HTLSR200	11.6	6	200	1118	1006	447	125	1
35	47	D/7343-31	TC(1)IV476DTLSR300	16.5	6	300	707	636	283	125	3
35	47	H/7361-38	TC(1)IV476HTLSR150	16.5	6	150	1291	1162	516	125	1
35	47	H/7361-38	TC(1)IV476HTLSR200	16.5	6	200	1118	1006	447	125	1
35	47	E/7343-43	TC(1)IV476ETLSR185	16.5	6	185	944	850	378	125	1
35	47	E/7343-43	TC(1)IV476ETLSR200	16.5	6	200	908	817	363	125	1
35	47	E/7343-43	TC(1)IV476ETLSR230	16.5	6	230	847	762	339	125	1
35	47	E/7343-43	TC(1)IV476ETLSR300	16.5	6	300	742	668	297	125	1
35	68	H/7361-38	TC(1)IV686HTLSR150	23.8	6	150	1291	1162	516	125	1
35	68	H/7361-38	TC(1)IV686HTLSR200	23.8	6	200	1118	1006	447	125	1
50	0.15	A/3216-18	TC(1)IX154ATLSR9K0	0.5	4	9K0	91	82	37	125	1
50	0.22	A/3216-18	TC(1)IX224ATLSR7K0	0.5	4	7K0	104	93	41	125	1
50	0.33	A/3216-18	TC(1)IX334ATLSR7K0	0.5	4	7K0	104	93	41	125	1
50	0.47	A/3216-18	TC(1)IX474ATLSR6K5	0.5	4	6K5	107	97	43	125	1
50	0.47	B/3528-21	TC(1)IX474BTLSR6K0	0.5	4	6K0	119	107	48	125	1
50	0.47	C/6032-28	TC(1)IX474CTLSR2K3	0.5	4	2K3	219	197	87	125	1
50	0.68	B/3528-21	TC(1)IX684BTLSR4K0	0.5	4	4K0	146	131	58	125	1
50	1	B/3528-21	TC(1)IX105BTLSR3K0	0.5	4	3K0	168	151	67	125	1
50	1	C/6032-28	TC(1)IX105CTLSR1K3	0.5	4	1K3	291	262	116	125	1
50	1	C/6032-28	TC(1)IX105CTLSR2K5	0.5	4	2K5	210	189	84	125	1
50	1.5	C/6032-28	TC(1)IX155CTLSR1K5	0.8	6	1K5	271	244	108	125	1
50	1.5	C/6032-28	TC(1)IX155CTLSR2K0	0.8	6	2K0	235	211	94	125	1
50	2.5	C/6032-28	TC(1)IX225CTLSR1K5	1.1	8	1K5	271	244	108	125	1
50	2.5	D/7343-31	TC(1)IX225DTLSR1K2	1.1	6	1K2	354	318	141	125	1
50	3.3	C/6032-28	TC(1)IX335CTLSR1K0	1.6	6	1K0	332	298	133	125	1
50	3.3	D/7343-31	TC(1)IX335DTLSR800	1.7	6	800	433	390	173	125	1
50	4.7	C/6032-28	TC(1)IX475CTLSR800	2.4	6	800	371	334	148	125	1
50	4.7	W/7343-15	TC(1)IX475WTLSR500	2.4	6	500	447	402	179	125	3
50	4.7	D/7343-31	TC(1)IX475DTLSR250	2.4	6	250	775	697	310	125	1
50	4.7	D/7343-31	TC(1)IX475DTLSR300	2.4	6	300	707	636	283	125	1
50	4.7	D/7343-43	TC(1)IX475DTLSR500	2.4	6	500	548	493	219	125	1
50	4.7	D/7343-31	TC(1)IX475DTLSR700	2.4	6	700	463	417	185	125	1
50	6.8	D/7343-31	TC(1)IX685DTLSR200	3.4	6	200	866	779	346	125	1
50	6.8	D/7343-31	TC(1)IX685DTLSR275	3.4	6	275	739	665	296	125	1
50	6.8	D/7343-31	TC(1)IX685DTLSR300	3.4	6	300	707	636	283	125	1
50	6.8	D/7343-31	TC(1)IX685DTLSR400	3.4	6	400	612	551	245	125	1
50	6.8	D/7343-31	TC(1)IX685DTLSR600	3.4	6	600	500	450	200	125	1
50	6.8	E/7343-31	TC(1)IX685ETLSR300	3.4	6	300	742	668	297	125	1
50	10	E/7343-43	TC(1)IX685ETLSR250	3.4	8	250	812	731	325	125	1
50	10	E/7343-43	TC(1)IX685ETLSR260	3.4	6	260	797	717	319	125	1
50	10	D/7343-31	TC(1)IX106DTLSR500	5	6	500	548	493	219	125	1
50	10	E/7343-43	TC(1)IX106ETLSR300	5	6	300	742	667	297	125	1
50	15	E/7343-43	TC(1)IX156ETLSR200	7.5	6	200	908	817	363	125	1
50	15	E/7343-43	TC(1)IX156ETLSR250	7.5	6	250	812	731	325	125	1
50	15	E/7343-43	TC(1)IX156ETLSR300	7.5	6	300	742	667	297	125	1
50	15	H/7360-38	TC(1)IX156HTLSR250	7.5	6	250	1000	900	400	125	1

NOTE: (1) denotes part available in both K and M tolerance.



## RECOMMENDED VOLTAGE DERATING GUIDELINES



	-55°C to 85°C	85°C to 125°C
% Change in working DC voltage with temperature	$V_6R$	7% of $V_R$
Recommended maximum applications voltage	50% of $V_R$	50% of $V_R$

## RIPPLE CURRENT / RIPPLE VOLTAGE

Permissible AC ripple voltage and current are related to equivalent series resistance (ESR) and the power dissipation capabilities of the device. Permissible AC ripple voltage which may be applied is limited by two criteria:

1. The positive peak AC voltage plus the DC bias voltage, if any, must not exceed the DC voltage rating of the capacitor.
2. The negative peak AC voltage in combination with bias voltage, if any, must not exceed the allowable limits specified for reverse voltage. See the Reverse Voltage section for allowable limits.

## REVERSE VOLTAGE

Solid tantalum capacitors are polar devices and may be permanently damaged or destroyed if connected with the wrong polarity. The positive terminal is identified on the capacitor body by a stripe plus in some cases a beveled edge. A small degree of transient reverse voltage is permissible for short periods per the table. The capacitors should not be operated continuously in reverse mode, even within these limits.

TEMPERATURE	PERMISSIBLE TRANSIENT REVERSE VOLTAGE
25°C	15% of Rated Voltage
85°C	5% of Rated Voltage
125°C	1% of Rated Voltage

## SOLDERING PROCESS

The CCE families of surface mount capacitors are compatible with wave (single or dual), convection, IR, or vapor phase reflow techniques. Preheating of these components is recommended to avoid extreme thermal stress. CCE's recommended profile conditions for convection and IR reflow reflect the profile conditions of the IPC/J-STD-020D standard for moisture sensitivity testing. The devices can safely withstand a maximum of three reflow passes at these conditions.

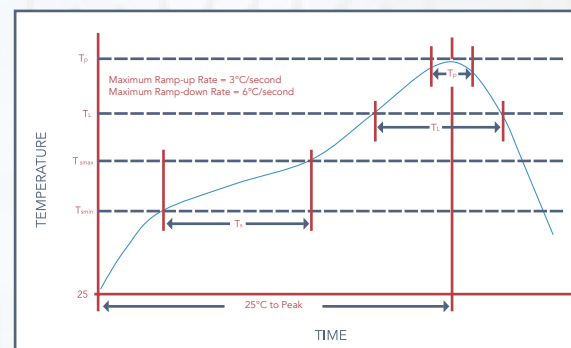
Please note that although the E/7343-43 case size can withstand wave soldering, the tall profile (4.3 mm maximum) dictates care in wave process development.

Hand soldering should be performed with care due to the difficulty in process control. If performed, care should be taken to avoid contact of the soldering iron to the molded case. The iron should be used to heat the solder pad, applying solder between the pad and the termination, until reflow occurs. Once reflow occurs, the iron should be removed immediately. "Wiping" the edges of a chip and heating the top surface is not recommended.

During typical reflow operations, a slight darkening of the gold-colored epoxy may be observed. This slight darkening is normal and not harmful to the product. Marking permanency is not affected by this change.

PROFILE FEATURE PREHEAT/SOAK	SNPB ASSEMBLY	PB-FREE ASSEMBLY
Temperature Minimum (T <sub>Smin</sub> )	100°C	150°C
Temperature Maximum (T <sub>Smax</sub> )	150°C	200°C
Time (ts) from T <sub>Smin</sub> to T <sub>Smax</sub>	60 – 120 seconds	60 – 120 seconds
Ramp-up Rate (TL to TP)	3°C/second maximum	3°C/second maximum
Liquidous Temperature (TL)	183°C	217°C
Time Above Liquidous (tL)	60 – 150 seconds	60 – 150 seconds
Peak Temperature (TP)	220°C* 235°C**	220°C* 235°C**
Time within 5°C of Maximum Peak Temperature (tP)	20 seconds maximum	30 seconds maximum
Ramp-down Rate (TP to TL)	6°C/second maximum	6°C/second maximum
Time 25°C to Peak Temperature	6 minutes maximum	8 minutes maximum

Note: All temperatures refer to the center of the package, measured on the package body surface that is facing up during assembly reflow.  
\* For Case Size height > 2.5 mm | \*\* For Case Size height ≤ 2.5 mm

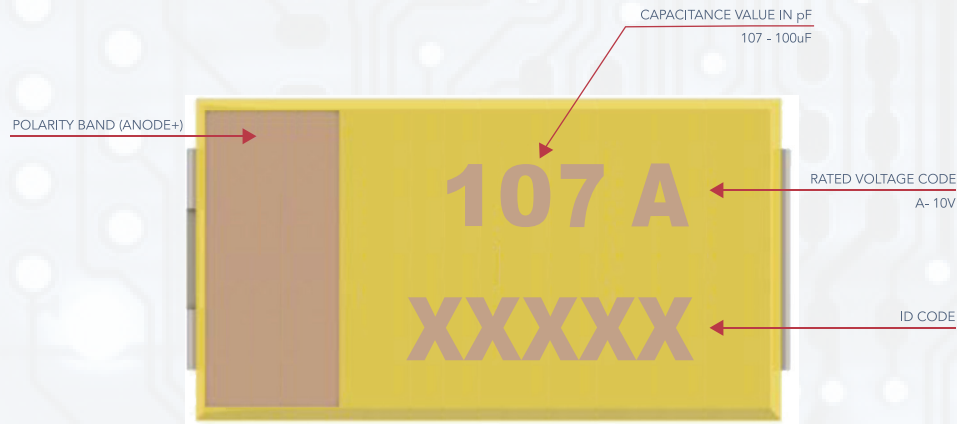


## STORAGE

Tantalum chip capacitors should be stored in normal working environments. While the chips themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature – reels may soften or warp and tape peel force may increase. CCE recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulfur bearing compounds. For optimized solderability, chip stock should be used promptly, preferably within three years of receipt.

## CAPACITOR MARKING

A, B, C, D, E, F, S, T, H, U, X, V CASE



VOLTAGE CODE	RATED VOLTAGE
e	2.5
G	4
J	6.3
A	10
C	16
D	20
E	25
V	35
T	50

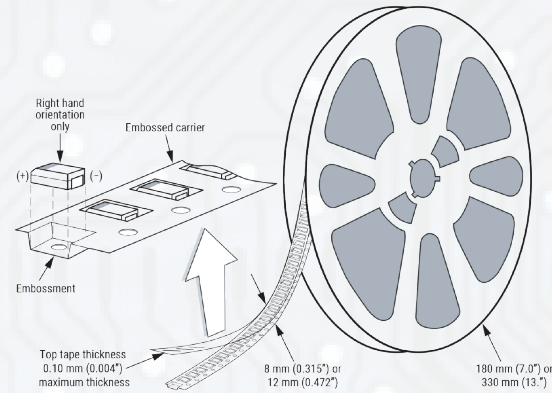
P, R CASE





## TAPE & REEL PACKAGING INFORMATION

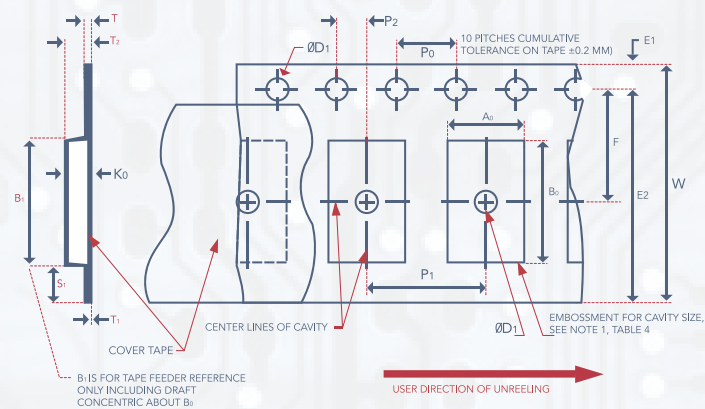
CCE's molded chip capacitor families are packaged in 8 and 12 mm plastic tape on 7" and 13" reels in accordance with EIA Standard 481: Embossed Carrier Taping of Surface Mount Components for Automatic Handling. This packaging system is compatible with all tape-fed automatic pick-and-place systems.



## PACKAGING QUANTITY

CASE CODE		TAPE WIDTH	7" REEL*	13" REEL*
CASE	EIA			
A	3216-18	82	2,000	9,000
B	3528-21	82	2,000	8,000
C	6032-28	12	500	3,000
D	7343-31	12	500	2,500
E	7343-43	12	500	2,000
F	6032-20	12	1,000	5,000
P	2012-15	8	2,500	8,000
R	2012-12	8	2,500	8,000
S	3216-12	8	2,500	9,000
T	3528-12	8	2,500	10,000
H	7360-38	12	500	2,000
U	6032-15	12	1,000	5,000
W	7343-15	12	1,000	3,000
V	7343-20	12	1,000	3,000

## EMBOSSED (PLASTIC) CARRIER TAPE DIMENSIONS 8mm (0.315") or 12mm (0.472")



## EMBOSSED (PLASTIC) CARRIER TAPE DIMENSIONS 8mm (0.315") or 12mm (0.472")

Metric will govern

### CONSTANT DIMENSIONS — MILLIMETERS (INCHES)

TAPE SIZE	D <sub>0</sub>	D <sub>1</sub> MINIMUM NOTE 2	E <sub>1</sub>	P <sub>0</sub>	P <sub>2</sub>	R REFERENCE NOTE 2	S <sub>1</sub> MINIMUM NOTE 3	T MAXIMUM	T <sub>1</sub> MAXIMUM
8MM	1.5 +0.10/-0.0 (0.059 +0.004/-0.0)	1.0 (0.039)	1.75 ±0.10 (0.069 ±0.004)	4.0 ±0.10 (0.157 ±0.004)	2.0 ±0.05 (0.079 ±0.002)	25.0 (0.984)	0.600 (0.024)	0.600 (0.024)	0.100 (0.004)
12MM		1.5 (0.059)				30 (1.181)			

### VARIABLE DIMENSIONS — MILLIMETERS (INCHES)

TAPE SIZE	PITCH	B <sub>1</sub> MAXIMUM NOTE 4	E <sub>2</sub> MINIMUM	F	P <sub>1</sub>	T <sub>2</sub> MAXIMUM	W MAXIMUM	A <sub>0</sub> , B <sub>0</sub> & K <sub>0</sub>
8MM	SINGLE (4 MM)	4.35 (0.171)	6.25 (0.246)	3.5 ±0.05 (0.138 ±0.002)	2.0 ±0.05 or 4.0 ±0.10 (0.079 ±0.002 or 0.157 ±0.004)	2.5 (0.098)	8.3 (0.327)	NOTE 5
12MM	SINGLE (4 MM) AND DOUBLE (8 MM)	8.2 (0.323)	10.25 (0.404)	5.5 ±0.05 (0.217 ±0.002)	2.0 ±0.05 (0.079 ±0.002) or 4.0 ±0.10 (0.157 ±0.004) or 8.0 ±0.10 (0.315 ±0.004)	4.6 (0.181)	12.3 (0.484)	

- The embossment hole location shall be measured from the sprocket hole controlling the location of the embossment. Dimensions of embossment location and hole location shall be applied independent of each other.
- The tape, with or without components, shall pass around R without damage (see Figure 4).
- If S<sub>1</sub> < 1.0 mm, there may not be enough area for cover tape to be properly applied (see EIA Standard 481-D, paragraph 4.3, section b).
- B<sub>1</sub> dimension is a reference dimension for tape feeder clearance only.
- The cavity defined by A<sub>0</sub>, B<sub>0</sub> and K<sub>0</sub> shall surround the component with sufficient clearance that:
  - the component does not protrude above the top surface of the carrier tape.
  - the component can be removed from the cavity in a vertical direction without mechanical restriction, after the top cover tape has been removed.
  - rotation of the component is limited to 20° maximum for 8 and 12 mm tapes (see Figure 2).
  - lateral movement of the component is restricted to 0.5 mm maximum for 8 mm and 12 mm wide tape (see Figure 3).
  - see Addendum in EIA Standard 481-D for standards relating to more precise taping requirements.

## PACKAGING INFORMATION PERFORMANCE NOTES

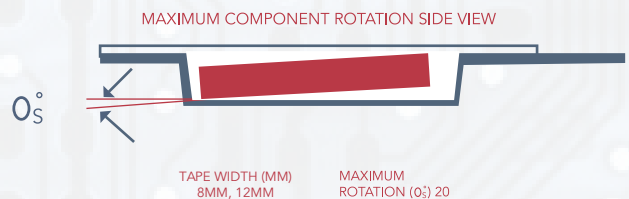
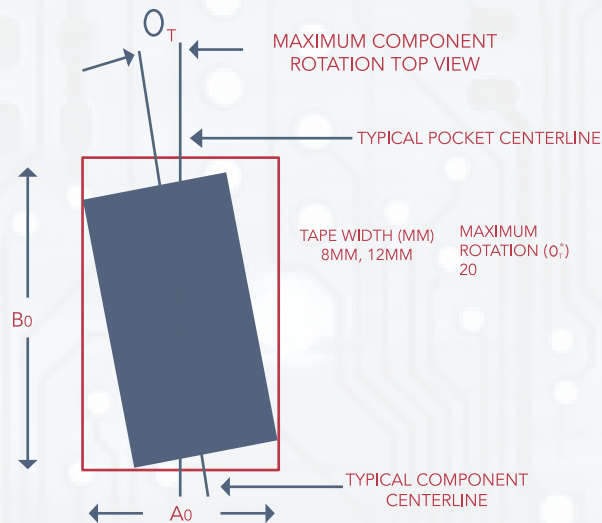
1. Cover tape break force: 1.0 kg minimum.
2. Cover tape peel strength: The total peel strength of the cover tape from the carrier tape shall be:

TAPE WIDTH	PEEL STRENGTH
8 MM	0.1 to 1.0 newton (10 to 100gf)
12 MM	0.1 to 1.3 newton (10 to 130gf)

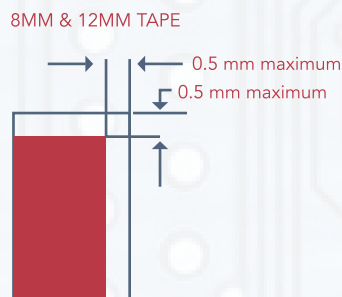
The direction of the pull shall be opposite the direction of the carrier tape travel. The pull angle of the carrier tape shall be 165° to 180° from the plane of the carrier tape. During peeling, the carrier and/or cover tape shall be pulled at a velocity of 300 ±10 mm/minute.

3. Labeling: Bar code labeling (standard or custom) shall be on the side of the reel opposite the sprocket holes. Refer to EIA Standards 556 and 624.

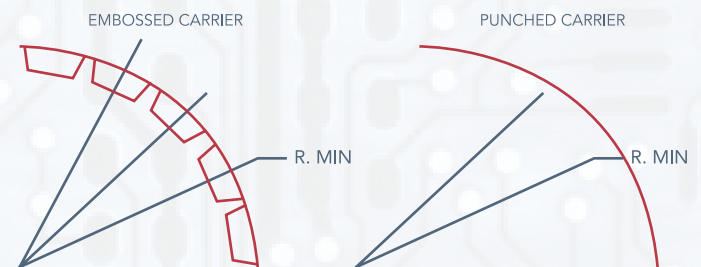
## MAXIMUM COMPONENT ROTATION



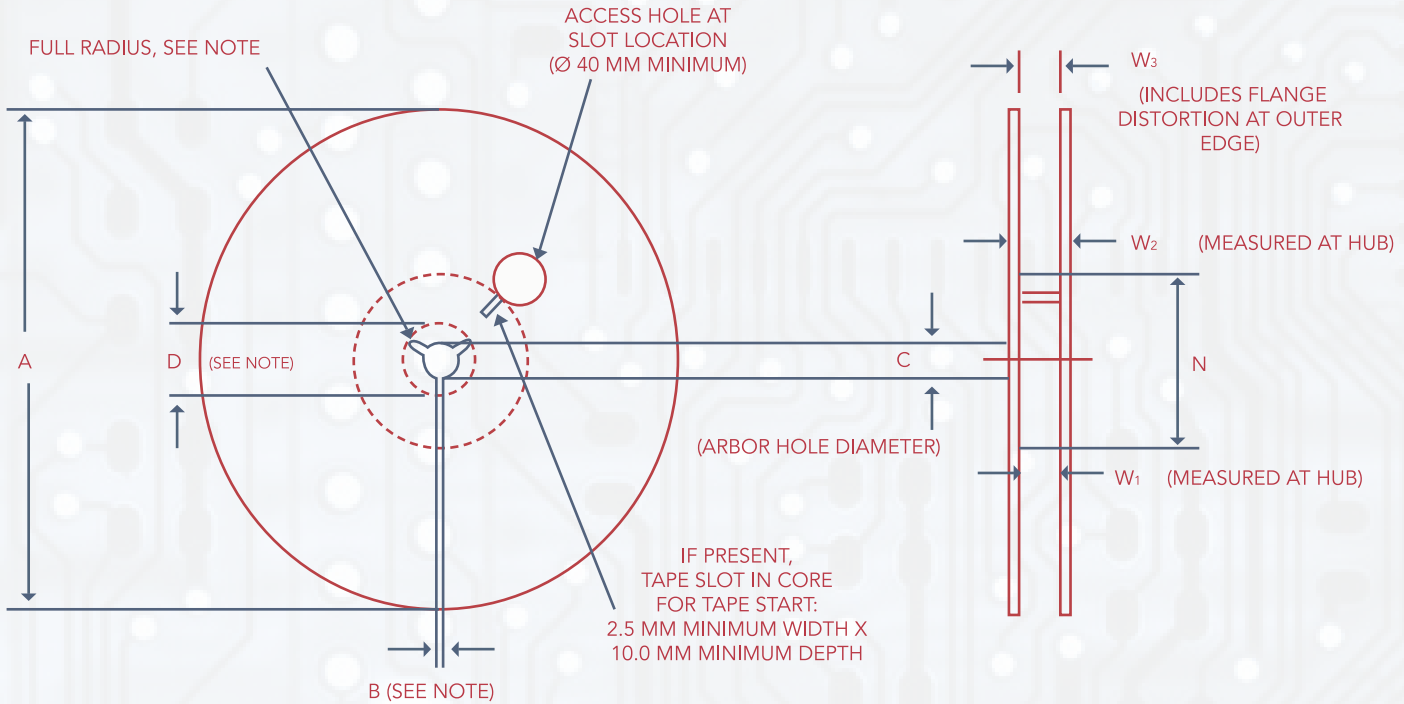
## MAXIMUM LATERAL MOVEMENT



## BENDING RADIUS



## REEL DIMENSIONS



NOTE: DRIVE SPOKES OPTIONAL; IF USED, DIMENSIONS B AND D SHALL APPLY.

Metric will govern

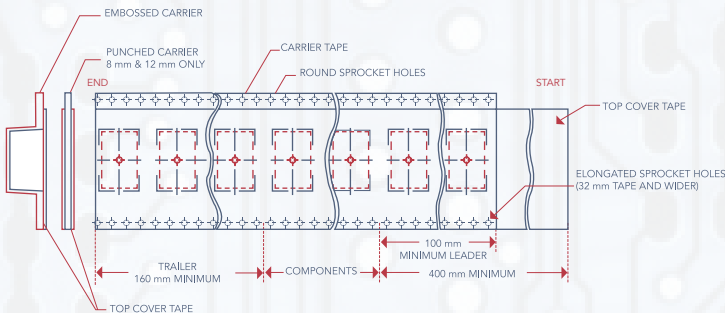
### CONSTANT DIMENSIONS - MILLIMETERS (INCHES)

TAPE SIZE	A	B MINIMUM	C	D MINIMUM
8 MM	178 ±0.20 (7.008±0.008) 330 ±0.20 (13.000 ±0.008)	1.5 (0.059)	13.0 +0.5/-0.2 (0.521 +0.02/-0.008)	20.2 (0.795)
12 MM				

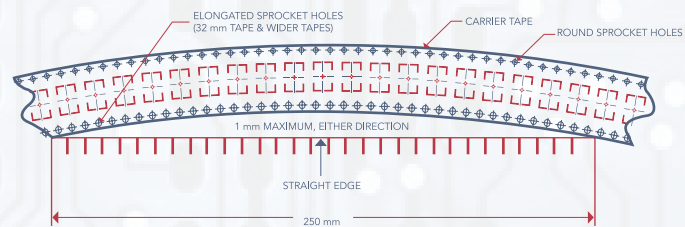
### VARIABLE DIMENSIONS - MILLIMETERS (INCHES)

TAPE SIZE	N MINIMUM	W <sub>1</sub>	W <sub>2</sub> MINIMUM	W <sub>3</sub>
8 MM	50 (1.969)	8.4 +1.5/-0.0 (0.331 +0.059/-0.0)	14.4 (0.567)	Shall accommodate tape width without interference
12 MM		12.4 +2.0/-0.0 (0.488 +0.078/-0.0)	18.4 (0.724)	

## TAPE LEADER & TRAILER DIMENSIONS



## MAXIMUM CAMBER



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