

## CBAC: ULTRA-LOW ESR, CONDUCTIVE POLYMER CHIP TANTALUM CAPACITORS, SOILD POLYMER TANTALUM CAPACITORS

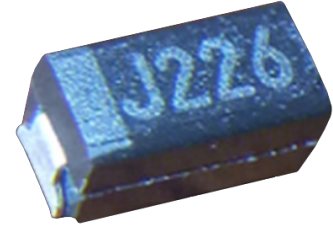


### FEATURES:

- ◆ Epoxy molded encapsulation, Chip, Easy for integration, Polarized
- ◆ Extremely low ESR , Volumetrically efficient , Stable in electrical & storage performances , Long life-span, High reliability
- ◆ Typical applications include DC/DC converters , notebook PCs , portable electronics , telecommunications (mobile phone and base station ) , displays ,SSD,HDD and USB
- ◆ Operative Standard: QJ/PWV517-2013.

## SPECIFICATIONS

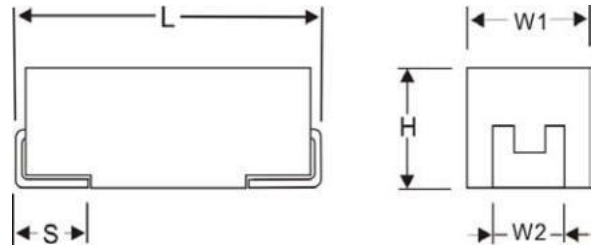
Rated Voltage	D.C. 2.5V ~ 63V
Operating Temperature Range	-55°C to +105°C
Rated Capacitance Range	0.47 ~ 1000 μF at 100 Hz
Capacitance Tolerance	±20%(M)
Leakage Current DCL	0.1CV (μA)at rated voltage after 5 minutes
Equivalent Series Resistance ESR	Refer to Part Number Electrical Specifications Table
Termination Finished	Sn Plating (standard), Gold and SnPb Plating upon request
Resistance to soldering heat	3×260°C peak for max. 10s reflow



### DIMENSIONS - MILLIMETERS

Unit:mm

Case Size	L	W1	H	W2	S	
A	1206   3216	3.2±0.2	1.6±0.2	1.6±0.2	0.8±0.2	1.2±0.2
B	1210   3225	3.5±0.2	2.8±0.2	1.9±0.2	0.8±0.2	2.2±0.2
C	2312   6032	6.0±0.2	3.2±0.2	2.5±0.2	1.3±0.2	2.2±0.2
H	2917   7343	7.3±0.2	4.3±0.2	2.0±0.2	1.3±0.2	2.4±0.2
D	2917   7343	7.3±0.2	4.3±0.2	2.8±0.2	1.3±0.2	2.4±0.2
E	2917   7343	7.3±0.4	4.3±0.4	4.1±0.4	1.3±0.2	2.4±0.2
V	2924   7361	7.3±0.4	6.1±0.4	3.6±0.4	1.35±0.2	3.0±0.2
W	2924   7361	7.3±0.4	6.1±0.4	4.1±0.4	1.35±0.2	3.0±0.2



### Capacitance And Rated Voltage Range (Letter Denotes Case Size)

Rated Voltage(V)	2.5 0E	4 0G	6.3 0J	10 1A	16 1C
Capacitance(μF)	Case Size & ESR mΩ				
1					B(300)
1.5					B(300)
2.2					B(300)
3.3					A(250), B(150,300)
4.7				A(250)	A(250), B(100,150,300), C(150)
6.8				A(180,250)	A(200), B(100,150,300), C(150)
10			A(120,250,300)	A(80,120,300), B(100)	A(200), B(100,200,300), C(150)
15		A(120,300), B(100)	A(300), B(90)	A(80,200), B(90), C(70)	B(100,150,300), C(70,150), D(80)
22		A(300), B(90), C(70)	A(90,300), B(90), C(70)	A(80), B(90,300), C(70)	B(150), C(70,150), D(60,80), E(80)
33		A(70,300), B(90), C(70)	A(70,120,200), B(40,90,200), C(70,100)	B(40), B(90,200), C(70,100)	C(70,150), H(45,70), D(60,80), E(80)
47	A(90)	A(70,200), B(90), C(70)	A(150,200), B(40,90), C(70)	B(35,70,90), C(70,100)	C(150), H(45,80), D(35,70,90), E(50,80)
68	A(70,250)	A(250), B(25,40,80), C(70)	A(150), B(35,55,80), C(70,100), D(60)	C(45,70), H(45,60,100), D(45,60,100)	H(50,90), D(50,80), E(50,80)
100	A(200), B(25,40), B(70)	A(150,200,300), B(25,40,80), C(70)	A(70), B(25,45,70), C(25,45,70), H(45), D(60)	C(25,45,70), H(25,55), D(45,60,80)	H(50), D(60,80), E(40,80)
150	B(70)	B(25,40,70), C(25,45,100), H(25,45), D(60)	B(25,45,70), C(25,55), H(25,45), D(25,60)	C(55), H(25,55), D(25,40,60), E(50)	V(80), W(80), E(40,80)
220	B(25,55,70), C(25,45), H(25,45), D(40)	B(35,70), C(25,55), H(25,45), D(25,65)	B(25,70,200), C(25,45), H(25,50), D(40,60), E(50)	H(25,50), D(25,60), E(50)	V(40), V(80), W(80), E(25,50,80)
330	B(35,70), C(25,45), H(25,40), D(25,60)	C(25,45), H(25,50), D(25,60), E(50)	H(25,50), D(25,60), E(50)	V(40), E(35,50)	V(40), V(80), W(80), E(25,50,80)
470	C(25,45), H(25,50), D(25,40,60)	H(25,50), D(25,60), E(50)	H(35,55), D(30), V(40), E(35,50)		
680	D(25,40), E(50)	D(25), V(40), E(35,50)	E(25)		
1000	D(30), V(40), E(50)				

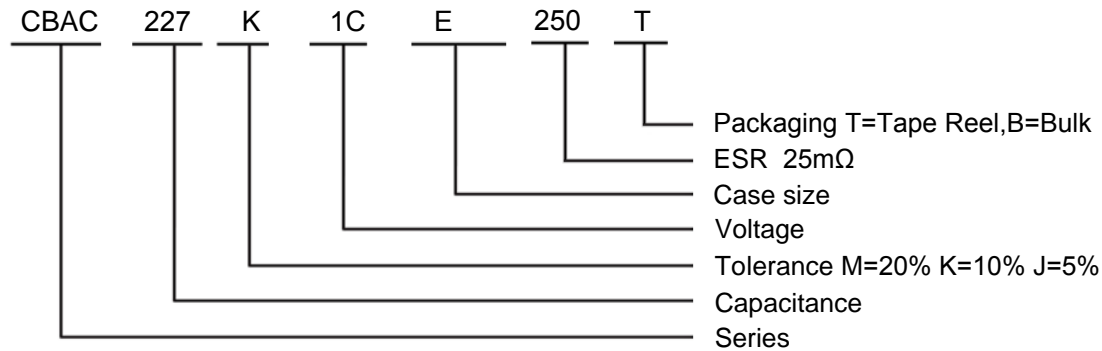


## Capacitance And Rated Voltage Range

(Letter Denotes Case Size)

Rated Voltage(V)	20 1D	25 1E	35 1V	50 1H	63 1J
Capacitance(μF)	Case Size & ESR mΩ				
0.68		B(300)	B(350)	B(350,400)	
1	B(300)	B(300)	B(350)	B(300,350)	B(300), C(200,300), D(120)
1.5	B(300)	B(300), C(150)	B(200,350), C(200)	B(300,350), C(200,300)	C(200,300), D(120)
2.2	A(250), B(150,300)	B(250,300), C(100,150)	B(200,(350), C(200)	B(350), C(200,300)	C(200), D(120)
3.3	A(250), B(150,00), C(150)	B(250,300), C(100,150)	B(200,350), C(200)	C(200), D(100)	C(200), D(120)
4.7	B(150,300), C(100,150)	B(150,250,300), C(100,150)	B(200,350), C(200)	C(200), D(100)	C(200), D(75,120,300), E(120)
6.8	B(150,300), C(100,150)	B(90,150,300), C(100,150)	C(200), D(90)	C(200), H(70,90), D(70,100,120)	D(120), E(100,150)
10	B(100,150,300), C(100,150)	B(100,150,300), C(100,150), D(90)	B(200), C(200), H(70,120), D(90), E(90)	D(90,120), E(70,100)	D(120), E(50,100,150)
15	B(90), C(80,150), D(70,80)	B(100,150), C(150), H(90), D(90), E(80)	C(200), H(100,125), D(70,100), E(90)	V(100), E(70,100)	V(120), E(35,120,150)
22	C(100,150), H(45,70), H(90), D(60,80), E(50,80)	B(150), C(100,150), H(60,90), D(60,80,100), E(80)	D(70,100), E(90)	V(100), W(100), E(75,100)	W(120)
33	C(150), H(70), D(60,80), E(50,80)	H(60,100), D(60,80,100), E(80)	D(65), D(100), V(90), E(55,70,90)	V(100), W(100), E(75)	
47	C(150), H(55,70,90), D(55,80), E(50,80)	D(60,80,100), E(50,80)	V(90), W(90), E(30,55,90)	W(100)	
68	D(55,80), E(45,80)	D(80), V(80), E(50,80)	W(90)		
100	D(55), V(80), E(45,80)	V(80), W(80), E(60,80)			
150	V(80), W(80), E(80)	V(80), W(80)			
220	V(80), W(80), E(80)				

## PART NUMBER EXAMPLE



Capacitance Code:

103=10,000pF or 0.01uF, 104=100,000pF or 0.1uF,

105 = 1uF, 106= 10uF, 107=100uF,108=1,000uF



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)			
								45°C	85°C	105°C	
2.5 OE	47	A	105	2.3	11.8	8	90	850	595	212	
	68	A	105	2.3	17	8	70	964	675	241	
		A	105	2.3	17	6	250	510	357	127	
	100	A	105	2.3	25	6	200	570	399	143	
		B	105	2.3	25	8	25	1732	1212	433	
		B	105	2.3	25	8	40	1369	959	342	
	150	B	105	2.3	25	8	70	1035	725	259	
		B	105	2.3	37.5	6	70	1035	725	259	
		B	105	2.3	55	8	25	1732	1212	433	
	220	B	105	2.3	55	8	55	1168	817	292	
		B	105	2.3	55	8	70	1035	725	259	
		C	105	2.3	55	8	25	1897	1328	474	
		C	105	2.3	55	8	45	1414	990	354	
		D	105	2.3	55	10	40	1620	1134	405	
		H	105	2.3	55	10	25	2236	1565	559	
		H	105	2.3	55	10	45	1667	1167	417	
	330	B	105	2.3	82.5	8	35	1464	1025	366	
		B	105	2.3	82.5	8	70	1035	725	259	
		C	105	2.3	82.5	8	25	1897	1328	474	
		C	105	2.3	82.5	8	45	1414	990	354	
		D	105	2.3	82.5	10	25	2049	1435	512	
		D	105	2.3	82.5	10	60	1323	926	331	
		H	105	2.3	82.5	10	25	2236	1565	559	
		H	105	2.3	82.5	10	40	1768	1237	442	
	470	C	105	2.3	117.5	8	25	1897	1328	474	
		C	105	2.3	117.5	8	45	1414	990	354	
		D	105	2.3	117.5	10	25	2049	1435	512	
		D	105	2.3	117.5	6	40	1620	1134	405	
		D	105	2.3	117.5	10	60	1323	926	331	
		H	105	2.3	117.5	6	25	2236	1565	559	
		H	105	2.3	117.5	6	50	1581	1107	395	
	680	D	105	2.3	170	10	25	2049	1435	512	
		D	105	2.3	170	10	40	1620	1134	405	
		E	105	2.3	170	10	50	1581	1107	395	
	1000	D	105	2.3	250	10	30	1871	1310	468	
		E	105	2.3	250	10	50	1581	1107	395	
		V	105	2.3	250	10	40	1936	1356	484	
	40G	15	A	105	3.6	6	10	120	736	515	184
			A	105	3.6	6	6	300	465	326	116
			B	105	3.6	6	10	100	866	606	217
22		A	105	3.6	8.8	6	300	465	326	116	
		B	105	3.6	8.8	10	90	913	639	228	
		C	105	3.6	8.8	10	70	1134	794	283	
33		A	105	3.6	13.2	8	70	964	675	241	
		A	105	3.6	13.2	6	300	465	326	116	
		B	105	3.6	13.2	10	90	913	639	228	
		C	105	3.6	13.2	10	70	1134	794	283	

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> =2.2\* 1.0V U<sub>~</sub>=1.0\* 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)		
								45°C	85°C	105°C
40G	47	A	105	3.6	18.8	8	70	964	675	241
		A	105	3.6	18.8	6	200	570	399	143
		B	105	3.6	18.8	10	90	913	639	228
		C	105	3.6	18.8	10	70	1134	794	283
	68	A	105	3.6	27.2	6	250	510	357	127
		B	105	3.6	27.2	8	25	1732	1212	433
		B	105	3.6	27.2	8	40	1369	959	342
		C	105	3.6	27.2	10	70	968	678	242
	100	A	105	3.6	40	8	150	658	461	165
		A	105	3.6	40	8	200	570	399	143
		A	105	3.6	40	10	300	465	326	116
		B	105	3.6	40	8	25	1732	1212	433
		B	105	3.6	40	8	40	1369	959	342
		B	105	3.6	40	8	80	968	678	242
		C	105	3.6	40	10	70	1134	794	283
	150	B	105	3.6	60	8	25	1732	1212	433
		B	105	3.6	60	8	40	1369	959	342
		B	105	3.6	60	8	70	1035	725	259
		C	105	3.6	60	8	25	1897	1328	474
		C	105	3.6	60	8	45	1414	990	354
		C	105	3.6	60	8	100	949	664	237
		D	105	3.6	60	10	60	1323	926	331
		H	105	3.6	60	10	25	2236	1565	559
	220	H	105	3.6	60	6	45	1667	1167	417
		B	105	3.6	88	8	35	1464	1025	366
		B	105	3.6	88	8	70	1035	725	259
		C	105	3.6	88	8	25	1897	1328	474
		C	105	3.6	88	8	55	1279	895	320
		D	105	3.6	88	10	25	2049	1435	512
		D	105	3.6	88	10	65	1271	890	318
		H	105	3.6	88	10	25	2236	1565	559
	330	H	105	3.6	88	10	45	1667	1167	417
		C	105	3.6	132	8	25	1897	1328	474
		C	105	3.6	132	8	45	1414	990	354
		D	105	3.6	132	10	25	2049	1435	512
		D	105	3.6	132	10	60	1323	926	331
		E	105	3.6	132	10	50	1581	1107	395
		H	105	3.6	132	10	25	2236	1565	559
	470	H	105	3.6	132	6	50	1581	1107	395
		D	105	3.6	188	10	25	2049	1435	512
D		105	3.6	188	10	60	1323	926	331	
E		105	3.6	188	10	50	1581	1107	395	
H		105	3.6	188	6	25	2236	1565	559	
680	H	105	3.6	188	6	50	1581	1107	395	
	D	105	3.6	272	10	25	2049	1435	512	
	E	105	3.6	272	10	35	1890	1323	472	
	V	105	3.6	272	10	40	1581	1107	395	
							1936	1356	484	

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> =2.2\* 1.0V U<sub>r</sub>~1.0° 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)			
								45°C	85°C	105°C	
6.3 0J	10	A	105	5.7	6.3	10	120	736	515	184	
		A	105	5.7	6.3	10	250	510	357	127	
		A	105	5.7	6.3	6	300	465	326	116	
	15	A	105	5.7	9.5	6	300	465	326	116	
		B	105	5.7	9.5	10	90	913	639	228	
	22	A	105	5.7	13.9	8	90	850	595	212	
		A	105	5.7	13.9	6	300	465	326	116	
		B	105	5.7	13.9	10	90	913	639	228	
	33	C	105	5.7	13.9	10	70	1134	794	283	
			A	105	5.7	20.8	8	70	964	675	241
			A	105	5.7	20.8	8	120	736	515	184
		B	105	5.7	20.8	6	200	570	399	143	
			105	5.7	20.8	8	40	1369	959	342	
			105	5.7	20.8	10	90	913	639	228	
			105	5.7	20.8	6	200	612	429	153	
	47	C	105	5.7	20.8	10	70	1134	794	283	
			105	5.7	20.8	8	100	949	664	237	
			A	105	5.7	29.6	8	150	658	461	165
		B	105	5.7	29.6	6	200	570	399	143	
			105	5.7	29.6	8	40	1369	959	342	
	68	C	105	5.7	29.6	10	70	1134	794	283	
			105	5.7	42.8	8	100	949	664	237	
			105	5.7	42.8	10	60	1323	926	331	
		B	105	5.7	42.8	8	150	658	461	165	
			105	5.7	42.8	8	35	1464	1025	366	
			105	5.7	42.8	8	55	1168	817	292	
			105	5.7	42.8	8	80	968	678	242	
	100	C	105	5.7	63	8	70	964	675	241	
			105	5.7	63	8	25	1732	1212	433	
			105	5.7	63	8	45	1291	904	323	
		B	105	5.7	63	8	70	1035	725	259	
			105	5.7	63	8	25	1897	1328	474	
			105	5.7	63	8	45	1414	990	354	
		D	105	5.7	63	10	70	1134	794	283	
			105	5.7	63	10	60	1323	926	331	
	150	H	105	5.7	94.5	8	25	1732	1212	433	
			105	5.7	94.5	8	45	1291	904	323	
			105	5.7	94.5	8	70	1035	725	259	
		C	105	5.7	94.5	8	25	1897	1328	474	
			105	5.7	94.5	8	55	1279	895	320	
		D	105	5.7	94.5	10	25	2049	1435	512	
			105	5.7	94.5	10	60	1323	926	331	
105			5.7	94.5	10	25	2236	1565	559		
220	H	105	5.7	94.5	10	45	1667	1167	417		
		105	5.7	138.6	8	25	1732	1212	433		
		B	105	5.7	138.6	8	70	1035	725	259	

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> = 2.2° 1.0V U<sub>r</sub> ~ 1.0° 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)		
								45°C	85°C	105°C
6.3 0J	220	B	105	5.7	138.6	10	200	612	429	153
		C	105	5.7	138.6	8	25	1897	1328	474
		C	105	5.7	138.6	8	45	1414	990	354
		D	105	5.7	138.6	10	40	1620	1134	405
		D	105	5.7	138.6	10	60	1323	926	331
		E	105	5.7	138.6	10	50	1581	1107	395
		H	105	5.7	138.6	10	25	2236	1565	559
	330	H	105	5.7	138.6	6	50	1581	1107	395
		D	105	5.7	207.9	10	25	2049	1435	512
		D	105	5.7	207.9	10	60	1323	926	331
		E	105	5.7	207.9	10	50	1581	1107	395
		H	105	5.7	207.9	10	25	2236	1565	559
	470	H	105	5.7	207.9	12	50	1581	1107	395
		D	105	5.7	296.1	10	30	1871	1310	468
		E	105	5.7	296.1	10	35	1890	1323	472
		E	105	5.7	296.1	10	50	1581	1107	395
		H	105	5.7	296.1	10	35	1890	1323	472
	680	H	105	5.7	296.1	10	55	1508	1055	377
		V	105	5.7	296.1	10	40	1936	1356	484
	10 1A	680	E	105	5.7	428.4	10	25	2236	1565
4.7		A	105	9	4.7	10	250	510	357	127
6.8		A	105	9	6.8	10	180	601	421	150
		A	105	9	6.8	10	250	510	357	127
10		A	105	9	10	8	80	901	631	225
		A	105	9	10	8	120	736	515	184
		A	105	9	10	10	300	465	326	116
		B	105	9	10	10	100	866	606	217
15		A	105	9	15	8	80	901	631	225
		A	105	9	15	6	200	570	399	143
		B	105	9	15	10	90	913	639	228
		C	105	9	15	10	70	1134	794	283
22		A	105	9	22	8	80	901	631	225
		B	105	9	22	10	90	913	639	228
		B	105	9	22	6	300	500	350	125
		C	105	9	22	10	70	1134	794	283
33		B	105	9	33	8	40	1369	959	342
		B	105	9	33	10	90	913	639	228
		B	105	9	33	6	200	612	429	153
		C	105	9	33	10	70	1134	794	283
		C	105	9	33	6	100	949	664	237
47		B	105	9	47	8	35	1464	1025	366
		B	105	9	47	8	70	1035	725	259
		B	105	9	47	10	90	913	639	228
		C	105	9	47	10	70	1134	794	283
		C	105	9	47	8	100	949	664	237
68		C	105	9	68	8	45	1414	990	354
		C	105	9	68	10	70	1134	794	283
	D	105	9	68	6	45	1528	1069	382	
	D	105	9	68	10	60	1323	926	331	

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> =2.2\* 1.0V U<sub>~</sub>=1.0\* 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)		
								45°C	85°C	105°C
10 1A	68	D	105	9	68	10	60	1323	926	331
		D	105	9	68	10	100	1025	717	256
		H	105	9	68	10	45	1667	1167	417
		H	105	9	68	10	60	1443	1010	361
		H	105	9	68	10	100	1118	783	280
	100	C	105	9	100	8	25	1897	1328	474
		C	105	9	100	8	45	1414	990	354
		C	105	9	100	10	70	1134	794	283
		D	105	9	100	6	45	1528	1069	382
		D	105	9	100	10	60	1323	926	331
		D	105	9	100	10	80	1146	802	286
		H	105	9	100	10	25	2236	1565	559
	150	H	105	9	100	10	55	1508	1055	377
		C	105	9	150	8	55	1279	895	320
		D	105	9	150	10	25	2049	1435	512
		D	105	9	150	10	40	1620	1134	405
		D	105	9	150	10	60	1323	926	331
		E	105	9	150	10	50	1581	1107	395
		H	105	9	150	10	25	2236	1565	559
	220	H	105	9	150	6	55	1508	1055	377
		D	105	9	220	10	25	2049	1435	512
		D	105	9	220	10	60	1323	926	331
		E	105	9	220	10	50	1581	1107	395
		H	105	9	220	10	25	2236	1565	559
	330	H	105	9	220	6	50	1581	1107	395
		E	105	9	330	10	35	1890	1323	472
		E	105	9	330	10	50	1581	1107	395
		V	105	9	330	10	40	1936	1356	484
16 1C	1	B	105	12.8	1.6	10	300	500	350	125
	1.5	B	105	12.8	2.4	10	300	500	350	125
	2.2	B	105	12.8	3.5	10	300	500	350	125
	3.3	A	105	12.8	5.3	10	250	510	357	127
		B	105	12.8	5.3	10	150	707	495	177
		B	105	12.8	5.3	10	300	500	350	125
	4.7	A	105	12.8	7.5	10	250	510	357	127
		B	105	12.8	7.5	10	100	866	606	217
		B	105	12.8	7.5	10	150	707	495	177
		B	105	12.8	7.5	10	300	500	350	125
	6.8	C	105	12.8	7.5	10	150	775	542	194
		A	105	12.8	10.9	6	200	570	399	143
		B	105	12.8	10.9	10	100	866	606	217
		B	105	12.8	10.9	10	150	707	495	177
		B	105	12.8	10.9	10	300	500	350	125
	10	C	105	12.8	10.9	10	150	775	542	194
		A	105	12.8	16	6	200	570	399	143
		B	105	12.8	16	10	100	866	606	217
		B	105	12.8	16	6	200	612	429	153
		B	105	12.8	16	10	300	500	350	125
C		105	12.8	16	10	150	775	542	194	

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> = 2.2 \* 1.0V U<sub>r</sub> ~ 1.0° 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)			
								45°C	85°C	105°C	
16 1C	15	B	105	12.8	24	10	100	866	606	217	
		B	105	12.8	24	6	150	707	495	177	
		B	105	12.8	24	10	300	500	350	125	
		C	105	12.8	24	10	70	1134	794	283	
		C	105	12.8	24	10	150	775	542	194	
		D	105	12.8	24	10	80	1146	802	286	
	22	B	105	12.8	35.2	35.2	6	150	707	495	177
		C	105	12.8	35.2	35.2	10	70	1134	794	283
		C	105	12.8	35.2	35.2	10	150	775	542	194
		D	105	12.8	35.2	35.2	10	60	1323	926	331
		D	105	12.8	35.2	35.2	10	80	1146	802	286
	33	E	105	12.8	35.2	35.2	10	80	1250	875	313
		C	105	12.8	52.8	52.8	10	70	1134	794	283
		C	105	12.8	52.8	52.8	10	150	775	542	194
		D	105	12.8	52.8	52.8	10	60	1323	926	331
		D	105	12.8	52.8	52.8	10	80	1146	802	286
		E	105	12.8	52.8	52.8	10	80	1250	875	313
	47	H	105	12.8	52.8	52.8	10	45	1667	1167	417
		H	105	12.8	52.8	52.8	10	70	1336	935	334
		C	105	12.8	75.2	75.2	10	150	775	542	194
		D	105	12.8	75.2	75.2	10	35	1732	1212	433
		D	105	12.8	75.2	75.2	10	70	1225	857	306
		D	105	12.8	75.2	75.2	10	90	1080	756	270
		E	105	12.8	75.2	75.2	10	50	1581	1107	395
		E	105	12.8	75.2	75.2	10	80	1250	875	313
	68	H	105	12.8	75.2	75.2	10	45	1667	1167	417
		H	105	12.8	75.2	75.2	10	80	1250	875	313
		D	105	12.8	108.8	108.8	10	50	1449	1014	362
		D	105	12.8	108.8	108.8	10	80	1146	802	286
		E	105	12.8	108.8	108.8	10	50	1581	1107	395
		E	105	12.8	108.8	108.8	10	80	1250	875	313
	100	H	105	12.8	108.8	108.8	10	50	1581	1107	395
		H	105	12.8	108.8	108.8	10	90	1179	825	295
		D	105	12.8	160	160	10	60	1323	926	331
		D	105	12.8	160	160	10	80	1146	802	286
		E	105	12.8	160	160	6	40	1768	1237	442
	150	E	105	12.8	160	160	10	80	1250	875	313
		H	105	12.8	160	160	10	50	1581	1107	395
		E	105	12.8	240	240	10	40	1768	1237	442
		E	105	12.8	240	240	10	80	1250	875	313
220	V	105	12.8	240	240	10	80	1369	959	342	
	W	105	12.8	240	240	10	80	1581	1107	395	
	E	105	12.8	352	352	10	35	1890	1323	472	
	E	105	12.8	352	352	10	50	1581	1107	395	
	E	105	12.8	352	352	10	80	1250	875	313	
	V	105	12.8	352	352	10	40	1936	1356	484	
	V	105	12.8	352	352	10	80	1369	959	342	
W	105	12.8	352	352	10	80	1581	1107	395		

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> =2.2° 1.0V U<sub>~</sub>=1.0° 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)		
								45°C	85°C	105°C
16 1C	330	E	105	12.8	528	10	25	2236	1565	559
		E	105	12.8	528	10	50	1581	1107	395
		E	105	12.8	528	10	80	1250	875	313
		V	105	12.8	528	10	40	1936	1356	484
		V	105	12.8	528	10	80	1369	959	342
W	105	12.8	528	10	80	1581	1107	395		
20 1D	1	B	105	16	2	10	300	500	350	125
	1.5	B	105	16	3	10	300	500	350	125
	2.2	A	105	16	4.4	10	250	510	357	127
		B	105	16	4.4	10	150	707	495	177
	3.3	B	105	16	4.4	10	300	500	350	125
		A	105	16	6.6	10	250	510	357	127
		B	105	16	6.6	10	150	707	495	177
	4.7	B	105	16	6.6	10	300	500	350	125
		C	105	16	6.6	10	150	775	542	194
		B	105	16	9.4	10	150	707	495	177
		B	105	16	9.4	10	300	500	350	125
	6.8	C	105	16	9.4	10	100	949	664	237
		C	105	16	9.4	10	150	775	542	194
		B	105	16	13.6	10	150	707	495	177
		B	105	16	13.6	10	300	500	350	125
	10	C	105	16	13.6	10	100	949	664	237
		C	105	16	13.6	10	150	775	542	194
		B	105	16	20	8	100	866	606	217
		B	105	16	20	10	150	707	495	177
		B	105	16	20	10	300	500	350	125
	15	C	105	16	20	10	100	949	664	237
		C	105	16	20	10	150	775	542	194
		B	105	16	30	10	90	913	639	228
		C	105	16	30	10	80	1061	742	265
		C	105	16	30	10	150	775	542	194
	22	D	105	16	30	10	70	1225	857	306
		D	105	16	30	10	80	1146	802	286
		C	105	16	44	10	100	949	664	237
		C	105	16	44	10	150	775	542	194
		D	105	16	44	10	60	1323	926	331
		D	105	16	44	10	80	1146	802	286
		E	105	16	44	10	50	1581	1107	395
		E	105	16	44	10	80	1250	875	313
33	H	105	16	44	10	45	1667	1167	417	
	H	105	16	44	6	70	1336	935	334	
	H	105	16	44	10	90	1179	825	295	
	C	105	16	66	10	150	775	542	194	
	D	105	16	66	10	60	1323	926	331	
	D	105	16	66	10	80	1146	802	286	
	E	105	16	66	10	50	1581	1107	395	
E	105	16	66	10	80	1250	875	313		
H	105	16	66	6	70	1336	935	334		

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz  $U_{-} = 2.2 \cdot 1.0V$   $U_{+} = 1.0 \cdot 0.5V$ , Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)		
								45°C	85°C	105°C
20 1D	47	C	105	16	94	10	150	775	542	194
		D	105	16	94	10	55	1382	967	345
		D	105	16	94	10	80	1146	802	286
		E	105	16	94	10	50	1581	1107	395
		E	105	16	94	10	80	1250	875	313
		H	105	16	94	10	55	1508	1055	377
		H	105	16	94	6	70	1336	935	334
	68	H	105	16	94	10	90	1179	825	295
		D	105	16	136	6	55	1382	967	345
		D	105	16	136	10	80	1146	802	286
		E	105	16	136	6	45	1667	1167	417
	100	E	105	16	136	10	80	1250	875	313
		D	105	16	200	10	55	1382	967	345
		E	105	16	200	6	45	1667	1167	417
		E	105	16	200	10	80	1250	875	313
	150	V	105	16	200	10	80	1369	959	342
		E	105	16	300	10	80	1250	875	313
		V	105	16	300	10	80	1369	959	342
W		105	16	300	10	80	1581	1107	395	
220	E	105	16	440	10	80	1250	875	313	
	V	105	16	440	10	80	1369	959	342	
	W	105	16	440	10	80	1581	1107	395	
25 1E	0.68	B	105	20	1.7	10	300	500	350	125
	1	B	105	20	2.5	10	300	500	350	125
	1.5	B	105	20	3.8	10	300	500	350	125
		C	105	20	3.8	10	150	775	542	194
	2.2	B	105	20	5.5	10	250	548	383	137
		B	105	20	5.5	10	300	500	350	125
		C	105	20	5.5	10	100	949	664	237
	3.3	C	105	20	5.5	10	150	775	542	194
		B	105	20	8.3	10	250	548	383	137
		B	105	20	8.3	10	300	500	350	125
	4.7	C	105	20	8.3	10	100	949	664	237
		C	105	20	8.3	10	150	775	542	194
		B	105	20	11.8	6	150	707	495	177
	6.8	B	105	20	11.8	10	250	548	383	137
		B	105	20	11.8	10	300	500	350	125
		C	105	20	11.8	10	100	949	664	237
		C	105	20	11.8	10	150	775	542	194
		B	105	20	17	6	90	913	639	228
	10	B	105	20	17	6	150	707	495	177
		B	105	20	17	10	300	500	350	125
		C	105	20	17	10	100	949	664	237
		C	105	20	17	10	150	775	542	194
		B	105	20	25	8	100	866	606	217
	10	B	105	20	25	6	150	707	495	177
		B	105	20	25	10	300	500	350	125
		C	105	20	25	10	100	949	664	237
		C	105	20	25	10	150	775	542	194
D		105	20	25	10	90	1080	756	270	

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> =2.2\* 1.0V U<sub>~</sub>=1.0°0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)			
								45°C	85°C	105°C	
25 1E	15	B	105	20	37.5	6	100	866	606	217	
		B	105	20	37.5	6	150	707	495	177	
		C	105	20	37.5	10	150	775	542	194	
		D	105	20	37.5	10	90	1080	756	270	
		E	105	20	37.5	10	80	1250	875	313	
		H	105	20	37.5	10	90	1179	825	295	
	22	B	105	20	55	6	150	707	495	177	
		C	105	20	55	6	100	949	664	237	
		C	105	20	55	10	150	775	542	194	
		D	105	20	55	6	60	1323	926	331	
		D	105	20	55	10	80	1146	802	286	
		D	105	20	55	6	100	1025	717	256	
		E	105	20	55	10	80	1250	875	313	
		H	105	20	55	10	60	1443	1010	361	
		H	105	20	55	10	90	1179	825	295	
		33	D	105	20	82.5	10	60	1323	926	331
	D		105	20	82.5	10	80	1146	802	286	
	D		105	20	82.5	6	100	1025	717	256	
	E		105	20	82.5	10	80	1250	875	313	
	H		105	20	82.5	10	60	1443	1010	361	
	H		105	20	82.5	6	100	1118	783	280	
	47	D	105	20	117.5	6	60	1323	926	331	
		D	105	20	117.5	10	80	1146	802	286	
		D	105	20	117.5	6	100	1025	717	256	
		E	105	20	117.5	6	50	1581	1107	395	
		E	105	20	117.5	10	80	1250	875	313	
	68	D	105	20	170	10	80	1146	802	286	
		E	105	20	170	6	50	1581	1107	395	
		E	105	20	170	10	80	1250	875	313	
		V	105	20	170	10	80	1369	959	342	
	100	E	105	20	250	10	60	1443	1010	361	
		E	105	20	250	10	80	1250	875	313	
		V	105	20	250	10	80	1369	959	342	
		W	105	20	250	10	80	1581	1107	395	
	150	V	105	20	375	10	80	1369	959	342	
		W	105	20	375	10	80	1581	1107	395	
	35 1V	0.68	B	105	28	2.4	10	350	463	324	116
		1	B	105	28	3.5	10	350	463	324	116
		1.5	B	105	28	5.3	6	200	612	429	153
			B	105	28	5.3	10	350	463	324	116
		2.2	C	105	28	5.3	10	200	671	470	168
			B	105	28	7.7	6	200	612	429	153
B			105	28	7.7	10	350	463	324	116	
3.3		C	105	28	7.7	10	200	671	470	168	
		B	105	28	11.6	6	200	612	429	153	
		B	105	28	11.6	10	350	463	324	116	
4.7		C	105	28	11.6	10	200	671	470	168	
		B	105	28	16.5	6	200	612	429	153	
		B	105	28	16.5	10	350	463	324	116	
			C	105	28	16.5	10	200	671	470	168

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> =2.2\* 1.0V U~=1.0°0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)				
								45°C	85°C	105°C		
35 1V	6.8	C	105	28	23.8	10	200	671	470	168		
		D	105	28	23.8	10	90	1080	756	270		
	10	B	105	28	35	35	6	200	612	429	153	
		C	105	28	35	35	10	200	671	470	168	
		D	105	28	35	35	10	90	1080	756	270	
		E	105	28	35	35	10	90	1179	825	295	
		H	105	28	35	35	6	70	1336	935	334	
		H	105	28	35	35	10	120	1021	714	255	
	15	C	105	28	52.5	52.5	6	200	671	470	168	
		D	105	28	52.5	52.5	6	70	1225	857	306	
		D	105	28	52.5	52.5	6	100	1025	717	256	
		E	105	28	52.5	52.5	10	90	1179	825	295	
		H	105	28	52.5	52.5	10	100	1118	783	280	
	22	D	H	105	28	52.5	10	125	1000	700	250	
			D	105	28	77	6	70	1225	857	306	
	33	D	D	105	28	77	6	100	1025	717	256	
			E	105	28	77	10	90	1179	825	295	
		E	D	105	28	115.5	115.5	10	65	1271	890	318
			D	105	28	115.5	115.5	6	100	1025	717	256
			E	105	28	115.5	115.5	6	55	1508	1055	377
			E	105	28	115.5	115.5	6	70	1336	935	334
		47	E	E	105	28	115.5	10	90	1179	825	295
				V	105	28	115.5	10	90	1291	904	323
	E		E	105	28	164.5	10	30	2041	1429	510	
E			105	28	164.5	6	55	1508	1055	377		
68	W	E	105	28	164.5	10	90	1179	825	295		
		V	105	28	164.5	10	90	1291	904	323		
50 1H	0.68	W	105	28	238	10	90	1491	1043	373		
		B	105	40	3.4	10	350	463	324	116		
	1	B	105	40	3.4	6	400	433	303	108		
		B	105	40	5	6	300	500	350	125		
	1.5	B	105	40	5	10	350	463	324	116		
		B	105	40	7.5	6	300	500	350	125		
		B	105	40	7.5	10	350	463	324	116		
		C	105	40	7.5	10	200	671	470	168		
	2.2	C	105	40	7.5	6	300	548	383	137		
		B	105	40	11	10	350	463	324	116		
		C	105	40	11	10	200	671	470	168		
	3.3	C	105	40	11	6	300	548	383	137		
		C	105	40	16.5	10	200	671	470	168		
		D	105	40	16.5	10	100	1025	717	256		
	4.7	C	105	40	23.5	10	200	671	470	168		
		D	105	40	23.5	10	100	1025	717	256		
	6.8	C	C	105	40	34	10	200	671	470	168	
			D	105	40	34	10	70	1225	857	306	
		D	D	105	40	34	10	100	1025	717	256	
			D	105	40	34	10	120	935	655	234	
			H	105	40	34	10	70	1336	935	334	
			H	105	40	34	10	90	1179	825	295	

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> =2.2\* 1.0V U~=1.0° 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.



Rated Voltage (V)	Rated CAP (μF)	Case Code	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR (mΩ) @25°C 100KHz	100kHz RMS Current (mA)		
								45°C	85°C	105°C
50 1H	10	D	105	40	50	10	90	1080	756	270
		D	105	40	50	10	120	935	655	234
		E	105	40	50	6	70	1336	935	334
		E	105	40	50	10	100	1118	783	280
	15	E	105	40	75	6	70	1336	935	334
		E	105	40	75	10	100	1118	783	280
		V	105	40	75	10	100	1225	857	306
		E	105	40	110	10	75	1291	904	323
	22	E	105	40	110	10	100	1118	783	280
		V	105	40	110	10	100	1225	857	306
		W	105	40	110	10	100	1414	990	354
		E	105	40	165	10	75	1291	904	323
	33	V	105	40	165	10	100	1225	857	306
		W	105	40	165	10	100	1414	990	354
W		105	40	235	10	100	1414	990	354	
47	W	105	40	235	10	100	1414	990	354	
63 1J	1	B	105	50.4	6.3	8	300	500	350	125
		C	105	50.4	6.3	10	200	671	470	168
		C	105	50.4	6.3	6	300	548	383	137
		D	105	50.4	6.3	10	120	935	655	234
	1.5	C	105	50.4	9.5	10	200	671	470	168
		C	105	50.4	9.5	6	300	548	383	137
		D	105	50.4	9.5	10	120	935	655	234
	2.2	C	105	50.4	13.9	10	200	671	470	168
		D	105	50.4	13.9	10	120	935	655	234
	3.3	C	105	50.4	20.8	10	200	671	470	168
		D	105	50.4	20.8	10	120	935	655	234
	4.7	C	105	50.4	29.6	6	200	671	470	168
		D	105	50.4	29.6	10	75	1183	828	296
		D	105	50.4	29.6	10	120	935	655	234
		D	105	50.4	29.6	10	300	592	414	148
		E	105	50.4	29.6	10	120	1021	714	255
	6.8	D	105	50.4	42.8	10	120	935	655	234
		E	105	50.4	42.8	6	100	1118	783	280
		E	105	50.4	42.8	6	150	913	639	228
	10	D	105	50.4	63	10	120	935	655	234
		E	105	50.4	63	10	50	1581	1107	395
		E	105	50.4	63	6	100	1118	783	280
		E	105	50.4	63	6	150	913	639	228
	15	E	105	50.4	94.5	10	35	1890	1323	472
		E	105	50.4	94.5	10	120	1021	714	255
		E	105	50.4	94.5	10	150	913	639	228
		V	105	50.4	94.5	10	120	1118	783	280
	22	W	105	50.4	138.6	10	120	1291	904	323

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U<sub>r</sub> =2.2\* 1.0V U<sub>~</sub>=1.0\* 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +105 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.

## Land Dimension / Courtyard

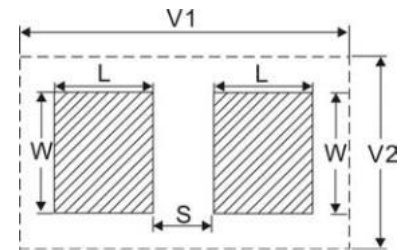
Case Code	Density Level A: Maximum (Most) Land Protrusion (mm)					Density Level B : Median (Nominal) Land Protrusion (mm)					Density Level C: Minimum (Least) Land Protrusion (mm)				
	W	L	S	V1	V2	W	L	S	V1	V2	W	L	S	V1	V2
A	1.35	2.20	0.62	6.02	2.8	1.23	1.8	0.82	4.92	2.3	1.13	1.42	0.98	4.06	2.04
B	2.35	2.21	0.92	6.32	4.0	2.23	1.8	1.12	5.22	3.5	2.13	1.42	1.28	4.36	3.24
C	2.35	2.77	2.37	8.92	4.5	2.23	2.37	2.57	7.82	4	2.13	1.99	2.73	6.96	3.74
D	2.55	2.77	3.67	10.22	5.6	2.43	2.37	3.87	9.12	5.1	2.33	1.99	4.03	8.26	4.84
E	2.55	2.77	3.67	10.22	5.6	2.43	2.37	3.87	9.12	5.1	2.33	1.99	4.03	8.26	4.84

**Density Level A:** For low-density product applications. Recommended for wave solder applications and provides a wider process window for reflow solder processes.

**Density Level B:** For products with a moderate level of component density. Provides a robust solder attachment condition for reflow solder processes.

**Density Level C:** For high component density product applications. Before adapting the minimum land pattern variations the user should perform qualification testing based on the conditions outlined in IPC standard 7351 (IPC-7351).

- 1 Height of these chips may create problems in wave soldering.
- 2 Land pattern geometry is too small for silkscreen outline.



Surface Mount Footprints

## Soldering Process

Jinpei tantalum 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. Suntan's recommended profile conditions for convection and IR reflow reflect the profile conditions of the IPC/J CBAC standard for moisture sensitivity testing. The devices can safely withstand a maximum of three reflow passes at these conditions.

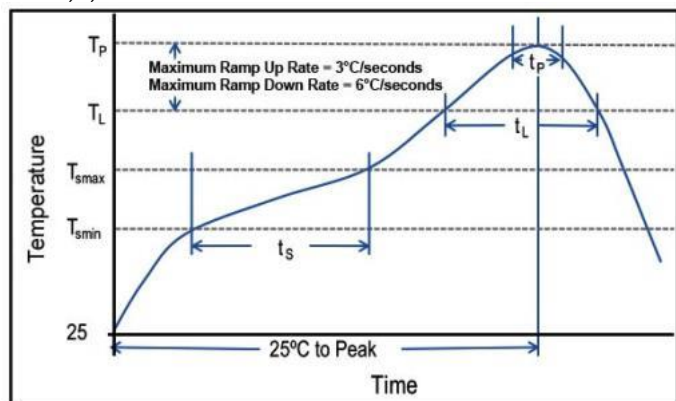
Hand soldering should be performed with care due to the difficulty in process control. If performed, care should be taken to avoid contact of the soldering iron to the molded case. The iron should be used to heat the solder pad, applying solder between the pad and the termination, until reflow occurs. 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	SnPb Assembly	Pb-Free Assembly
Preheat/Soak		
Temperature Minimum ( $T_{smin}$ )	100°C	150°C
Temperature Maximum ( $T_{smax}$ )	150°C	200°C
Time ( $t_s$ ) from $T_{smin}$ to $T_{smax}$	60 – 120 seconds	60 – 120 seconds
Ramp-up Rate ( $T_L$ to $T_P$ )	3°C/seconds maximum	3°C/seconds maximum
Liquidous Temperature ( $T_L$ )	183°C	217°C
Time Above Liquidous ( $t_L$ )	60 – 150 seconds	60 – 150 seconds
Peak Temperature ( $T_P$ )	220°C* , 235°C**	250°C* , 260°C**
Time within 5°C of Maximum Peak Temperature ( $t_P$ )	20 seconds maximum	30 seconds maximum
Ramp-down Rate ( $T_P$ to $T_D$ )	6°C/seconds maximum	6°C/seconds maximum
Time 25°C to Peak	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.

\*Case Size D, E\*\*Case Size A, B, C



Recommended Reflow Profile

Note: Specifications are subject to change without notice. For more detail and update, please visit our website.