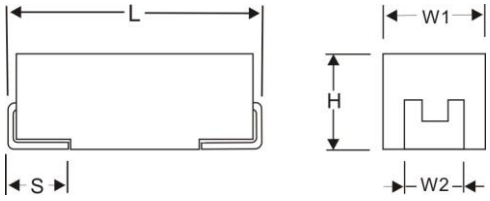
SMD Chip Tantalum Capacitor Low ESR – JTC

FEATURES

- Low ESR, Volumetrically efficient, Stable in electrical & storage performances
- Long lifespan, High reliability.
- Epoxy molded encapsulation, Chip, Easy for integration, Polarized.
- Typical applications include decoupling and filtering in industrial and automotive end applications, such as DC/DC converters, portable electronics, telecommunications and control units.

SPECIFICATIONS



Temperature Range	-55°C to +125°C								
Capacitance Range	0.47μF ~ 1000μF								
Capacitance Tolerance	±20%, ±10%								
Technical Data	All technical data relate to an ambient temperature of +25℃								
Termination Finished	Sn Plating (standard), Gold and SnPb Plating upon request								
Rated Voltage (V_R)	≤+85℃:	4	6.3	10	16	20	25	35	50	63
Category Voltage(V_C)	≤+125℃:	2.7	4	6.3	10	15	17	23	33	40
Surge Voltage (V_S)	≤+85℃:	5.2	8	13	20	26	32	46	65	82
Surge Voltage (V_S)	≤+125℃:	3.4	5	8	13	16	20	28	40	50

DIMENSIONS – MILLIMETERS (Unit: mm)

case	EIA Code	L	W_1	H	S	W_2
A	**1206**	3.2±0.2	1.6±0.2	1.6±0.2	0.8±0.2	1.2±0.2
B	**1210**	3.5±0.2	2.8±0.2	1.9±0.2	0.8±0.2	2.2±0.2
C	**2312**	6.0±0.2	3.2±0.2	2.5±0.2	1.3±0.2	2.2±0.2
D	**2917**	7.3±0.2	4.3±0.2	2.8±0.2	1.3±0.2	2.4±0.2
E	**2917**	7.3±0.4	4.3±0.4	4.1±0.4	1.3±0.2	2.4±0.2
V	**2924**	7.3±0.4	6.1±0.4	3.6±0.4	1.35±0.2	3.0±0.2

Capacitance And Rated Voltage Range (Letter Denotes Case Size)

Rated Voltage(V)	4	6.3	10	16
Capacitance (μF)	Case Size & ESR			
6.8				A(2000,2500,B(1200,2000)
10				A(1700),B(1200,2000)
15			A(1000,1800),B(600,900)	B(800,1000),C(600)
22			A(1200,1500),B(400,500)	B(700,1000),C(500,700),D(500)
33		A(1500,2000),B(600)	B(450,700),C(400,600),D(300,500)	C(500,700),D(300,500)
47	A(1500,2000),B(900,1500)	B(600,800),C(300,500)	B(500,700),C(400,600),D(300,500)	C(300,500),D(300,500),E(200,600)
68	B(1000,1500),C(600,C(1000)	B(500,700),C(500,700),D(250,500)	C(200,500),D(150,400)	C(1000),D(200,450),E(200,600)
100	B(450,800),C(500,1000)	B(400,700),C(300,500),D(300,500)	C(250,500),D(200,400),E(150)	C(800),D(200,500),E(200,600)
150	C(500,900),D(350,700),E(200,600)	C(300,500),D(300,500),E(150,300)	D(200,400),E(150,300)	D(500,600),E(200,250)
220	C(500,900),D(300,600),E(100,500)	C(200,500),D(150,300),E(150,300)	D(200,400),E(200,400),V(200,400)	E(200,400),V(200,400)
330	D(400,600),E(200,600),V(200,600)	D(150,300),E(150,300)	D(150,250),E(150,200),V(150,200)	E(180,500),V(180,500)
470	D(200,350),E(150,350),V(150,350)	E(150,300)	E(150,200)	E(450,600)
680	E(150,200)	E(150,300)	E(150,200)	
1000	E(150,200)			

Rated Voltage(V)	20	25	35	50	63
Capacitance(μF)	Case Size & ESR				
0.47			A(4000,A(8000)	A(3000,6000)	
0.68			A(6000,A(7000)	B(3000,6000)	
1			A(6000,7000),B(2500,3000)	B(2500,4000),C(1800,4000)	C(2000)
1.5		A(4500,7500),B(3000,5000)	B(3000,4000),C(2500,3000)	C(1800,3000),D(1000,2500)	D(2500)
2.2		A(3000,8000),B(2500,5000)	B(2500,3000),C(2000,2500)	C(1500,2000),D(700,1000)	D(1500)
3.3	A(4000,5000),B(3000,4000)	B(2000,3000),C(1200,2000)	B(2500,3000),C(1200,2000)	C(700,1500),D(700,1500)	D(1200)
4.7	A(2500,5000),B(1500,3000), C(1000,2500)	B(1000,1200),C(1000,2000)	B(2000,2500),C(800,1000), D(700,1000)	C(700,1000),D(600,1000)	E(800)
6.8	B(1000,1800),C(800,1200)	B(2000,2500),C(1000,1500), D(700,1000)	C(700,1200),D(600,1000)	D(600,800),E(500,1000)	E(600)
10	B(1200,1800),C(600,1000), D(500,1000)	B(1500,2000),C(900,1200), D(450,800)	C(700,1000),D(400,800)	D(400,600),E(400,800)	E(450)
15	B(1500,1800),C(800,1000), D(600,800)	C(500,1000),D(400,600)	D(350,600),E(300,600)	E(400,500)	E(300)V(300)
22	C(600,900),D(400,600)	C(800,1000),D(400,600)	D(400,500),E(300,400)	E(400,500)	V(300)
33	C(600,900),D(400,600)	D(300,500),E(250,500)	D(500,700),E(300,600)		
47	C(300,400),D(250,500) ,E(250,500)	D(350,500),E(300,600)	D(400,900),E(400,600)		
68	D(250,300),E(250,500)	E(250,500),V(250,600)	E(800)		
100	D(300,400,E(250,300)	E(200,250),V(200,250)			
150	D(450,600),E(180,250)	E(600),V(300)			
220	E(450,600),V(250,400)				
330	E(450,600),V(450,600)				

Please visit our website to get more update data, those data & specification are subject to change without notice.

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Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (℃)	Category Temp (℃)	Category Voltage (V)	Max DCL(μA) @25℃	Max DF(%) @25℃ 100Hz	Max ESR (mΩ) @25℃ 100KHz	Max Ripple @100kHz IRMS(A)		
									25℃	85℃	125℃
4	47	A	85	125	2.7	1.9	11	1500	0.208	0.125	0.083
		A	85	125	2.7	1.9	11	2000	0.180	0.108	0.072
		B	85	125	2.7	1.9	8	900	0.289	0.173	0.115
		B	85	125	2.7	1.9	8	1500	0.224	0.134	0.089
	68	B	85	125	2.7	2.7	8	1000	0.274	0.164	0.110
		B	85	125	2.7	2.7	8	1500	0.224	0.134	0.089
		C	85	125	2.7	2.7	6	600	0.387	0.232	0.155
		C	85	125	2.7	2.7	6	1000	0.300	0.180	0.120
	100	B	85	125	2.7	4.0	10	450	0.408	0.245	0.163
		B	85	125	2.7	4.0	10	800	0.306	0.184	0.122
		C	85	125	2.7	4.0	10	500	0.424	0.255	0.170
		C	85	125	2.7	4.0	10	1000	0.300	0.180	0.120
	150	C	85	125	2.7	6.0	10	500	0.424	0.255	0.170
		C	85	125	2.7	6.0	10	900	0.316	0.190	0.126
		D	85	125	2.7	6.0	8	350	0.548	0.329	0.219
		D	85	125	2.7	6.0	8	700	0.387	0.232	0.155
		E	85	125	2.7	6.0	8	200	0.791	0.474	0.316
		E	85	125	2.7	6.0	8	600	0.456	0.274	0.183
	220	C	85	125	2.7	8.8	12	500	0.424	0.255	0.170
		C	85	125	2.7	8.8	12	900	0.316	0.190	0.126
		D	85	125	2.7	8.8	10	300	0.592	0.355	0.237
		D	85	125	2.7	8.8	10	600	0.418	0.251	0.167
		E	85	125	2.7	8.8	10	100	1.118	0.671	0.447
		E	85	125	2.7	8.8	10	500	0.500	0.300	0.200
	330	D	85	125	2.7	13.2	14	400	0.512	0.307	0.205
		D	85	125	2.7	13.2	14	600	0.418	0.251	0.167
		E	85	125	2.7	13.2	12	200	0.791	0.474	0.316
		E	85	125	2.7	13.2	12	600	0.456	0.274	0.183
		V	85	125	2.7	13.2	12	200	0.866	0.520	0.346
		V	85	125	2.7	13.2	12	600	0.500	0.300	0.200
	470	D	85	125	2.7	18.8	14	200	0.725	0.435	0.290
		D	85	125	2.7	18.8	14	350	0.548	0.329	0.219
		E	85	125	2.7	18.8	12	150	0.913	0.548	0.365
		E	85	125	2.7	18.8	12	350	0.598	0.359	0.239
		V	85	125	2.7	18.8	12	150	1.000	0.600	0.400
		V	85	125	2.7	18.8	12	350	0.655	0.393	0.262
	680	E	85	125	2.7	27.2	14	150	0.913	0.548	0.365
		E	85	125	2.7	27.2	14	200	0.791	0.474	0.316
	1000	E	85	125	2.7	40.0	15	150	0.913	0.548	0.365
		E	85	125	2.7	40.0	15	200	0.791	0.474	0.316
6.3	33	A	85	125	4	2.1	8	1500	0.208	0.125	0.083
		A	85	125	4	2.1	8	2000	0.180	0.108	0.072
		B	85	125	4	2.1	8	600	0.354	0.212	0.141
	47	B	85	125	4	3.0	8	600	0.354	0.212	0.141
		B	85	125	4	3.0	8	800	0.306	0.184	0.122
		C	85	125	4	3.0	6	300	0.548	0.329	0.219
		C	85	125	4	3.0	6	500	0.424	0.255	0.170
	68	B	85	125	4	4.3	10	500	0.387	0.232	0.155
		B	85	125	4	4.3	10	700	0.327	0.196	0.131
		C	85	125	4	4.3	8	500	0.424	0.255	0.170
		C	85	125	4	4.3	8	700	0.359	0.215	0.143
		D	85	125	4	4.3	6	250	0.648	0.389	0.259
		D	85	125	4	4.3	6	500	0.458	0.275	0.183
	100	B	85	125	4	6.3	14	400	0.433	0.260	0.173

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U __ =2.2 1.0V U~=1.0 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +125 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.

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Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (℃)	Category Temp (℃)	Category Voltage (V)	Max DCL(μA) @25℃	Max DF(%) @25℃ 100Hz	Max ESR (mΩ) @25℃ 100KHz	Max Ripple @100kHz IRMS(A)		
									25℃	85℃	125℃
6.3	100	B	85	125	4	6.3	14	700	0.327	0.196	0.131
		C	85	125	4	6.3	8	300	0.548	0.329	0.219
		C	85	125	4	6.3	8	500	0.424	0.255	0.170
		D	85	125	4	6.3	8	300	0.592	0.355	0.237
		D	85	125	4	6.3	8	500	0.458	0.275	0.183
	150	C	85	125	4	9.5	12	300	0.548	0.329	0.219
		C	85	125	4	9.5	12	500	0.424	0.255	0.170
		D	85	125	4	9.5	10	300	0.592	0.355	0.237
		D	85	125	4	9.5	10	500	0.458	0.275	0.183
		E	85	125	4	9.5	10	150	0.913	0.548	0.365
		E	85	125	4	9.5	10	300	0.645	0.387	0.258
	220	C	85	125	4	13.9	14	200	0.671	0.402	0.268
		C	85	125	4	13.9	14	500	0.424	0.255	0.170
		D	85	125	4	13.9	12	150	0.837	0.502	0.335
		D	85	125	4	13.9	12	300	0.592	0.355	0.237
		E	85	125	4	13.9	12	150	0.913	0.548	0.365
		E	85	125	4	13.9	12	300	0.645	0.387	0.258
	330	D	85	125	4	20.8	14	150	0.837	0.502	0.335
		D	85	125	4	20.8	14	300	0.592	0.355	0.237
		E	85	125	4	20.8	14	150	0.913	0.548	0.365
		E	85	125	4	20.8	14	300	0.645	0.387	0.258
	470	E	85	125	4	29.6	14	150	0.913	0.548	0.365
		E	85	125	4	29.6	14	300	0.645	0.387	0.258
	680	E	85	125	4	42.8	14	150	0.913	0.548	0.365
		E	85	125	4	42.8	14	300	0.645	0.387	0.258
10	15	A	85	125	6.3	1.5	8	1000	0.255	0.153	0.102
		A	85	125	6.3	1.5	8	1800	0.190	0.114	0.076
		B	85	125	6.3	1.5	6	600	0.354	0.212	0.141
		B	85	125	6.3	1.5	6	900	0.289	0.173	0.115
	22	A	85	125	6.3	2.2	12	1200	0.233	0.140	0.093
		A	85	125	6.3	2.2	12	1500	0.208	0.125	0.083
		B	85	125	6.3	2.2	6	400	0.433	0.260	0.173
		B	85	125	6.3	2.2	6	500	0.387	0.232	0.155
	33	B	85	125	6.3	3.3	8	450	0.408	0.245	0.163
		B	85	125	6.3	3.3	8	700	0.327	0.196	0.131
		C	85	125	6.3	3.3	6	400	0.474	0.285	0.190
		C	85	125	6.3	3.3	6	600	0.387	0.232	0.155
		D	85	125	6.3	3.3	6	300	0.592	0.355	0.237
		D	85	125	6.3	3.3	6	500	0.458	0.275	0.183
	47	B	85	125	6.3	4.7	10	500	0.387	0.232	0.155
		B	85	125	6.3	4.7	10	700	0.327	0.196	0.131
		C	85	125	6.3	4.7	8	400	0.474	0.285	0.190
		C	85	125	6.3	4.7	8	600	0.387	0.232	0.155
		D	85	125	6.3	4.7	6	300	0.592	0.355	0.237
		D	85	125	6.3	4.7	6	500	0.458	0.275	0.183
	68	C	85	125	6.3	6.8	8	200	0.671	0.402	0.268
		C	85	125	6.3	6.8	8	500	0.424	0.255	0.170
		D	85	125	6.3	6.8	6	150	0.837	0.502	0.335
		D	85	125	6.3	6.8	6	400	0.512	0.307	0.205
	100	C	85	125	6.3	10.0	10	250	0.600	0.360	0.240
		C	85	125	6.3	10.0	10	500	0.424	0.255	0.170
		D	85	125	6.3	10.0	8	200	0.725	0.435	0.290
		D	85	125	6.3	10.0	8	400	0.512	0.307	0.205
		E	85	125	6.3	10.0	8	150	0.913	0.548	0.365

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U __ =2.2 1.0V U~=1.0 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +125 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.

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Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (℃)	Category Temp (℃)	Category Voltage (V)	Max DCL(μA) @25℃	Max DF(%) @25℃ 100Hz	Max ESR (mΩ) @25℃ 100KHz	Max Ripple @100kHz IRMS(A)		
									25℃	85℃	125℃
10	150	D	85	125	6.3	15.0	10	200	0.725	0.435	0.290
		D	85	125	6.3	15.0	10	400	0.512	0.307	0.205
		E	85	125	6.3	15.0	10	150	0.913	0.548	0.365
		E	85	125	6.3	15.0	10	300	0.645	0.387	0.258
	220	D	85	125	6.3	22.0	12	200	0.725	0.435	0.290
		D	85	125	6.3	22.0	12	400	0.512	0.307	0.205
		E	85	125	6.3	22.0	12	200	0.791	0.474	0.316
		E	85	125	6.3	22.0	12	400	0.559	0.335	0.224
		V	85	125	6.3	22.0	12	200	0.866	0.520	0.346
		V	85	125	6.3	22.0	12	400	0.612	0.367	0.245
	330	D	85	125	6.3	33.0	14	150	0.837	0.502	0.335
		D	85	125	6.3	33.0	14	250	0.648	0.389	0.259
		E	85	125	6.3	33.0	14	150	0.913	0.548	0.365
		E	85	125	6.3	33.0	14	200	0.791	0.474	0.316
		V	85	125	6.3	33.0	14	150	1.000	0.600	0.400
		V	85	125	6.3	33.0	14	200	0.866	0.520	0.346
	470	E	85	125	6.3	47.0	14	150	0.913	0.548	0.365
		E	85	125	6.3	47.0	14	200	0.791	0.474	0.316
	680	E	85	125	6.3	68.0	14	150	0.913	0.548	0.365
		E	85	125	6.3	68.0	14	200	0.791	0.474	0.316
16	6.8	A	85	125	10	1.1	6	2000	0.180	0.108	0.072
		A	85	125	10	1.1	6	2500	0.161	0.097	0.064
		B	85	125	10	1.1	6	1200	0.250	0.150	0.100
		B	85	125	10	1.1	6	2000	0.194	0.116	0.077
	10	A	85	125	10	1.6	8	1700	0.196	0.117	0.078
		B	85	125	10	1.6	6	1200	0.250	0.150	0.100
		B	85	125	10	1.6	6	2000	0.194	0.116	0.077
	15	B	85	125	10	2.4	6	800	0.306	0.184	0.122
		B	85	125	10	2.4	6	1000	0.274	0.164	0.110
		C	85	125	10	2.4	6	600	0.387	0.232	0.155
	22	B	85	125	10	3.5	8	700	0.327	0.196	0.131
		B	85	125	10	3.5	8	1000	0.274	0.164	0.110
		C	85	125	10	3.5	6	500	0.424	0.255	0.170
		C	85	125	10	3.5	6	700	0.359	0.215	0.143
		D	85	125	10	3.5	6	500	0.458	0.275	0.183
	33	C	85	125	10	5.3	6	500	0.424	0.255	0.170
		C	85	125	10	5.3	6	700	0.359	0.215	0.143
		D	85	125	10	5.3	6	300	0.592	0.355	0.237
		D	85	125	10	5.3	6	500	0.458	0.275	0.183
	47	C	85	125	10	7.5	8	300	0.548	0.329	0.219
		C	85	125	10	7.5	8	500	0.424	0.255	0.170
		D	85	125	10	7.5	6	300	0.592	0.355	0.237
		D	85	125	10	7.5	6	500	0.458	0.275	0.183
		E	85	125	10	7.5	6	200	0.791	0.474	0.316
		E	85	125	10	7.5	6	600	0.456	0.274	0.183
	68	C	85	125	10	10.9	8	1000	0.300	0.180	0.120
		D	85	125	10	10.9	8	200	0.725	0.435	0.290
		D	85	125	10	10.9	8	450	0.483	0.290	0.193
		E	85	125	10	10.9	6	200	0.791	0.474	0.316
		E	85	125	10	10.9	6	600	0.456	0.274	0.183
	100	C	85	125	10	16.0	12	800	0.335	0.201	0.134
		D	85	125	10	16.0	8	200	0.725	0.435	0.290
		D	85	125	10	16.0	8	500	0.458	0.275	0.183
		E	85	125	10	16.0	8	200	0.791	0.474	0.316

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U __ =2.2 1.0V U~=1.0 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +125 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.

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SMD Chip Tantalum Capacitor Low ESR – JTC

Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (℃)	Category Temp (℃)	Category Voltage (V)	Max DCL(μA) @25℃	Max DF(%) @25℃ 100Hz	Max ESR (mΩ) @25℃ 100KHz	Max Ripple @100kHz IRMS(A)		
									25℃	85℃	125℃
16	100	E	85	125	10	16.0	8	600	0.456	0.274	0.183
	150	D	85	125	10	24.0	12	500	0.458	0.275	0.183
		D	85	125	10	24.0	12	600	0.418	0.251	0.167
		E	85	125	10	24.0	10	200	0.791	0.474	0.316
		E	85	125	10	24.0	10	250	0.707	0.424	0.283
	220	E	85	125	10	35.2	12	200	0.791	0.474	0.316
		E	85	125	10	35.2	12	400	0.559	0.335	0.224
		V	85	125	10	35.2	12	200	0.866	0.520	0.346
		V	85	125	10	35.2	12	400	0.612	0.367	0.245
	330	E	85	125	10	52.8	12	180	0.833	0.500	0.333
		E	85	125	10	52.8	12	500	0.500	0.300	0.200
		V	85	125	10	52.8	12	180	0.913	0.548	0.365
		V	85	125	10	52.8	12	500	0.548	0.329	0.219
	470	E	85	125	10	75.2	16	450	0.527	0.316	0.211
		E	85	125	10	75.2	16	600	0.456	0.274	0.183
20	3.3	A	85	125	15	0.7	6	4000	0.127	0.076	0.051
		A	85	125	15	0.7	6	5000	0.114	0.068	0.046
		B	85	125	15	0.7	6	3000	0.158	0.095	0.063
		B	85	125	15	0.7	6	4000	0.137	0.082	0.055
	4.7	A	85	125	15	0.9	6	2500	0.161	0.097	0.064
		A	85	125	15	0.9	6	5000	0.114	0.068	0.046
		B	85	125	15	0.9	6	1500	0.224	0.134	0.089
		B	85	125	15	0.9	6	3000	0.158	0.095	0.063
		C	85	125	15	0.9	6	1000	0.300	0.180	0.120
		C	85	125	15	0.9	6	2500	0.190	0.114	0.076
	6.8	B	85	125	15	1.4	6	1000	0.274	0.164	0.110
		B	85	125	15	1.4	6	1800	0.204	0.122	0.082
		C	85	125	15	1.4	6	800	0.335	0.201	0.134
		C	85	125	15	1.4	6	1200	0.274	0.164	0.110
	10	B	85	125	15	2.0	6	1200	0.250	0.150	0.100
		B	85	125	15	2.0	6	1800	0.204	0.122	0.082
		C	85	125	15	2.0	6	600	0.387	0.232	0.155
		C	85	125	15	2.0	6	1000	0.300	0.180	0.120
		D	85	125	15	2.0	6	500	0.458	0.275	0.183
		D	85	125	15	2.0	6	1000	0.324	0.194	0.130
	15	B	85	125	15	3.0	6	1500	0.224	0.134	0.089
		B	85	125	15	3.0	6	1800	0.204	0.122	0.082
		C	85	125	15	3.0	6	800	0.335	0.201	0.134
		C	85	125	15	3.0	6	1000	0.300	0.180	0.120
		D	85	125	15	3.0	6	600	0.418	0.251	0.167
		D	85	125	15	3.0	6	800	0.362	0.217	0.145
	22	C	85	125	15	4.4	6	600	0.387	0.232	0.155
		C	85	125	15	4.4	6	900	0.316	0.190	0.126
		D	85	125	15	4.4	6	400	0.512	0.307	0.205
		D	85	125	15	4.4	6	600	0.418	0.251	0.167
	33	C	85	125	15	6.6	6	600	0.387	0.232	0.155
		C	85	125	15	6.6	6	900	0.316	0.190	0.126
		D	85	125	15	6.6	6	400	0.512	0.307	0.205
		D	85	125	15	6.6	6	600	0.418	0.251	0.167
	47	C	85	125	15	9.4	8	300	0.548	0.329	0.219
		C	85	125	15	9.4	8	400	0.474	0.285	0.190
		D	85	125	15	9.4	8	250	0.648	0.389	0.259
		D	85	125	15	9.4	8	500	0.458	0.275	0.183
		E	85	125	15	9.4	6	250	0.707	0.424	0.283

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U __ =2.2 1.0V U~=1.0 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +125 The DCL parameter should be read after 5 minutes when it connected to the circuit
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SMD Chip Tantalum Capacitor Low ESR – JTC

Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (℃)	Category Temp (℃)	Category Voltage (V)	Max DCL(μA) @25℃	Max DF(%) @25℃ 100Hz	Max ESR (mΩ) @25℃ 100KHz	Max Ripple @100kHz IRMS(A)		
									25℃	85℃	125℃
20	47	E	85	125	15	9.4	6	500	0.500	0.300	0.200
	68	D	85	125	15	13.6	8	250	0.648	0.389	0.259
		D	85	125	15	13.6	8	300	0.592	0.355	0.237
		E	85	125	15	13.6	6	250	0.707	0.424	0.283
		E	85	125	15	13.6	6	500	0.500	0.300	0.200
	100	D	85	125	15	20.0	10	300	0.592	0.355	0.237
		D	85	125	15	20.0	10	400	0.512	0.307	0.205
		E	85	125	15	20.0	10	250	0.707	0.424	0.283
		E	85	125	15	20.0	10	300	0.645	0.387	0.258
	150	D	85	125	15	30.0	10	450	0.483	0.290	0.193
		D	85	125	15	30.0	10	600	0.418	0.251	0.167
		E	85	125	15	30.0	10	180	0.833	0.500	0.333
		E	85	125	15	30.0	10	250	0.707	0.424	0.283
	220	E	85	125	15	44.0	12	450	0.527	0.316	0.211
		E	85	125	15	44.0	12	600	0.456	0.274	0.183
		V	85	125	15	44.0	12	250	0.775	0.465	0.310
		V	85	125	15	44.0	12	400	0.612	0.367	0.245
	330	E	85	125	15	66.0	12	450	0.527	0.316	0.211
		E	85	125	15	66.0	12	600	0.456	0.274	0.183
		V	85	125	15	66.0	12	450	0.577	0.346	0.231
		V	85	125	15	66.0	12	600	0.500	0.300	0.200
25	1.5	A	85	125	17	0.5	6	4500	0.120	0.072	0.048
		A	85	125	17	0.5	6	7500	0.093	0.056	0.037
		B	85	125	17	0.5	6	3000	0.158	0.095	0.063
		B	85	125	17	0.5	6	5000	0.122	0.073	0.049
	2.2	A	85	125	17	0.6	6	3000	0.147	0.088	0.059
		A	85	125	17	0.6	6	8000	0.090	0.054	0.036
		B	85	125	17	0.6	6	2500	0.173	0.104	0.069
		B	85	125	17	0.6	6	5000	0.122	0.073	0.049
	3.3	B	85	125	17	0.8	6	2000	0.194	0.116	0.077
		B	85	125	17	0.8	6	3000	0.158	0.095	0.063
		C	85	125	17	0.8	6	1200	0.274	0.164	0.110
		C	85	125	17	0.8	6	2000	0.212	0.127	0.085
	4.7	B	85	125	17	1.2	6	1000	0.274	0.164	0.110
		B	85	125	17	1.2	6	1200	0.250	0.150	0.100
		C	85	125	17	1.2	6	1000	0.300	0.180	0.120
		C	85	125	17	1.2	6	2000	0.212	0.127	0.085
	6.8	B	85	125	17	1.7	6	2000	0.194	0.116	0.077
		B	85	125	17	1.7	6	2500	0.173	0.104	0.069
		C	85	125	17	1.7	6	1000	0.300	0.180	0.120
		C	85	125	17	1.7	6	1500	0.245	0.147	0.098
		D	85	125	17	1.7	6	700	0.387	0.232	0.155
		D	85	125	17	1.7	6	1000	0.324	0.194	0.130
	10	B	85	125	17	2.5	8	1500	0.224	0.134	0.089
		B	85	125	17	2.5	8	2000	0.194	0.116	0.077
		C	85	125	17	2.5	6	900	0.316	0.190	0.126
		C	85	125	17	2.5	6	1200	0.274	0.164	0.110
		D	85	125	17	2.5	6	450	0.483	0.290	0.193
		D	85	125	17	2.5	6	800	0.362	0.217	0.145
	15	C	85	125	17	3.8	6	500	0.424	0.255	0.170
		C	85	125	17	3.8	6	1000	0.300	0.180	0.120
		D	85	125	17	3.8	6	400	0.512	0.307	0.205
		D	85	125	17	3.8	6	600	0.418	0.251	0.167
	22	C	85	125	17	5.5	6	800	0.335	0.201	0.134

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U __ =2.2 1.0V U~=1.0 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +125 The DCL parameter should be read after 5 minutes when it connected to the circuit
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SMD Chip Tantalum Capacitor Low ESR – JTC

Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (℃)	Category Temp (℃)	Category Voltage (V)	Max DCL(μA) @25℃	Max DF(%) @25℃ 100Hz	Max ESR (mΩ) @25℃ 100KHz	Max Ripple @100kHz IRMS(A)		
									25℃	85℃	125℃
25	22	C	85	125	17	5.5	6	1000	0.300	0.180	0.120
		D	85	125	17	5.5	6	400	0.512	0.307	0.205
		D	85	125	17	5.5	6	600	0.418	0.251	0.167
	33	D	85	125	17	8.3	8	300	0.592	0.355	0.237
		D	85	125	17	8.3	8	500	0.458	0.275	0.183
		E	85	125	17	8.3	6	250	0.707	0.424	0.283
		E	85	125	17	8.3	6	500	0.500	0.300	0.200
	47	D	85	125	17	11.8	8	350	0.548	0.329	0.219
		D	85	125	17	11.8	8	500	0.458	0.275	0.183
		E	85	125	17	11.8	6	300	0.645	0.387	0.258
		E	85	125	17	11.8	6	600	0.456	0.274	0.183
	68	E	85	125	17	17.0	8	250	0.707	0.424	0.283
		E	85	125	17	17.0	8	500	0.500	0.300	0.200
		V	85	125	17	17.0	8	250	0.775	0.465	0.310
		V	85	125	17	17.0	8	600	0.500	0.300	0.200
	100	E	85	125	17	25.0	10	200	0.791	0.474	0.316
		E	85	125	17	25.0	10	250	0.707	0.424	0.283
		V	85	125	17	25.0	10	200	0.866	0.520	0.346
		V	85	125	17	25.0	10	250	0.775	0.465	0.310
	150	E	85	125	17	37.5	10	600	0.456	0.274	0.183
		V	85	125	17	37.5	10	300	0.707	0.424	0.283
35	0.47	A	85	125	23	0.5	6	4000	0.127	0.076	0.051
		A	85	125	23	0.5	6	8000	0.090	0.054	0.036
	0.68	A	85	125	23	0.5	6	6000	0.104	0.062	0.042
		A	85	125	23	0.5	6	7000	0.096	0.058	0.039
	1	A	85	125	23	0.5	6	6000	0.104	0.062	0.042
		A	85	125	23	0.5	6	7000	0.096	0.058	0.039
		B	85	125	23	0.5	4	2500	0.173	0.104	0.069
		B	85	125	23	0.5	4	3000	0.158	0.095	0.063
	1.5	B	85	125	23	0.5	6	3000	0.158	0.095	0.063
		B	85	125	23	0.5	6	4000	0.137	0.082	0.055
		C	85	125	23	0.5	6	2500	0.190	0.114	0.076
		C	85	125	23	0.5	6	3000	0.173	0.104	0.069
	2.2	B	85	125	23	0.8	6	2500	0.173	0.104	0.069
		B	85	125	23	0.8	6	3000	0.158	0.095	0.063
		C	85	125	23	0.8	6	2000	0.212	0.127	0.085
		C	85	125	23	0.8	6	2500	0.190	0.114	0.076
	3.3	B	85	125	23	1.2	6	2500	0.173	0.104	0.069
		B	85	125	23	1.2	6	3000	0.158	0.095	0.063
		C	85	125	23	1.2	6	1200	0.274	0.164	0.110
		C	85	125	23	1.2	6	2000	0.212	0.127	0.085
	4.7	B	85	125	23	1.6	8	2000	0.194	0.116	0.077
		B	85	125	23	1.6	8	2500	0.173	0.104	0.069
		C	85	125	23	1.6	6	800	0.335	0.201	0.134
		C	85	125	23	1.6	6	1000	0.300	0.180	0.120
		D	85	125	23	1.6	6	700	0.387	0.232	0.155
		D	85	125	23	1.6	6	1000	0.324	0.194	0.130
	6.8	C	85	125	23	2.4	6	700	0.359	0.215	0.143
		C	85	125	23	2.4	6	1200	0.274	0.164	0.110
		D	85	125	23	2.4	6	600	0.418	0.251	0.167
		D	85	125	23	2.4	6	1000	0.324	0.194	0.130
	10	C	85	125	23	3.5	6	700	0.359	0.215	0.143
		C	85	125	23	3.5	6	1000	0.300	0.180	0.120
		D	85	125	23	3.5	6	400	0.512	0.307	0.205

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U __ =2.2 1.0V U~=1.0 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +125 The DCL parameter should be read after 5 minutes when it connected to the circuit
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Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (℃)	Category Temp (℃)	Category Voltage (V)	Max DCL(μA) @25℃	Max DF(%) @25℃ 100Hz	Max ESR (mΩ) @25℃ 100KHz	Max Ripple @100kHz IRMS(A)		
									25℃	85℃	125℃
35	10	D	85	125	23	3.5	6	800	0.362	0.217	0.145
	15	D	85	125	23	5.3	6	350	0.548	0.329	0.219
		D	85	125	23	5.3	6	600	0.418	0.251	0.167
		E	85	125	23	5.3	6	300	0.645	0.387	0.258
		E	85	125	23	5.3	6	600	0.456	0.274	0.183
	22	D	85	125	23	7.7	6	400	0.512	0.307	0.205
		D	85	125	23	7.7	6	500	0.458	0.275	0.183
		E	85	125	23	7.7	6	300	0.645	0.387	0.258
		E	85	125	23	7.7	6	400	0.559	0.335	0.224
	33	D	85	125	23	11.6	8	500	0.458	0.275	0.183
		D	85	125	23	11.6	8	700	0.387	0.232	0.155
		E	85	125	23	11.6	6	300	0.645	0.387	0.258
		E	85	125	23	11.6	6	600	0.456	0.274	0.183
	47	D	85	125	23	16.5	8	400	0.512	0.307	0.205
		D	85	125	23	16.5	8	900	0.342	0.205	0.137
		E	85	125	23	16.5	6	400	0.559	0.335	0.224
		E	85	125	23	16.5	6	600	0.456	0.274	0.183
	68	E	85	125	23	23.8	8	800	0.395	0.237	0.158
50	0.47	A	85	125	33	0.5	6	3000	0.147	0.088	0.059
		A	85	125	33	0.5	6	6000	0.104	0.062	0.042
	0.68	B	85	125	33	0.5	6	3000	0.158	0.095	0.063
		B	85	125	33	0.5	6	6000	0.112	0.067	0.045
	1	B	85	125	33	0.5	6	2500	0.173	0.104	0.069
		B	85	125	33	0.5	6	4000	0.137	0.082	0.055
		C	85	125	33	0.5	4	1800	0.224	0.134	0.089
		C	85	125	33	0.5	4	4000	0.150	0.090	0.060
	1.5	C	85	125	33	0.8	6	1800	0.224	0.134	0.089
		C	85	125	33	0.8	6	3000	0.173	0.104	0.069
		D	85	125	33	0.8	6	1000	0.324	0.194	0.130
		D	85	125	33	0.8	6	2500	0.205	0.123	0.082
	2.2	C	85	125	33	1.1	6	1500	0.245	0.147	0.098
		C	85	125	33	1.1	6	2000	0.212	0.127	0.085
		D	85	125	33	1.1	6	700	0.387	0.232	0.155
		D	85	125	33	1.1	6	1000	0.324	0.194	0.130
	3.3	C	85	125	33	1.7	6	700	0.359	0.215	0.143
		C	85	125	33	1.7	6	1500	0.245	0.147	0.098
		D	85	125	33	1.7	6	700	0.387	0.232	0.155
		D	85	125	33	1.7	6	1500	0.265	0.159	0.106
	4.7	C	85	125	33	2.4	6	700	0.359	0.215	0.143
		C	85	125	33	2.4	6	1000	0.300	0.180	0.120
		D	85	125	33	2.4	6	600	0.418	0.251	0.167
		D	85	125	33	2.4	6	1000	0.324	0.194	0.130
	6.8	D	85	125	33	3.4	6	600	0.418	0.251	0.167
		D	85	125	33	3.4	6	800	0.362	0.217	0.145
		E	85	125	33	3.4	6	500	0.500	0.300	0.200
		E	85	125	33	3.4	6	1000	0.354	0.212	0.141
	10	D	85	125	33	5.0	6	400	0.512	0.307	0.205
		D	85	125	33	5.0	6	600	0.418	0.251	0.167
		E	85	125	33	5.0	6	400	0.559	0.335	0.224
		E	85	125	33	5.0	6	800	0.395	0.237	0.158
	15	E	85	125	33	7.5	6	400	0.559	0.335	0.224
		E	85	125	33	7.5	6	500	0.500	0.300	0.200
	22	E	85	125	33	11.0	8	400	0.559	0.335	0.224
		E	85	125	33	11.0	8	500	0.500	0.300	0.200

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U __ =2.2 1.0V U~=1.0 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +125 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.

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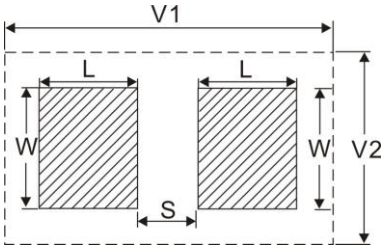
SMD Chip Tantalum Capacitor Low ESR – JTC

Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (℃)	Category Temp (℃)	Category Voltage (V)	Max DCL(μA) @25℃	Max DF(%) @25℃ 100Hz	Max ESR (mΩ) @25℃ 100KHz	Max Ripple @100kHz IRMS(A)		
									25℃	85℃	125℃
63	1	C	85	125	40	0.6	6	2000	0.212	0.127	0.085
	1.5	D	85	125	40	0.9	6	2500	0.205	0.123	0.082
	2.2	D	85	125	40	1.4	6	1500	0.265	0.159	0.106
	3.3	D	85	125	40	2.1	6	1200	0.296	0.177	0.118
	4.7	E	85	125	40	3.0	6	800	0.395	0.237	0.158
	6.8	E	85	125	40	4.3	6	600	0.456	0.274	0.183
	10	E	85	125	40	6.3	8	450	0.527	0.316	0.211
	15	E	85	125	40	9.5	8	300	0.645	0.387	0.258
		V	85	125	40	9.5	8	300	0.707	0.424	0.283
	22	V	85	125	40	13.9	8	300	0.707	0.424	0.283

1. Please do not use multimeter through the measuring procedures.
2. Capacitance and DF measured at :100Hz U __ =2.2 1.0V U~=1.0 0.5V, Frequency=100Hz. Test only applied in series equivalent circuit.
3. Voltage derating is applied at +125 The DCL parameter should be read after 5 minutes when it connected to the circuit
4. Special size and demand could consult with us.

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

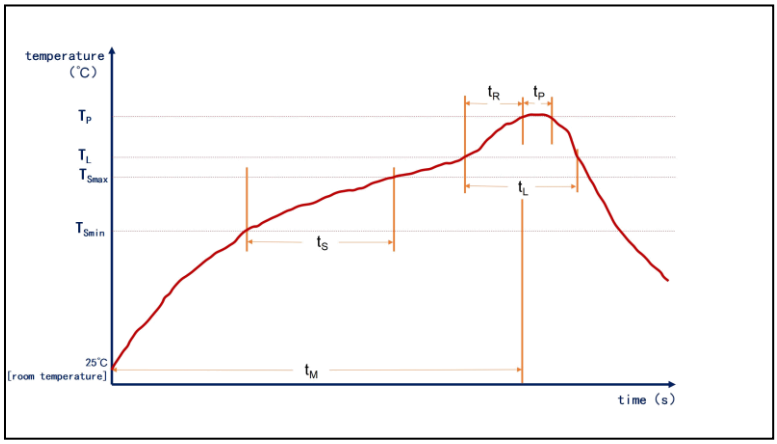
Soldering Process
jb tantalum capacitors are compatible with wave (single or dual), convection, IR, or vapor phase reflow techniques. Preheating of these components is recommended to avoid extreme thermal stress. jb's recommended profile conditions for convection and IR reflow reflect the profile conditions 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.

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 reflflow occurs. Once reflflow occurs, the iron should be removed immediately. "Wiping" the edges of a chip and heating the top surface is not recommended.

During typical reflflow 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.

Curve Characteristics	Tin Lead Solder	Leda-free Solder
Preheating Minimum Temperature (T_{Smin})	100°C	150°C
Preheat Maximum Temperature (T_{Smax})	150°C	200°C
Warming-up Time (ts)	60 – 120 seconds	60 – 120 seconds
Heating Rate (T_L to T_P)	≤3°C /seconds	≤3°C /seconds
Melting Point of Solder Paste (T_L)	183°C	217°C
Melting Time of Solder Paste (t_L)	60 – 150 seconds	60 – 150 seconds
Peak Temperature (T_P)	220°C* or 235°C**	245°C* or 250°C**
Peak Temperature Holding Time, Deviation Less than 5°C (tP)	≤10 seconds	≤5 seconds
Cooling Rate (T_P to T_L)	≤6°C /seconds	≤6°C /seconds
Room Temperature 25°C to Peak Temperature Time	≤6 minutes	≤8 minutes

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

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