

Solid Tantalum Surface Mount Chip Capacitors

Molded Case, 0603 Size



PERFORMANCE / ELECTRICAL CHARACTERISTICS

Operating Temperature: -55 °C to +125 °C
(above 85 °C, voltage derating is required)

Capacitance Range: 0.68 µF to 22 µF

Capacitance Tolerance: ± 20 %

Voltage Rating: 2.5 V_{DC} to 20 V_{DC}

FEATURES

- Small size, suitable for high density packaging
- Terminations: 100 % matte tin
- Compatible with “high volume” automatic pick and place equipment
- Moisture sensitivity level 1
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
Available
GREEN
(5-2008)
Available

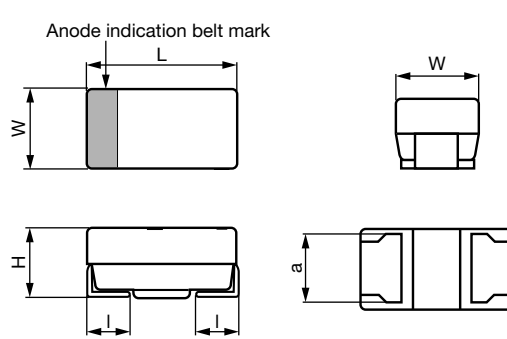
APPLICATIONS

- Industrial
- Audio and visual equipment
- General purpose

ORDERING INFORMATION

TMC	J	0J	106	M	TR	(2)	F
TYPE	CASE CODE	DC VOLTAGE RATING AT +85 °C	CAPACITANCE (µF)	CAPACITANCE TOLERANCE	PACKAGING POLARITY	(OPTIONAL)	TERMINAL CODE
	See Ratings and Case Codes table	0E = 2.5 V 0G = 4.0 V 0J = 6.3 V 1A = 10 V 1C = 16 V 1D = 20 V 1E = 25 V	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow.	M = ± 20 %	TR = 7" reel, cathodes close to perforation side	Halogen-free (special order)	F = lead (Pb)-free terminations

DIMENSIONS in inches [millimeters]

						
CASE CODE	EIA SIZE	L	W	H	I	a
J	1608-09	0.063 ± 0.004 [1.6 ± 0.1]	0.031 ± 0.004 [0.8 ± 0.1]	0.031 ± 0.004 [0.8 ± 0.1]	0.012 ± 0.006 [0.3 ± 0.15]	0.024 ± 0.004 [0.6 ± 0.1]

RATINGS AND CASE CODES

μF	2.5 V	4.0 V	6.3 V	10 V	16 V	20 V
0.68						J
1.0					J	
1.5				J	J	
2.2			J	J	J	
3.3			J	J		
4.7	J	J	J	J		
6.8	J	J	J			
10	J	J	J			
15	J	J				
22	J	J				

MARKING

Anode indication belt mark



Simplified code of rated voltage (A: 10 V)

Simplified code of nominal capacitance (E: 1.5 μF)

μF	2.5 V	4 V	6.3 V	10 V	16 V	20 V
0.68						DW
1.0					CA	
1.5				AE	CE	
2.2			JJ	AJ	CJ	
3.3			JN	AN		
4.7	eS	GS	JS	AS		
6.8	eW	GW	JW			
10	eA	GA	JA			
15	eE	GE				
22	eJ	gJ				

**STANDARD RATINGS**

CAPACITANCE (μ F)	CASE CODE	PART NUMBER	MAX. DCL AT +25 °C (μ A)	MAX. DF AT +25 °C 120 Hz (%)	MAX. ESR AT +25 °C 100 kHz (Ω)	MAX. RIPPLE, 100 kHz I_{RMS} (A)
2.5 V_{DC} AT +85 °C, 1.6 V_{DC} AT +125 °C						
4.7	J	TMCJ0E475MTRF	0.5	20	10.0	0.071
6.8	J	TMCJ0E685MTRF	0.5	20	10.0	0.071
10	J	TMCJ0E106MTRF	0.5	20	10.0	0.071
15	J	TMCJ0E156MTRF	0.5	20	10.0	0.071
22	J	TMCJ0E226MTRF				
4 V_{DC} AT +85 °C, 2.5 V_{DC} AT +125 °C						
4.7	J	TMCJ0G475MTRF	0.5	20	10.0	0.071
6.8	J	TMCJ0G685MTRF	0.5	20	10.0	0.071
10	J	TMCJ0G106MTRF	0.5	20	10.0	0.071
15	J	TMCJ0G156MTRF	6.0	20	10.0	0.071
22	J	TMCJ0G226MTRF	8.8	20	10.0	0.071
6.3 V_{DC} AT 85 °C, 4 V_{DC} AT +125 °C						
2.2	J	TMCJ0J225MTRF	0.5	20	10.0	0.071
3.3	J	TMCJ0J335MTRF	0.5	20	10.0	0.071
4.7	J	TMCJ0J475MTRF	0.5	20	10.0	0.071
6.8	J	TMCJ0J685MTRF	0.5	20	10.0	0.071
10	J	TMCJ0J106MTRF	0.6	20	10.0	0.071
10 V_{DC} AT 85 °C, 6.3 V_{DC} AT +125 °C						
1.5	J	TMCJ1A155MTRF	0.5	20	10.0	0.071
2.2	J	TMCJ1A225MTRF	0.5	20	10.0	0.071
3.3	J	TMCJ1A335MTRF	0.5	20	10.0	0.071
4.7	J	TMCJ1A475MTRF	0.5	20	10.0	0.071
16 V_{DC} AT 85 °C, 10 V_{DC} AT +125 °C						
1.0	J	TMCJ1C105MTRF	0.5	20	10.0	0.071
1.5	J	TMCJ1C155MTRF	0.5	20	10.0	0.071
2.2	J	TMCJ1C225MTRF	0.5	20	10.0	0.071
20 V_{DC} AT 85 °C, 13 V_{DC} AT +125 °C						
0.68	J	TMCJ1D684MTRF	0.5	20	27.5	0.043

RECOMMENDED VOLTAGE DERATING GUIDELINES (for temperature below +85 °C)

CAPACITOR VOLTAGE RATING	OPERATING VOLTAGE
2.5	1.2
4.0	2.0
6.3	3.1
10	5.0
16	8.0
20	10

POWER DISSIPATION

CASE CODE	MAXIMUM PERMISSIBLE POWER DISSIPATION AT +25 °C (W) IN FREE AIR
J	0.050

**STANDARD PACKAGING QUANTITY**

CASE CODE	UNITS PER 7" REEL
J	4000

PERFORMANCE CHARACTERISTICS

ITEM	CONDITION	POST TEST PERFORMANCE				
Temperature characteristics	Measure the specified characteristics in each stage		Specified initial value	-55 °C	+85 °C	+125 °C
		Capacitance change	-	-20 % to 0 %	0 % to +20 %	0 % to +20 %
		Dissipation factor (%) max.	20	30	20	30
		Leakage current	Refer to Standard Ratings table	-	1000 % specified initial value or less	1250 % specified initial value or less
Solder heat resistance	Solder dip: 260 °C ± 5 °C, 10 s ± 1 s Reflow 260 °C, 10 s ± 1 s	Capacitance change		Within ± 20 % of initial value		
		Dissipation factor		Initial specified value or less		
		Leakage current		Initial specified value or less		
Moisture resistance no load	Leave at 40 °C and 90 % to 95 % RH for 500 h	Capacitance change		Within ± 20 % of initial value		
		Dissipation factor		Shall not exceed 150 % of initial specified value		
		Leakage current		Initial specified value or less		
High temperature load	85 °C. The rated voltage is applied for 2000 h	Capacitance change		Within ± 20 % of initial value		
		Dissipation factor		Initial specified value or less		
		Leakage current		Shall not exceed 200 % of initial specified value		
Thermal shock	Leave at -55 °C, normal temperature, 125 °C, and normal temperature for 30 min, 3 min, 30 min, and 3 min. Repeat this operation 5 times running	Capacitance change		Within ± 20 % of initial value		
		Dissipation factor		Initial specified value or less		
		Leakage current		Initial specified value or less		
Failure rate	85 °C. The rated voltage is applied through a protective resistor of 1 Ω/V	1 %/1000 h				

Note

- Test conditions per JIS C5101-1



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