Vishay Polytech

ТМСР





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PERFORMANCE / ELECTRICAL CHARACTERISTICS

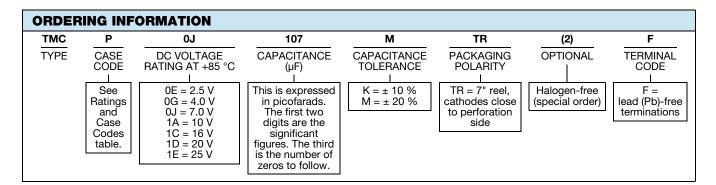
Operating Temperature: -55 °C to +125 °C (above +85 °C, voltage derating is required) Capacitance Range: 0.1 µF to 47 µF Capacitance Tolerance: ± 10 %, ± 20 % Voltage Rating: 2.5 V_{DC} to 25 V_{DC}

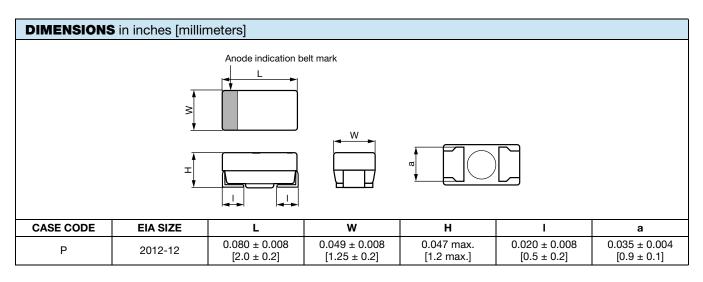
FEATURES

- 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

APPLICATIONS

- Industrial
- · Audio and visual equipment
- General purpose





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For technical questions, contact: polytech@vishay.com





(5-2008)



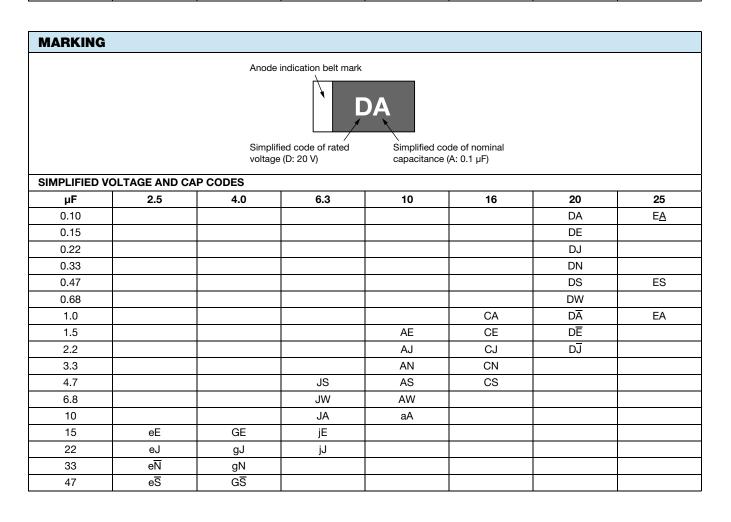
TMCP



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RATINGS AND CASE CODES							
μF	2.5 V	4.0 V	6.3 V	10 V	16 V	20 V	25 V
0.10						Р	Р
0.15						Р	
0.22						Р	
0.33						Р	
0.47						Р	Р
0.68						Р	
1.0					Р	Р	Р
1.5				Р	Р	Р	
2.2				Р	Р	Р	
3.3				Р	Р		
4.7			Р	Р	Р		
6.8			Р	Р			
10			Р	Р			
15	Р	Р	Р				
22	Р	Р	Р				
33	Р	Р					
47	Р	Р					



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TMCP

STANDARD	RATINGS					
CAPACITANCE (µF)	CASE CODE	PART NUMBER	MAX. DCL AT 25 °C (μΑ)	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		
15	Р	TMCP0E156(1)TRF	0.5	8	4.0	0.126
22	Р	TMCP0E226(1)TRF	TRF 0.6 10		4.0	0.126
33	Р	TMCP0E336(1)TRF	0.8	20	4.0	0.126
47	Р	TMCP0E476MTRF	11.8	30	6.0	0.103
		4 V _{DC} AT	+85 °C; 2.5 V _{DC} /	AT +125 °C		
15	Р	TMCP0G156(1)TRF	0.6	8	4.0	0.126
22	Р	TMCP0G226(1)TRF	0.9	10	4.0	0.126
33	Р	TMCP0G336(1)TRF	13.2	30	5.9	0.104
47	Р	TMCP0G476MTRF	18.8	30	6.0	0.103
		6.3 V _{DC} A	T +85 °C; 4 V _{DC} /	AT +125 °C		
4.7	Р	TMCP0J475(1)TRF	0.5	8	4.0	0.126
6.8	Р	TMCP0J685(1)TRF	0.5	8	4.0	0.126
10	Р	TMCP0J106(1)TRF	0.7	8	5.3	0.110
15	Р	TMCP0J156(1)TRF	1.0	12	5.9	0.104
22	Р	TMCP0J226MTRF	13.9	30	5.9	0.104
			+85 °C; 6.3 V _{DC}	AT +125 °C		
1.5	Р	TMCP1A155(1)TRF	0.5	8	11.0	0.076
2.2	Р	TMCP1A225(1)TRF	0.5	8	8.8	0.085
3.3	Р	TMCP1A335(1)TRF	0.5	8	7.7	0.091
4.7	Р	TMCP1A475(1)TRF	0.5	8	4.0	0.126
6.8	Р	TMCP1A685(1)TRF	0.7	20	4.0	0.126
10	Р	TMCP1A106(1)TRF	10.0	20	5.9	0.104
			「+85 °C; 10 V _{DC} /			
1.0	Р	TMCP1C105(1)TRF	0.5	6	9.9	0.080
1.5	Р	TMCP1C155(1)TRF	0.5	8	11.0	0.076
2.2	Р	TMCP1C225(1)TRF	0.5	8	8.8	0.085
3.3	Р	TMCP1C335(1)TRF	0.6	8	8.8	0.085
4.7	Р	TMCP1C475MTRF	0.8	8	8.8	0.085
			+85 °C; 13 V _{DC}			
0.10	P	TMCP1D104(1)TRF	0.5	6	33.0	0.044
0.15	P	TMCP1D154(1)TRF	0.5	6	27.5	0.048
0.22	P	TMCP1D224(1)TRF	0.5	6	27.5	0.048
0.33	P	TMCP1D334(1)TRF	0.5	6	22.0	0.054
0.47	Р	TMCP1D474(1)TRF	0.5	6	22.0	0.054
0.68	Р	TMCP1D684(1)TRF	0.5	6	16.5	0.062
1.0	Р	TMCP1D105(1)TRF	,		11.0	0.076
1.5	Р	TMCP1D155(1)TRF	0.5	8	11.0	0.076
2.2	Р	TMCP1D225MTRF	0.5	8	8.8	0.085
0.10			+85 °C; 16 V _{DC}		00.0	0.011
0.10	Р	TMCP1E104(1)TRF	0.5	6	33.0	0.044
0.47	Р	TMCP1E474(1)TRF	0.5	6	22.0	0.054
1.0	Р	TMCP1E105(1)TRF	0.5	6	11.0	0.076

Note

• Part number definition:

(1) Tolerance: For 10 % tolerance, specify "K"; for 20 % tolerance, change to "M"

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	10.0			
25	12.5			

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POWER DISSIPATION

CASE CODE	MAXIMUM PERMISSIBLE POWER DISSIPATION AT +25 °C (W) IN FREE AIR			
Р	0.064			

STANDARD PACKAGING QUANTITY				
CASE CODE	UNITS PER 7" REEL			
Р	3000			

PERFORM/	ANCE CHARACTERISTICS						
ITEM	CONDITION	POST TEST	PERFORMA	NCE			
Temperature			Specified initial value	-55 °C	+85 °C	+125 °C	
		Capacitance change	-	-20 % to 0 %	0 % to +20 %	0 % to +20 %	
	Measure the specified characteristics in each stage	Dissipation factor (%)	6	10	8	10	
			8	12	10	12	
			10	14	12	14	
characteristics			12	16	14	16	
			20	24	22	24	
			30	60	30	40	
		Leakage current	Refer to Standard Ratings table	-	1000 % specified intial value or less	1250 % specified intial value or less	
	Solder dip: 260 °C ± 5 °C 10 s ± 1 s Reflow:	Capacitance change		Within ± 20 % of initial value			
Solder heat resistance		Dissipation factor		Initial specified value or less			
resistance	260 °C 10 s ± 1 s	Leakage current		Initial specified value or less			
Moisture		Capacitance change		Within ± 20 % of initial value			
resistance	Leave at 40 °C and 90 % to 95 % RH for 500 h	Dissipation factor		Shall not exceed 150 % of initial specified value			
no load		Leakage current		Initial specified value or less			
High		Capacitance change		Within ± 20 % of initial value			
temperature	85 °C. The rated voltage is applied for 2000 h	Dissipation factor		Initial specified value or less			
load		Leakage current		Shall not exceed 200 % of initial specified value			
	Leave at -55 °C, normal temperature,	Capacitance change		Within \pm 20 % of initial value			
Thermal shock	125 °C, and normal temperature for 30 min, 3 min, 30 min, and 3 min.	Dissipation factor		Initial specified value or less			
	Repeat this operation 5 times running	Leakage current		Initial specified value or less			
Moisture resistance load		Capacitance change		Within ± 20 % of initial value or less			
	Leave at 40 °C and 90 % to 95 % RH The rated voltage is applied for 500 h	Dissipation factor		Shall not exceed 150 % of initial specified value			
	The fated voltage is applied for 500 II	Leakage current		Shall not exceed 200 % of initial specified value			
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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