

ENHANCED POWER THICK FILM CHIP RESISTOR (WITH ANTI-SURGE & PULSE WITHSTANDING OPTION)

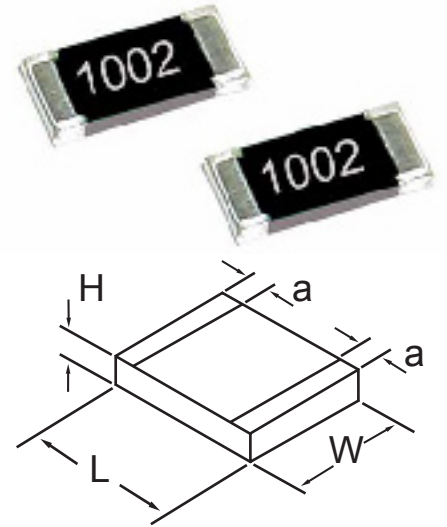


RMCP

RMCP

FEATURES

- Resistances from 1Ω to 1MΩ
- 1% and 5% tolerances
- RoHS compliant / lead-free
- Operating Temperature: -55°C to +155°C



MECHANICAL SPECIFICATIONS

Type	L Body Length	W Body Width	H Body Height	a Termination	Units
RMCP18 (0603)	1.60 ± 0.10	0.85 ± 0.10	0.45 ± 0.05	0.30 ± 0.20	mm
RMCP14 (0805)	2.10 ± 0.10	1.30 ± 0.10	0.50 ± 0.05	0.40 ± 0.20	mm
RMCP13 (1206)	3.10 ± 0.10	1.60 ± 0.10	0.55 ± 0.05	0.50 ± 0.25	mm
RMCP12 (1206)	3.10 ± 0.10	1.60 ± 0.10	0.55 ± 0.05	0.50 ± 0.25	mm
RMCP01 (2010)	5.00 ± 0.10	2.50 ± 0.10	0.55 ± 0.05	0.60 ± 0.25	mm
RMCP02 (2512)	6.35 ± 0.10	3.20 ± 0.10	0.55 ± 0.05	0.60 ± 0.25	mm

PART NUMBERING SYSTEM

RMCP	02	100	J	T	AP																																		
<table border="1"> <tr><th>Type</th></tr> <tr><td>RMCP</td></tr> </table>	Type	RMCP	<table border="1"> <tr><th>Code</th><th>Wattage</th></tr> <tr><td>18</td><td>1/8W</td></tr> <tr><td>14</td><td>1/4W</td></tr> <tr><td>13</td><td>1/3W</td></tr> <tr><td>12</td><td>1/2W</td></tr> <tr><td>01</td><td>1W</td></tr> <tr><td>02</td><td>2W</td></tr> </table>	Code	Wattage	18	1/8W	14	1/4W	13	1/3W	12	1/2W	01	1W	02	2W		<table border="1"> <tr><th colspan="2">Resistance Tolerance</th></tr> <tr><td>F</td><td>1%</td></tr> <tr><td>J</td><td>5%</td></tr> </table>	Resistance Tolerance		F	1%	J	5%	<table border="1"> <tr><th colspan="2">Packaging</th></tr> <tr><th>Code</th><th>Description</th></tr> <tr><td>T</td><td>Tape & Reel</td></tr> </table>	Packaging		Code	Description	T	Tape & Reel	<table border="1"> <tr><th colspan="2">Anti-Surge & Pulse Withstanding Option</th></tr> <tr><td>Nil</td><td>Regular</td></tr> <tr><td>AP</td><td>Anti-Surge & Pulse Withstanding</td></tr> </table>	Anti-Surge & Pulse Withstanding Option		Nil	Regular	AP	Anti-Surge & Pulse Withstanding
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3 DIGIT CODE (5% Tolerance)							
Resistance Value							
Code	1R0	100	101	102	103	104	105
Values	1Ω	10Ω	100Ω	1KΩ	10K	100K	1M

5% Tolerance: First two digits are significant figures and third digit is number of zeros. Letter "R" indicates decimal values under 100 ohms.

4 DIGIT CODE (1% Tolerance)						
Resistance Value						
Code	10R0	1000	1001	1002	1003	1004
Values	10Ω	100Ω	1K	10K	100K	1M

1% Tolerance: First three digits are significant figures and fourth digit is number of zeros. Letter "R" indicates decimal values under 100 ohms.

ELECTRICAL SPECIFICATIONS

Type	Package Type	Power Rating (Watts) @ 70°C	Maximum Working Voltage*	Maximum Overload Voltage	Tolerance, Ohmic Range and Temperature Coefficient	
					1%	5%
RMCP18	0603	1/8W	50V	100V	10Ω - 1MΩ ±100PPM	1Ω - 1MΩ ±200PPM
RMCP14	0805	1/4W	150V	300V		
RMCP13	1206	1/3W	200V	400V		
RMCP12	1206	1/2W	200V	400V		
RMCP01	2010	1W	200V	400V		
RMCP02	2512	2W	300V	600V		

Jumpers: 0603 maximum resistance $R_{max} \leq 20m\Omega$ and rated current $I_r \leq 2A$

0805, 1206 maximum resistance $R_{max} \leq 20m\Omega$ and rated current $I_r \leq 4A$

2010, 2512 maximum resistance $R_{max} \leq 20m\Omega$ and rated current $I_r \leq 6A$

SPECIFICATIONS AND TEST METHODS

Item	Specification	Test Method
DC Resistance	J: $\pm 5\%$, F: $\pm 1\%$	IEC 60115-1 4.5 / JIS C 5202 5.1 Measure the resistance value
Short time overload	J: $\Delta R \leq \pm(2\% + 0.1\Omega)$ F: $\Delta R \leq \pm(1\% + 0.05\Omega)$	IEC 60115-1 4.13 / JIS C 5202 5.5 5 x rated voltage or max. overload voltage for 5 sec. measure resistance after 30 minutes
Solderability	Over 95% of termination must be covered with solder	IEC 60115-1 4.17 / JIS C 5202 6.5 After immersing flux, dip in the $245 \pm 2^\circ\text{C}$ molten solder bath for 3 ± 0.5 sec
Resistance to solder heat	J: $\Delta R \leq \pm(1\% + 0.1\Omega)$ F: $\Delta R \leq \pm(0.5\% + 0.05\Omega)$ No mechanical damage	IEC 60115 4.18 / JIS C 5202 6.4 With $260 \pm 5^\circ\text{C}$ for 10 ± 1 sec.
Temperature coefficient of resistance (TCR)	J: $\pm 200\text{ppm}/^\circ\text{C}$ F: $\pm 100\text{ppm}/^\circ\text{C}$	IEC 60115-1 4.8.4.2 / JIS C 5202 C 5202 5.2 Test temperature: $25^\circ\text{C}(T1) \rightarrow -55^\circ\text{C}(T2)$ $25^\circ\text{C}(T1) \rightarrow 155^\circ\text{C}(T2)$ $\text{TCR}(\text{ppm}/^\circ\text{C}) = \frac{R2 - R1}{R1} \times \frac{1}{T2 - T1} \times 10^6$ T1: 25°C T2: Test Temperature R1: Resistance at reference temperature (T1) R2: Resistance at reference temperature (T2)
Load life humidity	J: $\Delta R \leq \pm(3\% + 0.1\Omega)$ F: $\Delta R \leq \pm(1\% + 0.05\Omega)$	IEC 60115-1 4.24.2 / JIS C 5202 7.9 Maintain the temperature at the resistor at $40 \pm 2^\circ\text{C}$ and 90-95% R.H. with the rated voltage applied. Cycle ON for 1.5 hours and OFF for 0.5 hour for $1000+48/-0$ hours. After 1~4 hour, measure the resistance value
Load life	J: $\Delta R \leq \pm(3\% + 0.1\Omega)$ F: $\Delta R \leq \pm(1\% + 0.05\Omega)$	IEC 60115-1 4.25.1 / JIS C 5202 7.10 Permanent resistance change after $1000+48/-0$ hours 1.5 hours ON, 0.5 hours OFF at RCWV or max. Keep the resistor at $70 \pm 2^\circ\text{C}$ ambient.
Temperature cycle	J: $\Delta R \leq \pm(1\% + 0.1\Omega)$ F: $\Delta R \leq \pm(0.5\% + 0.05\Omega)$ No mechanical damage	IEC 60115-1 4.25.1 / JIS C 5202 7.4 Repeat 5 cycles as follow: $-55^\circ\text{C}(30 \text{ min.}) \sim +25^\circ\text{C}(2 \sim 3 \text{ min.})$ $+155^\circ\text{C}(30 \text{ min.}) \sim +25^\circ\text{C}(2 \sim 3 \text{ min.})$
Insulation resistance	Between termination and coating must be over $1000\text{M}\Omega$	IEC 60115-1 4.6.1.1 / JIS C 5202 5.6 Test voltage: $100 \pm 15\text{V}$
Bending strength	J: $\Delta R \leq \pm(1\% + 0.1\Omega)$ F: $\Delta R \leq \pm(0.5\% + 0.05\Omega)$ No mechanical damage	IEC 60115-1 4.33 Resistance change after bended on the 90mm PCB. Bend: 3mm for 0603, 0805 2mm for 1206, 2010, 2512

