

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



**RMCP**L

RMCPL

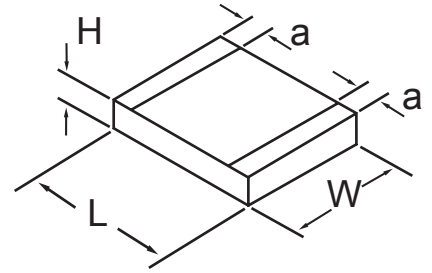
## FEATURES

- Resistances from 10mΩ to 976mΩ
- 1% and 5% tolerances
- RoHS compliant / lead-free
- Operating Temperature: -55°C to +125°C
- Meet AEC-Q200



## MECHANICAL SPECIFICATIONS

Type	L Body Length	W Body Width	H Body Height	a Termination	Units	Qty Reel
RMCPL16 (0402)	1.00 ± 0.10	0.50 ± 0.05	0.35 ± 0.05	0.20 ± 0.01	mm	10K
RMCPL18 (0603)	1.60 ± 0.10	0.85 ± 0.10	0.45 ± 0.15	0.30 ± 0.20	mm	5K
RMCPL14 (0805)	2.10 ± 0.10	1.25 ± 0.10	0.50 ± 0.15	0.40 ± 0.20	mm	5K
RMCPL12 (1206)	3.10 ± 0.10	1.60 ± 0.10	0.60 ± 0.15	0.50 ± 0.25	mm	5K
RMCPL34 (1210)	3.20 ± 0.20	2.60 ± 0.15	0.55 ± 0.10	0.50 ± 0.25	mm	5K
RMCPL01 (2010)	5.00 ± 0.20	2.50 ± 0.20	0.55 ± 0.10	0.65 ± 0.25	mm	4K
RMCPL02 (2512)	6.35 ± 0.20	3.20 ± 0.20	0.60 ± 0.10	0.65 ± 0.25	mm	4K



## PART NUMBERING SYSTEM

<b>RMCP</b> L		<b>02</b>	<b>—</b>	<b>0R100</b>	<b>J</b>	<b>T</b>	<b>—</b>	<b>AP</b>	
Type	Code	Wattage		Resistance	Tolerance	Packaging		Anti-Surge & Pulse Withstanding Option	
<b>RMCP</b> L	18	1/8W		F	1%	Code	Description	Nil	Regular
	16	1/6W		J	5%	T	Tape & Reel	AP	Anti-Surge & Pulse Withstanding
	14	1/4W							
	12	1/2W							
	34	1/2W							
	01	1W							
	02	2W							

4 DIGIT CODE						
Resistance Value						
Code	0R010	0R047	0R051	0R068	0R100	0R910
Values	0.010Ω	0.047Ω	0.051Ω	0.068Ω	0.100Ω	0.91Ω

## ELECTRICAL SPECIFICATIONS

Type	Package Type	Power Rating (Watts) @ 70°C	Maximum Working Voltage*	Maximum Overload VoltageΩ	Resistance Tolerance %	Resistance Range	Standard TCR ppm / °C	Low TCR ppm / °C
RMCPL16	0402	1/6W	$\sqrt{(P \times R)}$	$\sqrt{(P \times R)} \times 2.23$	±1%	50mΩ - 91mΩ 100mΩ - 976mΩ	±800ppm ±500ppm	
RMCPL18	0603	1/8W	337mV	754mV		20mΩ - 47mΩ 50mΩ - 91mΩ 100mΩ - 976mΩ	±1200ppm ±800ppm ±500ppm	±600ppm ±400ppm ±300ppm
RMCPL14	0805	1/4W	477mV	1067mV				
RMCPL12	1206	1/2W	675mV	1508mV	±5%	10mΩ - 18mΩ 20mΩ - 47mΩ 50mΩ - 91mΩ 100mΩ - 976mΩ	±1500ppm ±1200ppm ±800ppm ±500ppm	±600ppm ±400ppm ±300ppm ±200ppm
RMCPL34	1210	1/2W	808mV	2021mV				
RMCPL01	2010	1W	954mV	2133mV				
RMCPL02	2512	2W	1349mV	3017mV				

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: $\Delta R \leq \pm(2\% + 0.1m\Omega)$ F: $\Delta R \leq \pm(1\% + 0.05m\Omega)$	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 $3 \pm 0.5$ sec
Resistance to solder heat	J: $\Delta R \leq \pm(1\% + 0.1m\Omega)$ F: $\Delta R \leq \pm(0.5\% + 0.05m\Omega)$ No mechanical damage	IEC 60115 4.18 / JIS C 5202 6.4 With $260 \pm 5^\circ\text{C}$ for $10 \pm 1$ 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: $25^\circ\text{C}(T1) \rightarrow -55^\circ\text{C}(T2)$ $25^\circ\text{C}(T1) \rightarrow 125^\circ\text{C}(T2)$  $\text{TCR}(\text{ppm}/^\circ\text{C}) = \frac{R2 - R1}{R1} \times \frac{1}{T2 - T1} \times 10^6$ T1: $25^\circ\text{C}$ T2: Test Temperature R1: Resistance at reference temperature (T1) R2: Resistance at test temperature (T2)
Load life humidity	J: $\Delta R \leq \pm(3\% + 0.1m\Omega)$ F: $\Delta R \leq \pm(1\% + 0.05m\Omega)$	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: $\Delta R \leq \pm(3\% + 0.1m\Omega)$ F: $\Delta R \leq \pm(1\% + 0.05m\Omega)$	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: $\Delta R \leq \pm(1\% + 0.1m\Omega)$ F: $\Delta R \leq \pm(0.5\% + 0.05m\Omega)$ No mechanical damage	IEC 60115-1 4.25.1 / JIS C 5202 7.4 Repeat 5 cycles as follow: $-55^\circ\text{C}(30 \text{ min.}) \sim +25^\circ\text{C}(2 \sim 3 \text{ min.})$ $+125^\circ\text{C}(30 \text{ min.}) \sim +25^\circ\text{C}(2 \sim 3 \text{ min.})$
Insulation resistance	Between termination and coating must be over $1000M\Omega$	IEC 60115-1 4.6.1.1 / JIS C 5202 5.6 Test voltage: $100 \pm 15\text{V}$
Bending strength	J: $\Delta R \leq \pm(1\% + 0.1m\Omega)$ F: $\Delta R \leq \pm(0.5\% + 0.05m\Omega)$ 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

