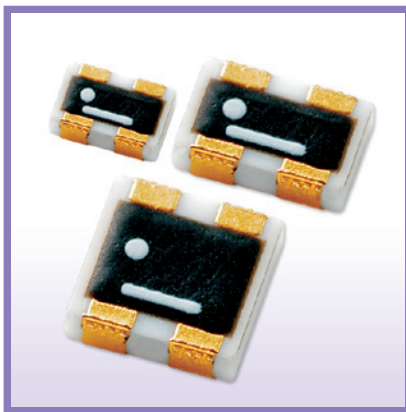




High temperature metal thin film resistor networks

■ RMA series

AEC-Q200 Compliant

Features

- Conductive epoxy compatible chip resistor network
- Relative resistance tolerance: $\pm 0.01\%$, relative TCR: $\pm 1\text{ppm}/^\circ\text{C}$
- Operating temperature up to 230°C
- RoHS compliant, 100% lead free (gold terminal)
- Thin film structure enabling low noise and anti-sulfur

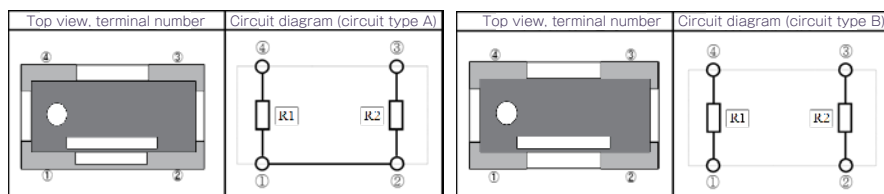
Applications

- Automotive electronics
- High temperature electronic devices
- Downhole drilling

Part numbering system

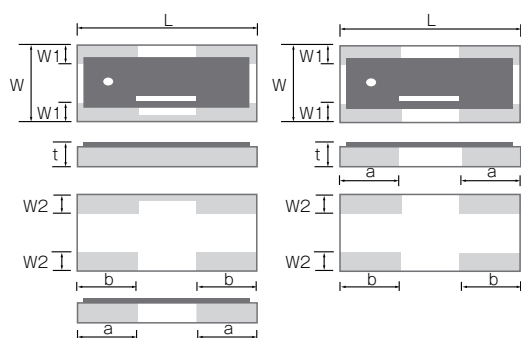
Series code	RMA 2012 A - ***/***	P B V L 10	Packaging quantity: 10(1,000pcs), 50(5,000pcs)
Size: RMA2012, RMA3216, RMA3225			
circuits			Relative resistance tolerance
Nominal resistance value (E-24: 3 digit, E-96: all 4 digit)		Absolute TCR	Relative TCR
			Absolute resistance tolerance

Electrical Specification



Type	Power ratings (85°C)	Resistance range (Ω)	Resistance tolerance (Code)				Temperature coefficient of resistance (Code)				Packaging quantity (designation)
			Absolute tolerance	Tolerance ratio			Absolute TCR	TCR tracking			
				Resistance ratio =1	1< Resistance ratio ≤100	100< Resistance ratio ≤500		Resistance ratio =1	1< Resistance ratio ≤100	100< Resistance ratio ≤500	
RMA2012	0.05W / Element 0.1W / Package	100 ~<300	±0.1%(B) ±0.5%(D)	±0.02%(P) ±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.05%(W) ±0.1%(B) ±0.5%(D)	-	±10ppm/°C(N) ±25ppm/°C(P)	±1ppm/°C(X) ±2ppm/°C(W) ±5ppm/°C(V)	±2ppm/°C(W) ±5ppm/°C(V)	-	tape & reel (T&R) 10=1,000pcs 50=5,000pcs
		300 ~ 100k	±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.01%(L) ±0.02%(P) ±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.05%(W) ±0.1%(B) ±0.5%(D)	±5ppm/°C(V) ±10ppm/°C(N) ±25ppm/°C(P)	±1ppm/°C(X) ±2ppm/°C(W) ±5ppm/°C(V)	±1ppm/°C(X) ±2ppm/°C(W) ±5ppm/°C(V)	±2ppm/°C(W) ±5ppm/°C(V)	
RMA3216	0.063W / Element 0.125W / Package	100 ~<300	±0.1%(B) ±0.5%(D)	±0.02%(P) ±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.05%(W) ±0.1%(B) ±0.5%(D)	-	±10ppm/°C(N) ±25ppm/°C(P)	±1ppm/°C(X) ±2ppm/°C(W) ±5ppm/°C(V)	±2ppm/°C(W) ±5ppm/°C(V)	-	
		300 ~ 500k	±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.01%(L) ±0.02%(P) ±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.05%(W) ±0.1%(B) ±0.5%(D)	±5ppm/°C(V) ±10ppm/°C(N) ±25ppm/°C(P)	±1ppm/°C(X) ±2ppm/°C(W) ±5ppm/°C(V)	±1ppm/°C(X) ±2ppm/°C(W) ±5ppm/°C(V)	±2ppm/°C(W) ±5ppm/°C(V)	
RMA3225	0.1W / Element 0.2W / Package	100 ~<300	±0.1%(B) ±0.5%(D)	±0.02%(P) ±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.05%(W) ±0.1%(B) ±0.5%(D)	-	±10ppm/°C(N) ±25ppm/°C(P)	±1ppm/°C(X) ±2ppm/°C(W) ±5ppm/°C(V)	±2ppm/°C(W) ±5ppm/°C(V)	-	
		300 ~ 500k	±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.01%(L) ±0.02%(P) ±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.05%(W) ±0.1%(B) ±0.5%(D)	±0.05%(W) ±0.1%(B) ±0.5%(D)	±5ppm/°C(V) ±10ppm/°C(N) ±25ppm/°C(P)	±1ppm/°C(X) ±2ppm/°C(W) ±5ppm/°C(V)	±1ppm/°C(X) ±2ppm/°C(W) ±5ppm/°C(V)	±2ppm/°C(W) ±5ppm/°C(V)	

◆Dimensions



Type	Size (inch)	L	W	t	a	b	W1	W2
RMA2012	0805	2.0±0.2	1.25±0.2	0.45±0.1	0.5±0.2	0.6±0.2	0.4±0.2	0.35±0.2
RMA3216	1206	3.2±0.2	1.6±0.2	0.45±0.1	1.0±0.25	1.0±0.2	0.4±0.25	0.4±0.2
RMA3225	1209	3.2±0.2	2.5±0.2	0.45±0.1	1.0±0.25	1.0±0.2	0.4±0.25	0.6±0.2

(unit : mm)

◆Reliability specification

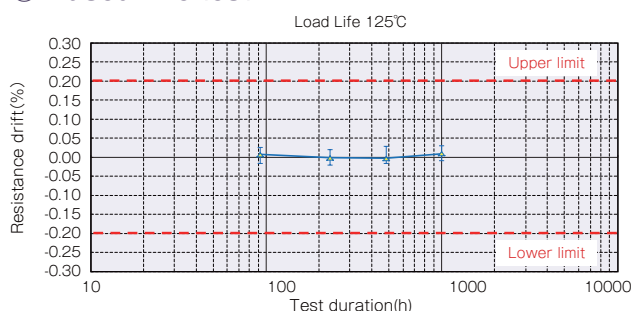
Test items	Condition (test methods (MIL-PRF-55342/JIS C5201-1))	Standard	
		absolute	relative
Short time overload	2.5 x rated voltage ¹ , 5seconds	±(0.1%+0.01Ω)	±0.05%
Life (biased)	70°C, rated voltage, 90min on 30min off, 1000hours	±(0.1%+0.01Ω)	±0.05%
Temperature shock	85°C, 85%RH, 1/10 of rated power, 90min on 30min off, 1000hours	±(0.1%+0.01Ω)	±0.05%
High temperature exposure ²	-55°C(30min) ~ 125°C(30min) 1000 cycles	±(0.1%+0.01Ω)	±0.05%
Resistance to soldering heat	155°C, no bias, 1000hours	±(0.1%+0.01Ω)	±0.05%

*1 Rated voltage is given by $E = \sqrt{R \times P}$ E= rated voltage (V), R=nominal resistance value(Ω), P=rated power(W)
If rated voltage exceeds maximum voltage /element, maximum voltage /element is the rated voltage.

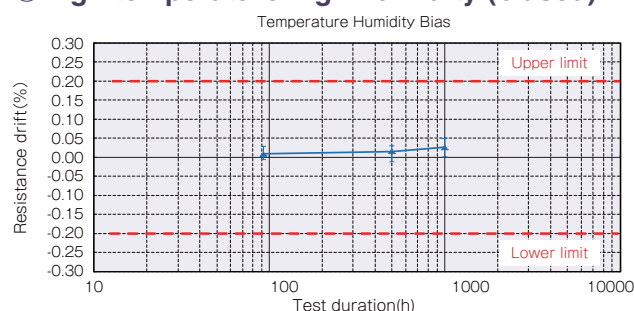
*2 Please contact our sales office for details.

◆Reliability test data

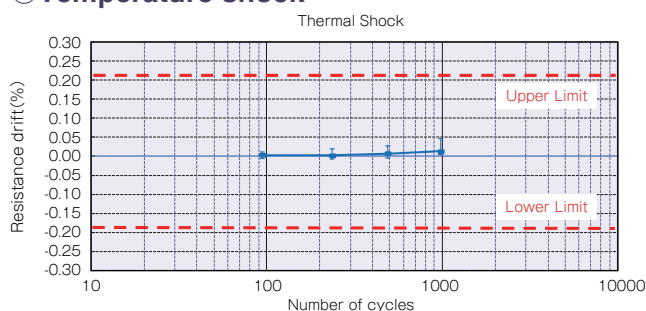
○Biased life test



○High temperature high humidity (biased)



○Temperature shock



◆Derating Curve

