AUTOMOTIVE WIDE TERMINAL CHIP RESISTOR

(RMW/RMWH/RMWL SERIES) AUTOMOTIVE GRADE

Features

- Small size and light weight
- Reliability, high quality
- CCD visual quality inspection
- AEC-Q200 compliance
- Excellent Resistance to Vulcanization

(ASTM-B-809-95& EIA-977 Specification)

Applications

- Automotive electronics
- Navigation equipment TPMS
- Heating, Ventilating and Air conditioning
- Indoor lighting, Central door locking, Wiper module

Standard Electrical Specifications

Type	Rated Power	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/℃)	Resistance Range	
					F(±1%)	J(±5%)
RMW-0508	0.75W	200V	400V	±200	1Ω≦R<10Ω	
				±100	10Ω≦R≦10MΩ	
RMW-0612	0.75W			±200	1Ω≦R<10Ω	
				±100	10Ω≦R≦10MΩ	
RMW-1020	1W			±200	1Ω≦R<10Ω	
				±100	10Ω≦R≦10MΩ	
RMW-1218	1W			±200	1Ω≦R<10Ω	
				±100	10Ω≦R≦10MΩ	
RMW-1225	2W			±200	1Ω≦R<10Ω	
				±100	10Ω≦R≦10MΩ	

- For non-standard parts, please contact our sales dept.
- Operating termperature Range: -55℃ ~ + 155℃

High Power Electrical Specifications

Type	Rated Power	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/℃)	Resistance Range	
					F(±1%)	J(±5%)
RMWH-0508	1W	200V	400V	±150	1Ω≦R<10Ω	
				±100	10Ω≦R≦1MΩ	
RMWH-0612	1.5W			±100	1Ω≦R<10Ω	
				±100	10Ω≦R≦10MΩ	
RMWH-1020	2W			±100	1Ω≦R<10Ω	
				±100	10Ω≦R≦10MΩ	
RMWH-1218	2W			±100	1Ω≦R<10Ω	
				±100	10Ω≦R≦10MΩ	
RMWH-1225	3W			±100	1Ω≦R<10Ω	
				±100	10Ω≦R≦10MΩ	

- For non-standard parts, please contact our sales dept.
- Operating termperature Range: -55℃ ~ + 155℃

RoHS compliant

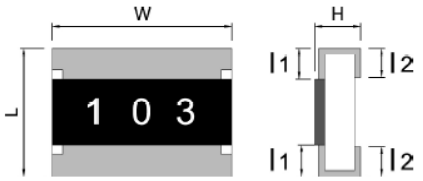
CINETECH SYMBOL OF QUALITY

Low Ohm Chip Resistor Electrical specifications

Type	Rated Power	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/℃)	Resistance Range(mΩ)	
					F(±1%)	J(±5%)
RMWL-0612	0.75W	0.087~0.86V	2.154V	±1800	10≦R<50	
				±800	50≦R<100	
				±600	100≦R≦1000	
RMWL-1020	1W	0.10~0.99V	2.475V	±1800	10≦R<50	
				±800	50≦R<100	
				±600	100≦R≦1000	
RMWL-1218	1W	0.10~0.99V	2.475V	±1800	10≦R<50	
				±800	50≦R<100	
				±600	100≦R≦1000	
RMWL-1225	2W	0.14~1.41V	3.518V	±1800	10≦R<50	
				±800	50≦R<100	
				±600	100≦R≦1000	

- For non-standard parts, please contact our sales dept.
- Operating termperature Range: -55℃ ~ + 155℃

Type Dimension

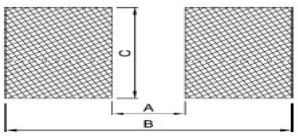


Unit: mm

TYPE	L	W	H	I1	I2
RMW-0508	1.25±0.10	2.00±0.10	0.55±0.10	0.25±0.20	0.50±0.20
RMW-0612	1.60±0.20	3.20±0.20	0.55±0.10	0.30±0.20	0.50±0.20
RMW-1020	2.50±0.20	5.00±0.20	0.55±0.10	0.40±0.20	0.75±0.20
RMW-1218	3.10±0.10	4.60±0.10	0.55±0.05	0.40±0.20	0.50±0.20
RMW-1225*Z	3.20±0.20	6.50±0.20	0.55±0.20	0.40±0.20	0.75±0.20
RMW-1225*H	3.20±0.20	6.50±0.20	0.65±0.20	0.40±0.20	0.75±0.20

General Information

★ Recommend Land Pattern Design

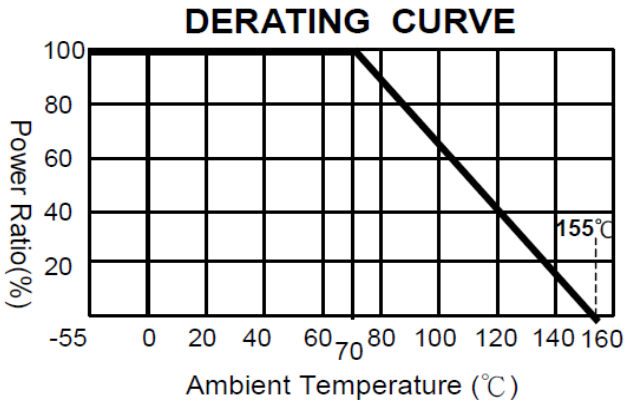


Unit: mm

	0508	0612	1020	1218	1225
A	0.4	0.60	0.75	2.04	0.85
B	1.8	2.90	3.40	4.24	3.70
C	2	3.20	5.00	4.80	6.40

Performance Characteristics

★ **Power Derating Curve**



Power rating or current rating is in the case based on continuous full-load at ambient temperature of 70℃. For operation at ambient temperature in excess of 70℃, the load should be derated in accordance with figure of derating Curve.

Voltage Rating or Current Rating

★ **Rate voltage**

Resistance range: ≧1Ω

Rated voltaget: The resistor shall have a DC continuous working voltaget of a RMS AC continuous working voltage at commercial - line frequency and wave form corresponding to the power rating, as determined formula as following:

$$E(RCWV)=\sqrt{P \times R}$$

E=Rated voltage(V)
P=Power rating(W)
R=Nominal resistance(Ω)

Standard Resistance Value in Decade

★ **RMW/RMWH series marking**

*** RMW 0508 No Marking**

1%: Marking code, Please refer to E96 and E24 dataas below:

EX: 120K, the marking code is 1203 in E24

121K, The marking code is 1213 in E96

5%: marking code, please refer to E24 data as below:

EX: 120K, the marking code is 124 in E24

Note: Jumper zero ohm resistor marking code is one 「0」

E24		E96							
10	33	100	178	316	562	133	237	422	750
11	36	102	182	324	576	137	243	432	768
12	39	105	187	332	590	140	249	442	787
13	43	107	191	340	604	143	255	453	806
15	47	110	196	348	619	147	261	464	825
16	51	113	200	357	634	150	267	475	845
18	56	115	205	365	649	154	274	487	866
20	62	118	210	374	665	158	280	499	887
22	68	121	215	383	681	162	287	511	909
24	75	124	221	392	698	165	294	523	931
27	82	127	226	402	715	169	301	536	953
30	91	130	232	412	732	174	309	549	976

★ **RMWL mΩ Resistance code 4 digi marking.**

Resistance value: 10mΩ~990mΩ: Code: RXXX.
EX: R680 = 680mΩ

Reliability Test and Requirement

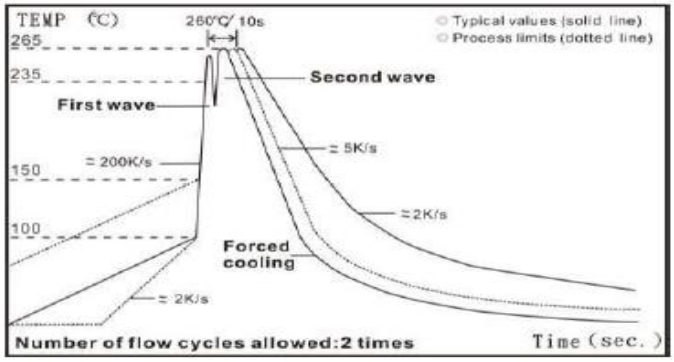
Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance	JIS-C-5201-1 4.8 IEC-60115-1 4.8	At 25 / -55℃ and 25℃/ +155℃,25℃ is the reference temperature	As Spec
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	2.5 times RCWV or Max. Overload voltage whichever is less for 5 seconds. H:5*Rated power or Max Overload voltage	±1%: ±(1.0%+0.05Ω) ±5%: ±(2.0%+0.1Ω) Value < 1Ω±(2.0%+0.1Ω)
Leaching	JIS-C-5201-1 4.18 IEC-60068-2-58 8.2.1	260 ± 5℃ for 30 seconds.	Individual leaching area ≤ 5% Total leaching area ≤ 10%
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	260 ± 5℃ for 10 seconds.	±1%: ±(0.5%+0.05Ω) ±5%: ±(1.0%+0.05Ω) Value < 1Ω±(1.0%+0.05Ω)
Insulation Resistance	JIS -C- 5201-1 4.6 IEC-60115-1 4.6	Apply 100VDC for 1 minute.	≥10 GΩ
Temperature Cycling	JESD22 Method JA-104	1000 cycles (-55℃to + 125℃) Measurement at 24±4 hours after test conclusion. 30min max. dwell time at each temperature	±1%: ±(0.5%+0.05Ω) ±5%: ±(1.0%+0.10Ω)

Reliability Test and Requirement

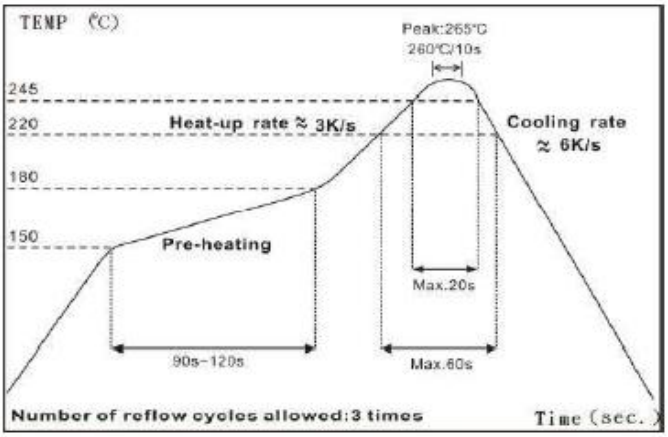
Test Item	Test Method	Procedure	Requirements
Resistance to Solvent	MIL-STD-202 Method 215	Add Aqueous wash chemical-OKEM Clean or equivalent	±1%: ±(0.5%+0.05Ω) ±5%: ±(0.5%+0.05Ω)
Biased Humidity	MIL-STD-202 Method 103	1,000 hrs; 85℃/85% RH, 10% of operating power Measurement at 24±4 hrs after test conclusion	±1%: ±(1.0%+0.05Ω) ±5%: ±(3.0%+0.05Ω)
High Temp. Exposure (Storage)	MIL-STD-202 Method 108	1000 hrs.@T=155℃. Unpowered. Measurement at 24±4 hours after test conclusion	±1%: ±(0.5%+0.05Ω) ±5%: ±(2.0%+0.05Ω)
Operational Life	MIL-STD-202 Method 108	Condition D Steady State TA= 125 ℃at derated power Measurement at 24±4 hrs after test conclusion	±1%: ±(1.0%+0.05Ω) ±5%: ±(3.0%+0.10Ω)
External Visual	MIL-STD-883 Method 2009	Electrical test not required. Inspect device construction, marking and workmanship.	--
Mechanical Shock	MIL-STD-202 Method 213	Wave Form: Tolerance for half sine shock pulse. Peak value is 100g's.Normal duration (D) is 6 (ms)	±1%: ±(1.0%+0.05Ω) ±5%: ±(2.0%+0.10Ω)
Vibration	MIL-STD-202 Method 204	5 g's for 20 min., 12 cycles each of 3 orientations. Note: Test from 10-2000 H	±1%: ±(1.0%+0.05Ω) ±5%: ±(2.0%+0.10Ω)
ESD	AEC-Q200-002 or ISO/DIS 10605	Human body model 0508、0612: 1KV 1020 and above: 2KV	±(3%: ±0.05Ω)
Solderability	J-STD-002	(1) 4 hrs 155℃ dry heat (2) 245±5℃ 3 sec.	±1%: ±(0.5%+0.05Ω) ±5%: ±(1.0%+0.05Ω)
Terminal Strength (SMD)	AEC Q200-006	Pressurizing force for 60 seconds 0508/0612 : 8N 1020 and above :17.7 N	No broken
Board Flex	AEC Q200-005	Beading once for 60 seconds 0508/0612/1020/1218/1225: 3mm	±1%: ±(1.0%+0.05Ω) ±5%: ±(1.0%+0.05Ω)
Sulfur Test	ASTM-B-809-95 EIA-977	105±2℃, NO RATING POWER FOR 1000 HRS (NOT INCLUDE TYPE 0508)	△R: ±(2.0%+0.05Ω)

Recommended Customer Soldering Parameters

★ **Wave solder Temperature condition**



★ **Solder reflow Temperature condition**



★ **Rework temperature (hot aire equipment): 350℃, 3~5seconds**

★ **Recommended reflow methods**

- **IR, vapor phase oven, hot air oven**
- **If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.**

RoHS compliant

CINETECH SYMBOL OF QUALITY

Parts Number System

RMW -

Type

RMW/RMWH/RMWL = Automotive wide Terminal Chip Resistor

0612 -

Size

0508
0612
1020
1218
1225

1002

Resistance

10mR = R010
100mR = R100
1R = 1R00
10R =10R0
100R = 1000
1K = 1001
1M = 1004

F

Tolerance

F = ±1%
J = ±5%
On request

R

Standard Packing

R=tape reel

0508/0612=5K pcs/R

K=Embossed plastic tape reel

1020~1225 =4Kpcs/R

RoHS compliant

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