



1. Scope :

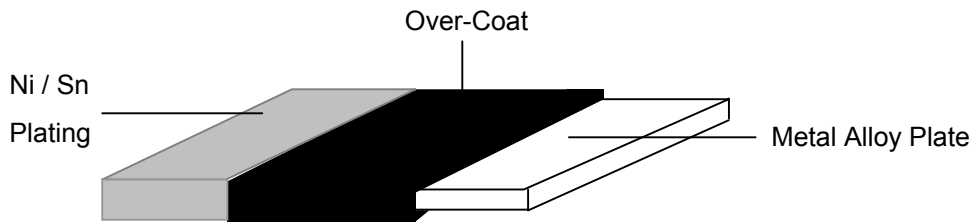
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free Series CRLM.

2. Type Designation :

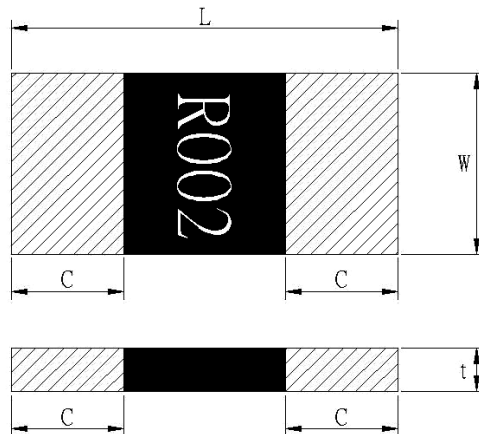
<u>CRLM</u> Item	<u>25</u> Style No.	<u>F</u> Resistance tolerance	<u>E</u> Packaging	<u>C</u> Power Rating	<u>M</u> Metal	<u>R002</u> Resistance
25:2512(6432)		F:±1% G:±2% J:±5%	E: Embossed Tape	C=1W E=2W	M=Mn/Cu	e.g : R002=2mΩ R010=10mΩ

3. Construction and Dimension :

3.1 Construction:




3.2 Dimension:



UNIT : mm

Style	L	W	C	t	Material
25 =	6.4±0.2	3.2±0.2	2.0±0.2(R ≤ 2mΩ)	0.6 ±0.20	Metal : Copper-Manganese Alloy Over Coating : molding Compound UL-94 grade
			0.9±0.2(R > 2mΩ)		

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4. Features:

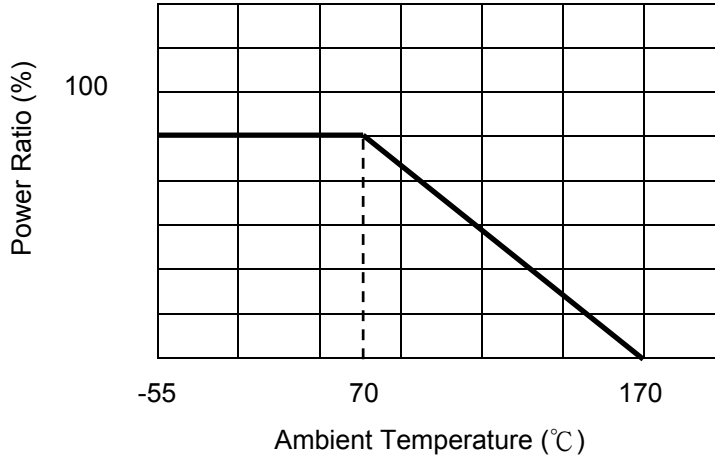
Type	CRLM	
Power Rating	1&2 W (1W:R=1~40 mΩ) (2W:R≤10mΩ)	
Resistance Value	1 ~40mΩ	
Operation Temperature Range	-55°C ~+170°C	
Temperature Coefficient of Resistance	275ppm/°C	R≤2mΩ
	100ppm/°C	2mΩ <R≤10mΩ
	75ppm/°C	R>10mΩ
Tolerance	±1%, ±2%, ±5%	
Insulation Resistance	Over 100MΩ	
Maximum Working Voltage(V)	$(P \cdot R)^{1/2}$	

5. Reliability Tests :

Test Items	Condition of Test	Test Limits
Temperature Coefficient of Resistance	+25°C ~ +125°C	Refer 4.0
Load Life	1000hours at rated power, 70°C, 1.5hours "ON", 0.5hour "OFF"	< ±1%
Short Time Overload	5 X rated power for 5s	< ±0.5%
Moisture no Load	85°C, 85%RH, 1000hrs	< ±0.5%
Temperature cycle	-40°C & +125°C, 1000cycle, 15min per extreme condition	< ±0.5%
Resistance to Soldering Heat	260±5°C for 20±1 sec	< ±0.5%
Solderability	245±5°C, 2±0.5sec	At least 95% of surface area of electrode shall be covered with new solder
High Temperature Exposure	170°C, 1000hrs	< ±0.5%
Low Temperature Storage	-55°C, 1000hrs	< ±0.5%
Substrate Bending	Bending width 2mm, Epoxy thickness 1.6mm, Fulcrums distance 90mm	< ±0.5%
Insulation Resistance	100V DC for 1 minute	>100 MΩ



5.1 Derating Curve



5.2 Rated Voltage

The rated voltage is calculated by the following fomula:

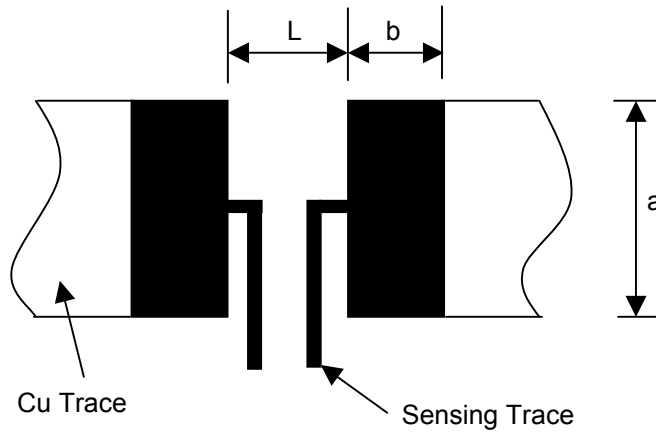
$$V = \sqrt{P \cdot R}$$

V:Rated Voltage(V)

P:Rated Power(W)

R:Resistance Value(Ω)

6. Recommended Solder Pad Dimension



Resistance Range (Ω)	a	b	L
0.001-0.002	4.0	3.1	1.3
0.003-0.050	4.0	2.1	4.1

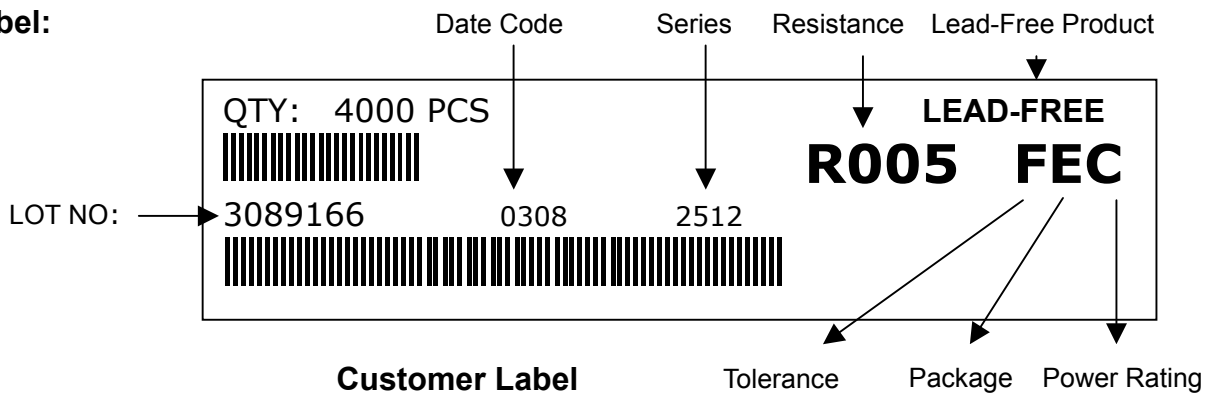
Unit:mm



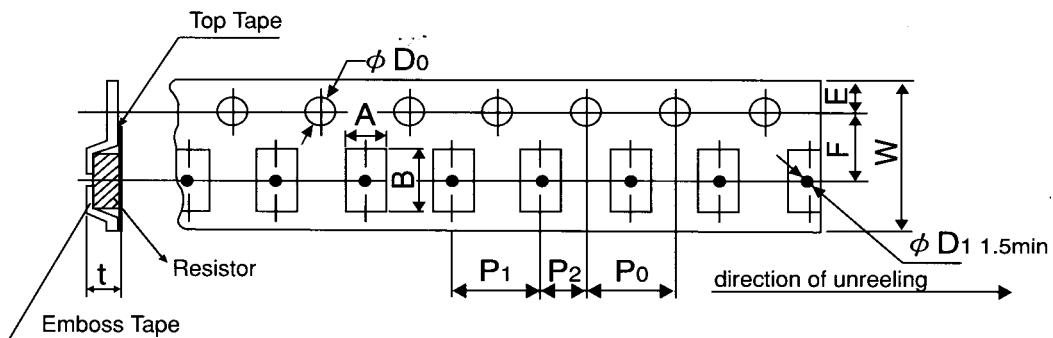
7. Number of Package:

4000 Pieces / package

8. Label:



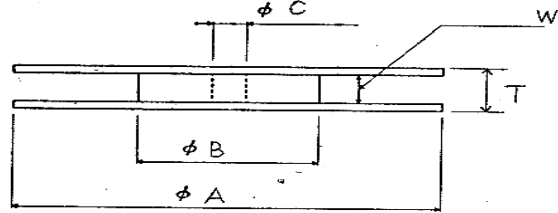
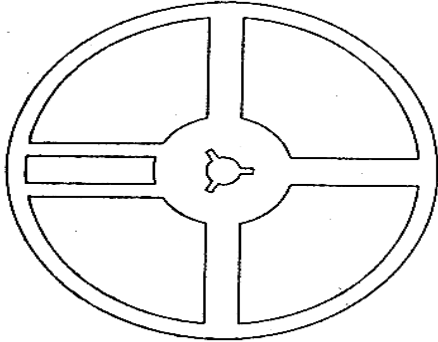
9. Taping



Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T
Emboss	CRLM	3.6±0.2	6.9±0.2	12±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	$\phi 1.5$ (+0.1/-0)	0.85±0.15



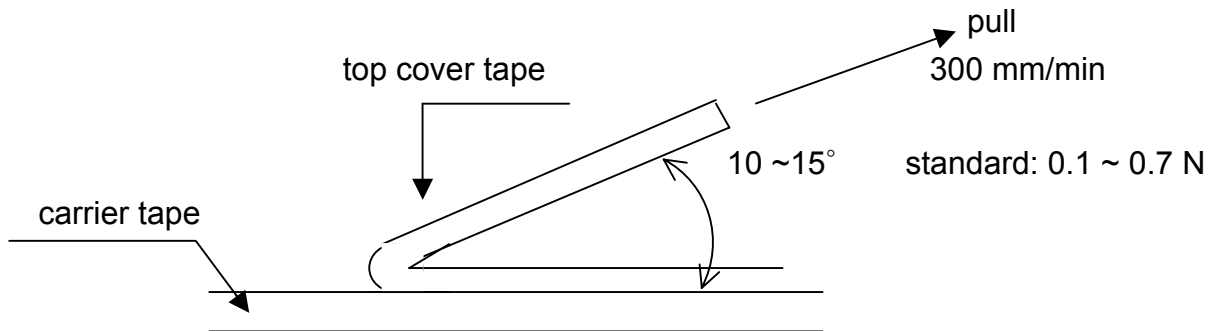
10. Reel Specification



Series	ϕA	ϕB	ϕC	W	T
RLM 25	180 ⁺⁰ ₋₃	60 min	13.0±1.0	13.0±1.0	15.4±2.0

11. Peeling Strength of Top Cover Tape

Test Condition: 0.1 to 0.7 N at a peel-off speed of 300 mm / min.



12. Storage Conditions:

Temperature: 5°C~35°C, Humidity: 40%~75%

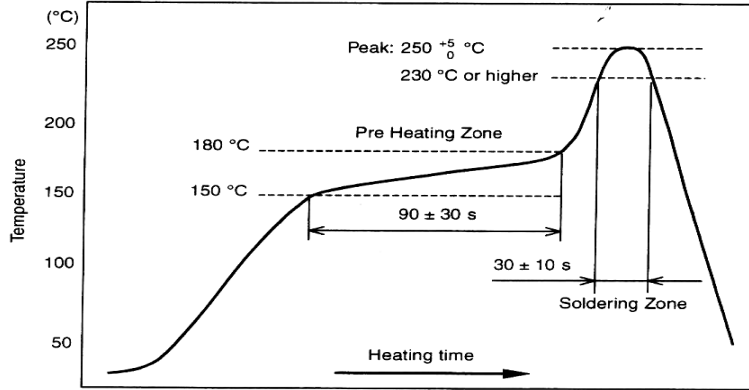
13. Shelf Life:

2 years from manufacturing date.



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14. Recommend IR – Reflow profile : (solder : Sn96.5 / Ag3 / Cu0.5)



Peak : $250 \begin{smallmatrix} +5 \\ -0 \end{smallmatrix} \text{ } ^\circ\text{C}$, 5 sec

Pre – heat Zone : 150 to 180 °C , 90±30 sec

Soldering Zone : 230°C or higher , 30±10 sec