



Lead-Free Current Sensing Resistors EBR Series (Halogen-Free)

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1. Scope :

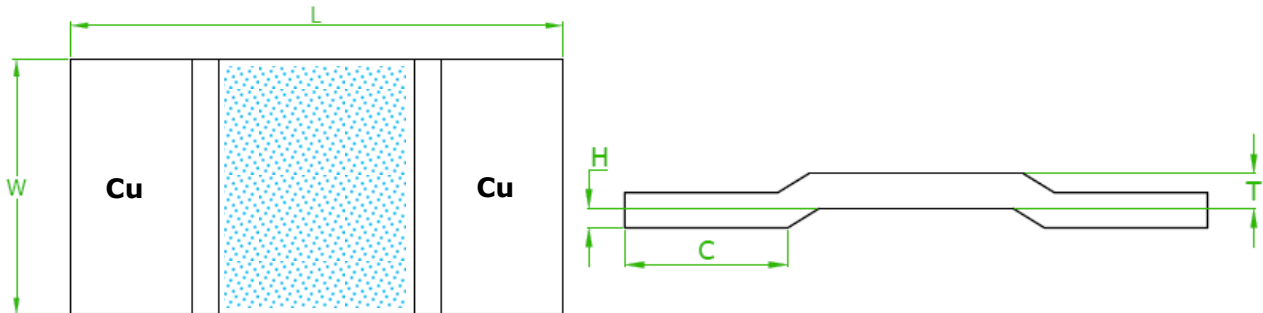
This specification applied to the products of Lead-Free current sensing resistor of metal alloy for Lead-Free EBR series manufactured by TA-I TECHNOLOGY CO.,LTD.

2. Type Designation :

EBR59	F	E	R001
Series No.	Tolerance	Package	Resistance
39→3920 59→5930	F = ± 1% G = ± 2% J = ± 5%	E= Embossed	R001=1 mΩ R50M=0.5 mΩ

Note: Load capacity (Power) refer 4.0 on page 2

3. Dimension :



Series	L	W	C	H	T
EBR59	15.00±0.20	7.6±0.40	4.2±0.3	0.5±0.1	Refer 4.0 on page 2
EBR39	10.00±0.30	5.2±0.30	2.2±0.2	0.5±0.1	Refer 4.0 on page 2

UNIT : mm



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4. Features:

Series	Size	Resistance Value (mΩ)	T Thickness (mm)	P ₇₀ Power (W)	Operation Temperature Range	TCR (ppm/°C)	Tolerance
EBR39	3920	0.3	1.35±0.1	5	-55°C~+170°C	±50	±1% ±2% ±5%
		0.5	0.81±0.1	5			
		1	1.22±0.1	4			
		2	0.62±0.1	4			
		3	0.41±0.1	4			
EBR59	5930	0.2	1.5±0.1	6			
		0.5	0.6±0.1	6			
		1	0.94±0.1	6			
		2	0.46±0.1	5			
		3	0.31±0.1	5			



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5. Reliability Tests:

Test Items	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1-4.8 JIS-C5201-4.8	+25°C ~ +125°C	Refer 4.0
Moisture no Load	IEC60115-1- 4.24.2.1a) JIS-C5201- 4.24.2.1a)	85°C , 85%RH, 1000hrs	< ±1%
Temperature cycle	IEC60115-1-4.19 JIS-C5201-4.19	-55°C & +155°C, 300cycle, 15min per extreme condition	< ±1%
Resistance to Soldering Heat	IEC60115-1-4.18 JIS-C5201-4.18	260±5°C for 10±1 sec	< ±0.5%
Solderability	IEC60115-1-4.17 JIS-C5201-4.17	245±5°C , 2±0.5sec	At least 95% of surface area of electrode shall be covered with new solder
High Temperature Exposure	IEC60115-1- 4.23.2 JIS-C5201-4.23.2	170°C , 1000hrs	< ±1%
Low Temperature Storage	IEC60115-1- 4.23.4 JIS-C5201-4.23.4	-55°C , 1000hrs	<±1%

5.1 Rated Current & Voltage

The rated Current and Voltage are calculated by the following formula:

$$I = \sqrt{P \div R}$$

I: Rated Current(I)

P: Rated Power(W)

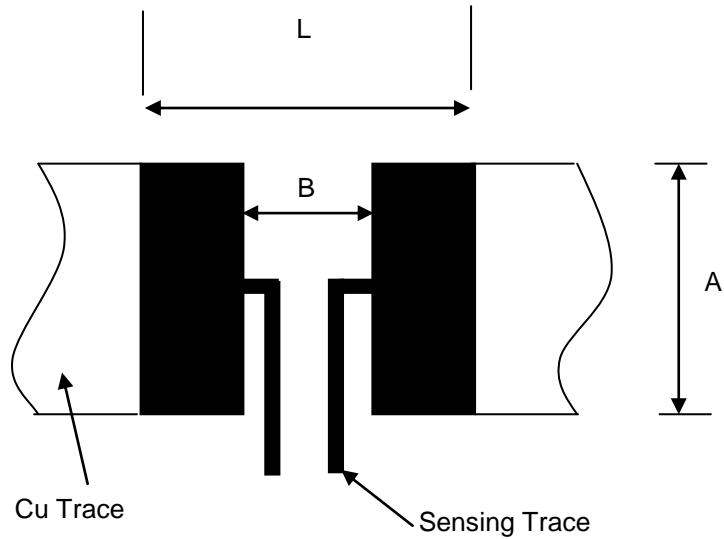
R: Resistance Value(Ω)



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6. Recommended Solder Pad Dimension

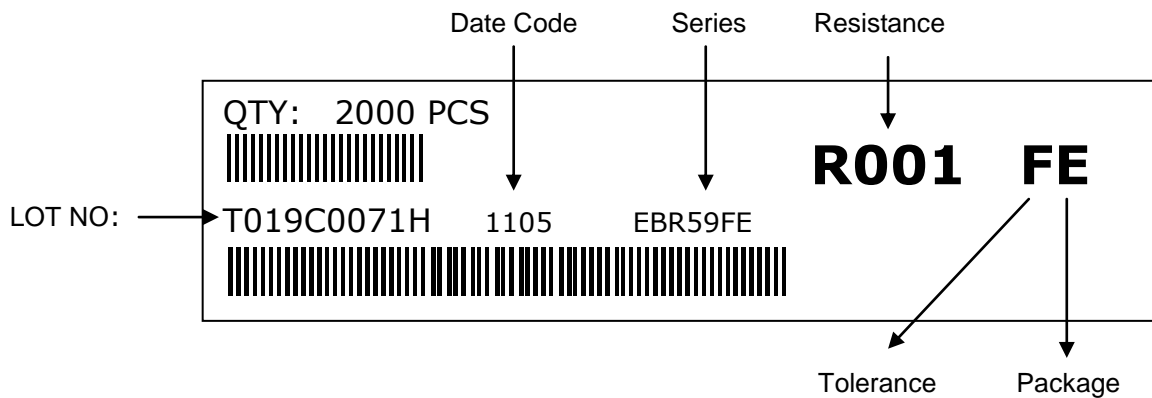


Unit: mm

Series	Resistance (mΩ)	A	L	B
EBR39	0.3 ~ 3	6.2	11	5.6
EBR59	0.2 ~ 3	8.75	16	5.6

Note: *The copper foil minimum thickness of PCB needs 3 oz

7. Label:

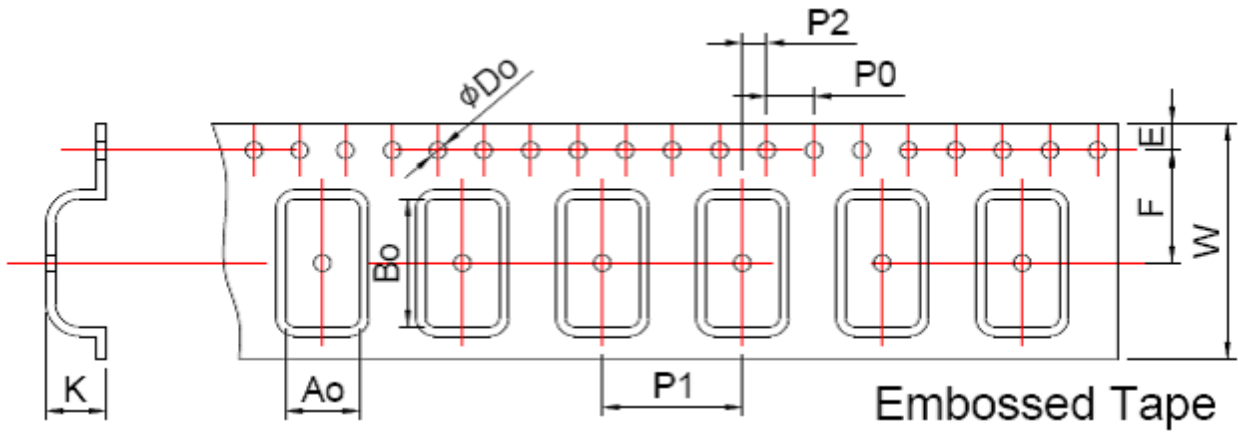




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8. Package



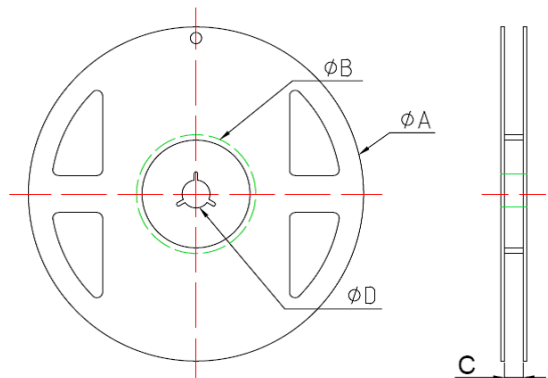
Tape packaging dimension											Unit: mm
Packing	Type	A0	B0	W	F	E	P1	P2	P0	D0	K
Embossed Tape	3920	6.0	11.0	24.0	11.2	1.55	12.0	6.0	12.0	1.5	2.0
	5930	8.3	15.6	24.0	10.8	1.55	12.0	6.0	12.0	1.5	2.4
Tolerance		±0.2	±0.20	±0.20	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10

9. Reel Specification

Number of Package		
Series	EBR39	EBR59
Pieces/Package	2500	2000

Unit: mm

Series	φ A	φ B	φ C	D
5930	330±2.0	100±1.0	25.2±0.5	13.0±0.2



10. Storage Conditions:

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

11. Shelf Life:

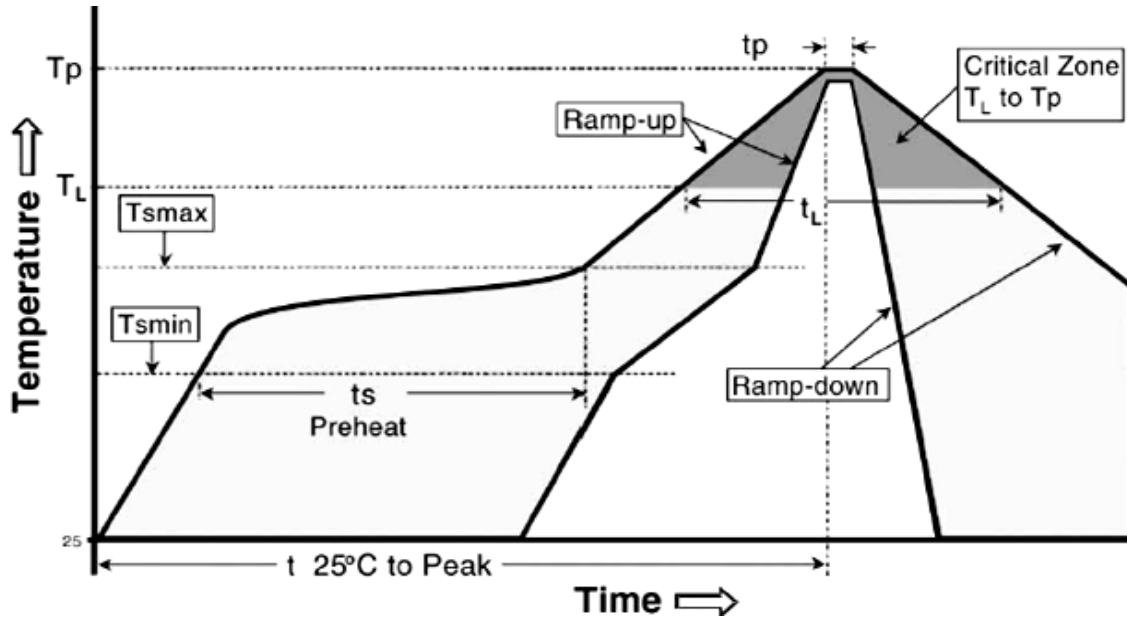
2 years from manufacturing date.



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



Alloyed Re-flow times : 3 times

Remark : To avoid discoloration phenomena of chip on terminal electrodes, please use N2 Re-flow furnace .

Iron Solder: $350 \pm 10^{\circ}\text{C}$, $3 + 1 / - 0$ sec, 1 time

Profile Feature	Lead (Pb)-Free Assembly
Average ramp-up rate (T_{smax} to T_p)	$3^{\circ}\text{C} / \text{second max.}$
Preheat - Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (T_{smin} to T_{smax}) (t_s)	150°C 200°C 60 -150 seconds
Time maintained above : - Temperature (T_L) - Time (T_L)	217°C 60-120 seconds
Peak Temperature (T_p)	260°C
Time within $+0^{\circ}\text{C}$ to -5°C of actual Peak Temperature (t_p) ²	10 seconds
Ramp-down Rate	$6^{\circ}\text{C}/\text{second max.}$
Time 25°C to Peak Temperature	8mimutes max.



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13. ECN

Engineering Change Notice: The customer will be informed with ECN if there is significant modification on the characteristics and materials described in Approval Sheet.

14. Manufacturing Country & City :

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