产品特点与应用 Features and applications

- **高功率、耐冲击及功耗小；**

  High power, shock resistant, low power loss;

- **耐高温、低温漂及高精度稳定性强；**

  High temperature endurance, ultra-low TCR, high precision & superior stability;

- **工作温度范围：-65℃ ~ +170℃；**

  Operating temperature range: -65℃ ~ +170℃;

- **无铅，符合 ROHS 要求，可非标定制；**

  Lead free, ROHS compliant, Customizable;

- **符合 AEC-Q200 特性测试。**

  AEC-Q200 qualified.



主要应用于 Applications：

- **电子电路中的电流采样和过流保护；**

  Current sampling and overcurrent protection in electronic circuits

- **新能源汽车控制电路和充电桩电路/传统汽车控制电路；**

  New energy vehicle control circuit and charging station circuit/ traditional vehicle control circuit

- **变频器及伺服电机控制电路；**

  Inverter and servo motor control circuit

- **开关电源、测量及测试仪器；**

  Switching power, measuring and testing instruments

- **锂电池、太阳能及通讯电源等控制电路；**

  Control circuits for lithium batteries, solar energy, and communication power sources

- **家用电器等多个领域。**

  Household appliances, etc.

EB3921 合金贴片电阻产品规格书

EB3921Alloy Resistor specification

规格型号 Part Number Information

EB 39 0M50 P1 F 7 T

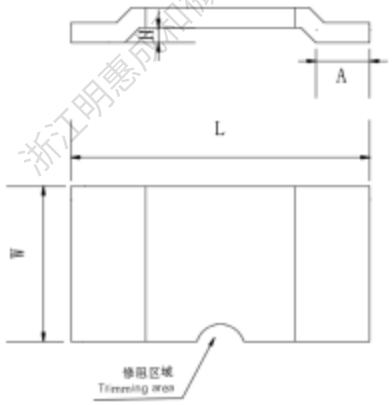
【1】【2】【3】【4】【5】【6】【7】

1	2	3	4	5	6	7
系列 Categor	尺寸 Size	电阻 Resistance	功率 Power	精度 Tolerance	温度系数 TCR	包装 Package
EB	3921	0m10=0.1 mΩ 0m50=0.5 mΩ R001=1 mΩ R010=10 mΩ	P1=1W P9=9W PA=10W PF=15W	D=±0.5% F=±1% G=±2% J=±5%	2=±20-29 ppm/℃ 5=±50-59 ppm/℃ 7=±70-79 ppm/℃ A=±100-109ppm/℃ G=±170-179ppm/℃	B=散装 bulk T=卷盘 reel P=托盘 tray

电气特性 Electrical characteristics

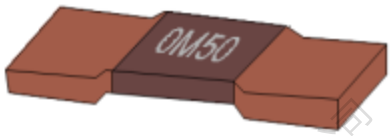
系列 Category	尺寸 Size	电阻(mΩ) Resistance	材料 Material	P70℃ Power (W)	温度系数（ppm/℃） TCR
EB	3921	0.1	MnSn	15	±300
		0.2		12	±175
		0.25		12	±175
		0.3	Mn	12	±100
		0.4		12	±100
		0.5		12	±75
		0.6		8	±75
		0.7		8	±75
		1		8	±50
		1	Ka	8	±50
		1	Fe	6	±50
		1.5	Ka	8	±50
		1.5	Fe	6	±50
		2	Ka/Fe	6	±50
		2.5	Ka	5	±50
		3	Ka/Fe	5	±50
		4		5	±50
		5		4	±50

外形尺寸 Outline dimension



系列 Category	尺寸 Size	阻值（mΩ） Resistance	L(mm)	W(mm)	H(mm)	A(mm)
EB	3921	0.1-大电极 0.1-Macroelectrode	10.00±0.20	5.20±0.20	0.5±0.15	3.30±0.20
		0.1-小电极 0.1-Microelectrode	10.00±0.20	5.20±0.20	0.5±0.15	2.00±0.20
		0.2~5	10.00±0.20	5.20±0.20	0.5±0.15	2.00±0.20

标识方式 Marking

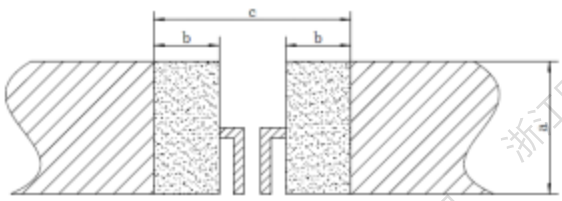


标识位数：4 位 Marker digit：4 digit

字码标识方式如下 Code identification as below：

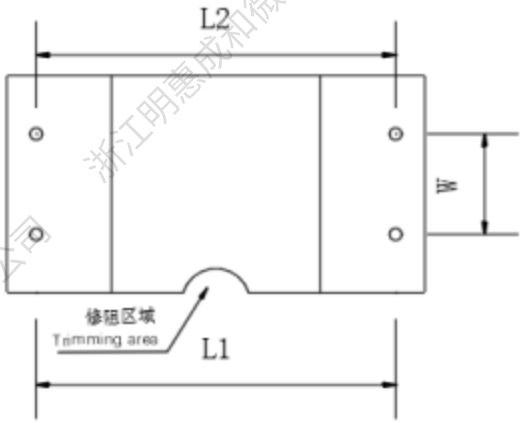
- 0M10=0.1mΩ; 0M20=0.2mΩ … … 2M50=2.5mΩ
- R001=1mΩ: R002=2mΩ … … R010=10mΩ

焊盘尺寸 Pad Size



系列 Category	尺寸 Size	阻值（mΩ） Resistance	c/mm	b/mm	a/mm
EB	3921	0.1-大电极 Macroelectrode	11	4.0	6.2
		0.1-小电极 Microelectrode	11	2.7	6.2
		≥0.2mΩ	11	2.7	6.2

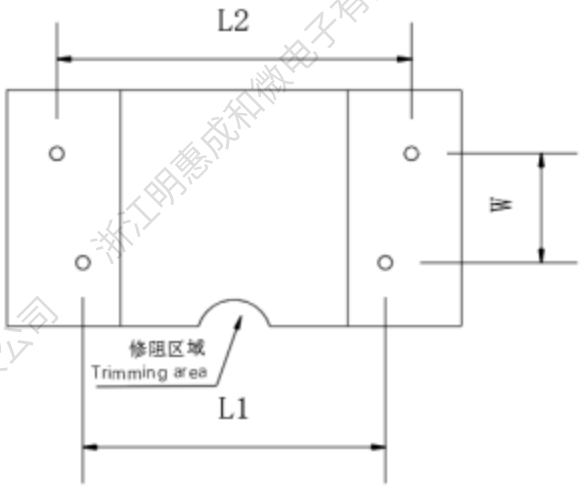
测试点位置 Test Point



系列 Category	尺寸 Size	L1(mm)	L2(mm)	W(mm)
EB	3921	8.6	8.6	2.4

注意：3921 0.1mΩ 大电极的电阻测试点按照下图进行。

Note: The test points of Model 3921 0.1 mΩ large-electrode resistors shall follow the diagram below.

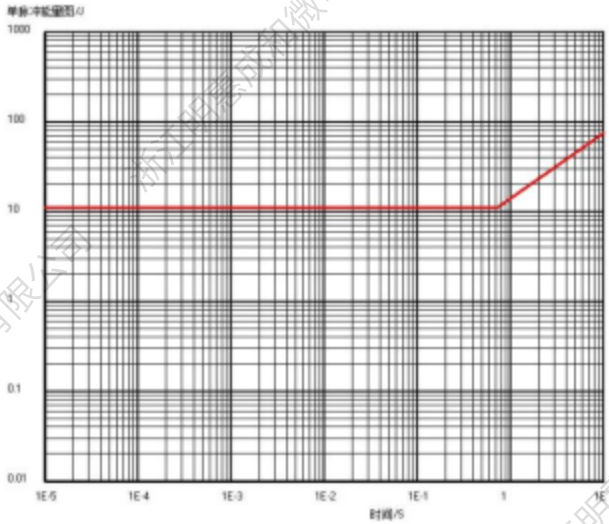


系列 Category	尺寸 Size	阻值 Resistance	L1(mm) 电压脚 voltage terminal	L2(mm) 电流脚 current terminal	W(mm)
EB	3921	0.1 mΩ (大电极) 0.1 mΩ (Macroelectrode)	5.1	7.8	2.4

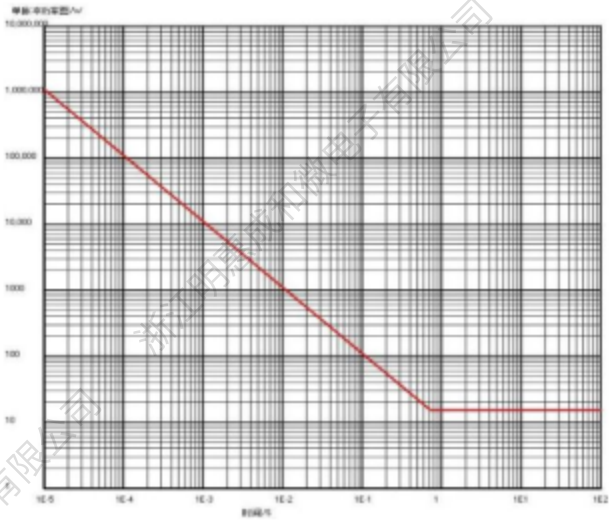
试验和要求 Tests and Requirements

NO.	测试项目 Test Item	条件 Test Condition	阻值变化极限 Limit	参考标准 Reference
1	阻值 Resistance	在室温 25℃±5℃下测量电阻值 Measured at room temperature 25℃±5℃	在规定值内 Within Spec.	IEC60115-1 6.1
2	温度系数 TCR	测量点 25℃和+125℃ Measurement 25℃,+125℃; reference+25℃	在规定值内 Within Spec.	MIL-STD-202 Method 304
3	短时过载 Short time overload	5 倍额定功率，5s 5 times of the rated power for 5 seconds	-1%≤ΔR≤1%	IEC60115-1 8.1
4	高温存储 High Temperature Exposure	1000 小时 170℃，不加载 1000 hours@170℃， Un-powered	-1%≤ΔR≤1%	MIL-STD-202 Method 108
5	温度循环 Temperature cycling	-55℃(15 min)+155℃(15min), 1000 循环 Dwell Time 15 minutes,1000 cycles	-1%≤ΔR≤1%	JESD22 Method JA-104
6	负荷寿命 Operational Life	70℃± 2℃，额定功率通电 1.5H，断电 0.5H,1000H 70℃± 2℃,1000 hours at 70±2℃; applied rated power, 1.5 hours on, 0.5 hour off	-1%≤ΔR≤1%	MIL-STD-202 Method 108
7	机械冲击 Mechanical Shock	100 g's，6 ms，半正波 12.3ft/s Half-sine; Velocity change: 12.3ft/s 各方向 3 次（18 次） 3 shocks in each direction along the 3 mutually perpendicular axes(totally 18 times)	-1%≤ΔR≤1%	MIL-STD-202 Method 213
8	震动试验 Vibration	10 Hz 到 2000 Hz，20min, 3 轴，12 周期 5g's for 20 minutes, 10Hz~2000Hz, 12cycles each of 3 orientations	-1%≤ΔR≤1%	MIL-STD-202 Method 204
9	耐焊接热 Resistance to Soldering Heat	260±5℃，10±1s Immerse the specimen into the solder pot at 260±5℃ for 10±1s	-0.5%≤ΔR≤ 0.5%	MIL-STD-202 Method 210
10	可焊性 Solderability	260℃， 5s	覆盖率≥95% 95% Coverage Minimum	J-STD-002
11	高温高湿 Biased Humidity	+85℃, 85% RH, 10%额定功率, 1000 h 10 % of rated power, 1000h	-1%≤ΔR≤1%	MIL-STD-202 Method103
12	基板弯曲试验 Board Flex	弯曲距离：2mm,60+5s Distance:2mm,60+5s holding time	-1%≤ΔR≤1%	AEC-Q200-005

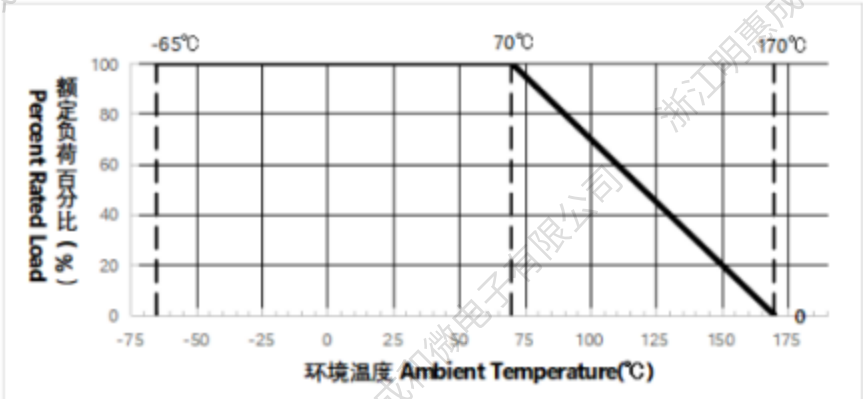
脉冲能量图 Pulse Energy Pattern (0.2mΩ)



脉冲功率图 Pulse Power Diagram (0.2mΩ)

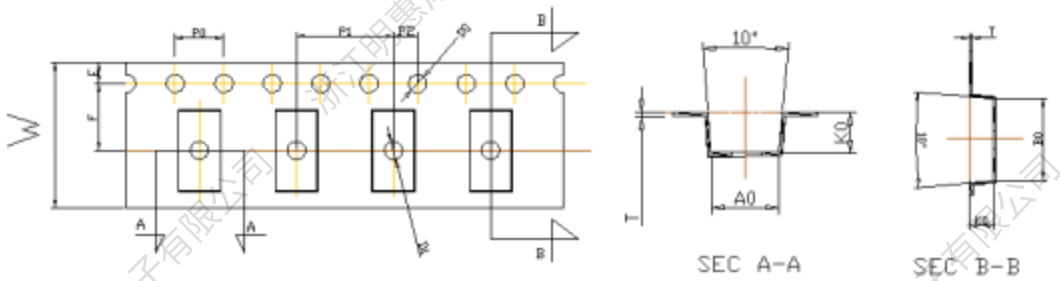


降耗曲线 Derating Curves of Dissipation



包装 Packaging

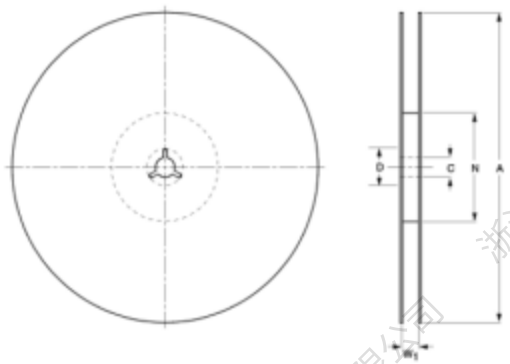
1. 载带尺寸 Embossed Tape Dimensions



系列 Category	尺寸 Size	A0(mm)	B0(mm)	W(mm)	E(mm)	F(mm)	T(mm)
EB	3921	5.65±0.10	10.50±0.10	24.00±0.30	1.75±0.10	11.50±0.10	0.30±0.05
		P0(mm)	P1(mm)	P2(mm)	D0(mm)	D1(mm)	K0(mm)
		4.00±0.10	12.00±0.10	2.00±0.10	1.50±0.10	1.50±0.10	1.50±0.10

系列 Category	尺寸 Size	A0(mm)	B0(mm)	W(mm)	E(mm)	F(mm)	T(mm)
EB	3921	5.50±0.10	10.30±0.10	24.00±0.30	1.75±0.10	11.50±0.10	0.30±0.05
		P0(mm)	P1(mm)	P2(mm)	D0(mm)	D1(mm)	K0(mm)
		4.00±0.10	12.00±0.10	2.00±0.10	1.50±0.10	1.50±0.10	2.00±0.10

2. 卷盘尺寸 Reel Dimensions



系列 Category	尺寸 Size	A(mm)	N(mm)	C(mm)	D(mm)	W1（mm）
EB	3921	330.0±2.0	100.0±1.0	13.5±0.5	21±0.8	24.2+2/-0

3. 包装数量 Quantity of Package

系列 Category	尺寸 Size	电阻 Resistance(mΩ)	数量(pcs) Quantity(pcs)	胶盘尺寸 Reel size
EB	3921	0.1	2000	330.0±2.0
		0.2	2500	
		0.25		
		0.3		
		0.4		
		0.5	3000	
		0.6		
		0.7		
		1-Mn		
		1.5		
		2		
		2.5-Ka		
		3		
		4		
		5		
		1-Ka/Fe	2500	