

规格书

SPECIFICATION

丽智电子（南通）有限公司

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低阻分流器贴片电阻规格书-RZ1216

Approval Specification Low-Resistance Shunt Chip Resistors-Type **RZ 1216**

1.范围 (scope) :

1.1 适用于本公司所生产的无铅、无卤之低阻分流器合金贴片电阻 RZ1216 产品

This specification applies to Low-Resistance Shunt resistors of RZ 1216 which meet requirements of Pb free and halogen free.

1.2 符合 AEC-Q200 条款

The relevant provisions of the AEC-Q200

2.产品料号 (Part number) :

For example: 1216 1% 5W 0.5mΩ

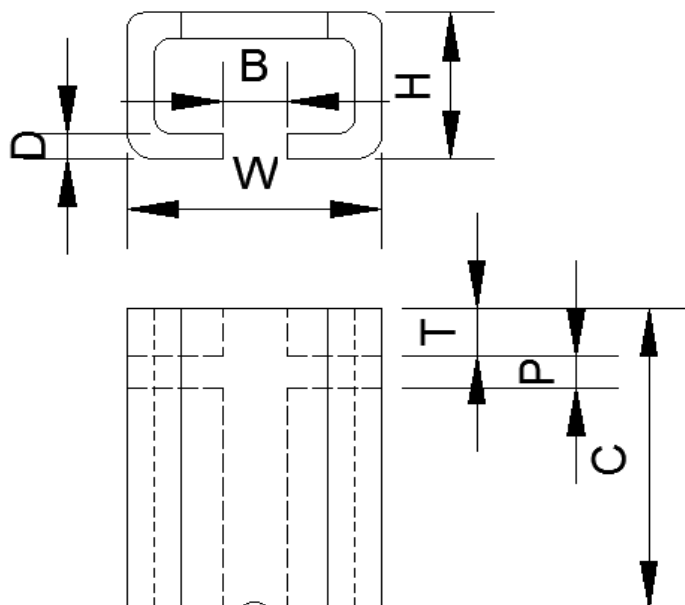
RZ1216FR0L50G4

<u>RZ</u>	<u>1216</u>	<u>F</u>	<u>R</u>	<u>0L50</u>	<u>G</u>	<u>4</u>
↓	↓	↓	↓	↓	↓	↓
类型 Type RZ:低阻分流器 贴片电阻 Low-Resistance Shunt chip resistors	尺寸 Size 1216	精度 Tolerance F=±1% J=±5%	功率 Rated Power R=5W C=3W	阻值 Resistance value 0L50=0.5mΩ R001=1mΩ	包装代码 Packing Code G=reel (卷装) V=bulk (散料)	4 端子结构 4 termination construct

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3.尺寸 (Dimension) :



类别 Type	W (mm)	H (mm)	B (mm)	D (mm)	C (mm)	P (mm)	T (mm)
RZ 1216	3±0.2	1.8±0.2	0.95±0.3	0.3±0.1	3.8±0.2	0.7±0.1	0.5±0.1

4.分流器本体字码标示(Marking on the Shunt Resistor's Body):

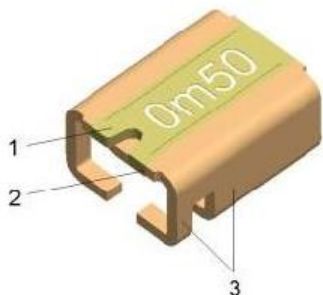
±1%, ±5%的产品，以四字码标示，第一位字码“R”标示 10^{-3} ，后三位表示阻值的有效数字。第二位字码“L”表示阻值小数点。

±1%, ±5% tolerance product: the marking is 4 digits, The first letter 'R' denotes 10^{-3} , The other three digitals declare resistance. The second letter 'L' mean point.

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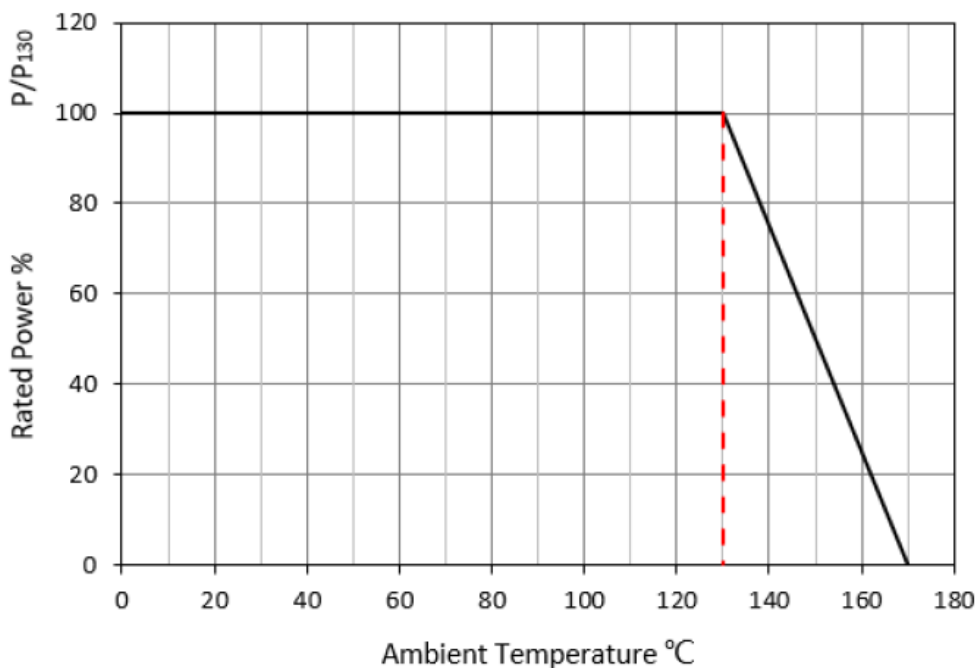
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5. 束焊合金电阻结构 (Electron Beam Welding Alloy Construct)



1. 电阻元件：锰铜合金，低TCR合金本体。
2. 电子束焊接结构稳定可靠。
3. 纯紫铜四端子取样。

6. 功率衰减曲线 (Power Derating Curve) :



储存条件 (storage condition) : 5~35°C, 40~75%RH.

保存期限(Shelf Life): 2 年

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7. 阻值范围及电气特性 (Resistance Range and Electrical Characteristics) :

型别 Type	额定功率 Rated Power	阻值范围 Resistance Range	温度特性TCR (ppm/°C)	操作温度 Operation Temperature
		F(±1%)、J(±5%)		
RZ1216	5W	0.5mΩ	± 100	-55°C~+170°C
	3W	1mΩ		

8.性能(Performance Specifications)

内容 Item	测试方法 Test Methods	测试条件 Test Conditions	规格 Specification
温度系数 Temperature Coefficient	IEC60115-1 4.8	$TCR = (R - R_0) / (t - t_0) R_0 \times 10^6 \text{ (ppm)}$ <p>R₀ 电阻在室温下的阻值(resistance at room temperature) R 电阻在 125°C 下的阻值(resistance at 125°C) t₀ 室温(room temperature) t 测试温度 125°C (test temperature 125°C)</p>	参照规格表 As Spec.
高温储存 High Temperature Exposure	MIL-STD-202 Method 108	170°C下放置 100H, 试验结束 24±4 小时后量测 试验前后阻值变化率. 100 hrs. @T=170°C. Measure the variation of resistance at 24±4 hours after test conclusion. $\Delta R\% = (R_2 - R_1) / R_1 * 100 \text{ ---- (\%)}$ R1 = 试验前阻值(resistance before test) R2 = 试验后阻值(resistance after test)	< ±0.5%
低温储存 Low Temperature operation	IEC60115-1 4.23.4	-55°C下放置 45 分钟, 后量测试验前后阻值变化 率. 45 min. @T=-55°C. Measure the variation of resistance after test conclusion. $\Delta R\% = (R_2 - R_1) / R_1 * 100 \text{ ---- (\%)}$ R1 = 试验前阻值(resistance before test) R2 = 试验后阻值(resistance after test)	< ±0.5%

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内容 Item	测试方法 Test Methods	测试条件 Test Conditions	规格 Specification
温度循环 Temperature cycling	JESD22 Method JA-104	-55℃&+150℃, 循环 1000 次, 试验结束 24±4 小时后量测试前后阻值变化率. 1000Cycles (-55℃ to +125℃) Measurement at 24±4 hours after test conclusion. Measure the variation of resistance at 24±4 hours after test conclusion. $\Delta R\% = (R2 - R1) / R1 * 100 \text{-----} (\%)$ R1 = 试验前阻值(resistance before test) R2 = 试验后阻值(resistance after test)	<±0.5%
短时间过负荷 Short-time overload	IEC60115-1 4.13	加载 5 倍的额定功率, 时间 5 秒后测量试验前 后的阻值变化率。 Applied 5.0 times of rated power for 5 second. Measure the variation of resistance. $\Delta R\% = (R2 - R1) / R1 * 100 \text{-----} (\%)$ R1 = 试验前阻值(resistance before test) R2 = 试验后阻值(resistance after test)	<±0.5%
耐湿特性 Biased Humidity	MIL-STD-202 METHOD 103	加载 10% 额定功率, 85℃/85%RH, 持续通电 1000H, 试验结束 24±4 小时后进行测试 1000 hours 85℃/85%RH. Note: Specified conditions: 10% of operating power. Measurement at 24±4 hours after test conclusion. $\Delta R\% = (R2 - R1) / R1 * 100 \text{-----} (\%)$ R1 = 试验前阻值(resistance before test) R2 = 试验后阻值(resistance after test)	<±0.5%

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内容 Item	测试方法 Test Methods	测试条件 Test Conditions	规格 Specification
负荷寿命 Operational life	MIL-STD-202 METHOD 108	电阻放入恒温箱中，温度 $125 \pm 2^\circ\text{C}$ ，通电额定电流 1.5 小时，断电 0.5 小时；重复通断电至试验时间 $1000 +48/-0$ 小时。量测试验前后阻值变化率。 Put the specimen in a chamber at $125 \pm 2^\circ\text{C}$ temperature, and applied rated Current for 1.5H and rested for 0.5H repeatedly till total test time is $1000 +48/-0$.. Measure the variation of resistance. $\Delta R\% = (R2 - R1) / R1 * 100 \text{-----} (\%)$ R1 = 试验前阻值(resistance before test) R2 = 试验后阻值(resistance after test)	$< \pm 0.5\%$
焊锡性 Solderability	J-STD-002B test B	沾助焊剂后浸入锡炉，锡炉温度 $250 \pm 5^\circ\text{C}$ ，时间 5 秒 Dip the terminal in a flux and then dip into a soldering bath at $250 \pm 5^\circ\text{C}$ for 5sec.	最少 95% 面积上锡(Min 95% coverage)
抗焊锡热 Resistance to soldering heat	IEC60115-1 4.18	沾助焊剂后浸入锡炉，锡炉温度 $260 \pm 5^\circ\text{C}$ ，时间 10 ± 1 秒，测量试验前后的阻值变化率。 Dip the terminal in a flux and then dip into a soldering bath at $260 \pm 5^\circ\text{C}$ for 10 ± 1 sec. Measure the variation of resistance. $\Delta R\% = (R2 - R1) / R1 * 100 \text{-----} (\%)$ R1 = 试验前阻值(resistance before test) R2 = 试验后阻值(resistance after test)	$< \pm 0.5\%$
振动 Resistance to vibration	MIL-STD-202 METHOD 204	5g's 的力 20 分钟，12 个循环，测试频率从 10-2000 赫兹，量测试验前后阻值变化率。 5g's for 20min.12cycles, 10-2000Hz . Measure the variation of resistance. $\Delta R\% = (R2 - R1) / R1 * 100 \text{-----} (\%)$ R1 = 试验前阻值(resistance before test) R2 = 试验后阻值(resistance after test)	$< \pm 0.5\%$

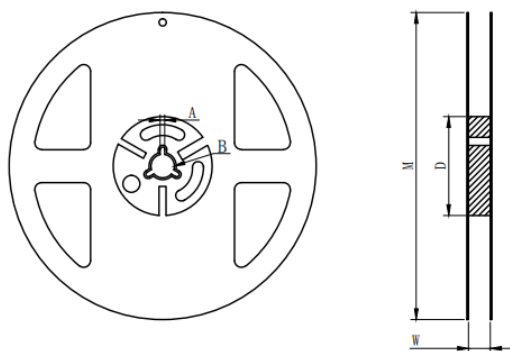
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内容 Item	测试方法 Test Methods	测试条件 Test Conditions	规格 Specification
冷热冲击 Thermal shock	MIL-STD-202 METHOD 107	温度-55/+150℃，周期数是 300,设备安装。最大传输时间是 20 秒，停留 15 分钟。 use -55/+150 ℃, Number of cycles is 300. Devices mounted. Maximum transfer time is 20 seconds. Dwell time is 15 minutes. Air –Air $\Delta R\% = (R2 - R1) / R1 * 100 \text{-----} (\%)$ R1 = 试验前阻值(resistance before test) R2 = 试验后阻值(resistance after test)	<±0.5%

9.包装规格 (Tapping Specification)

9.1 卷盘尺寸 (reel dimension)

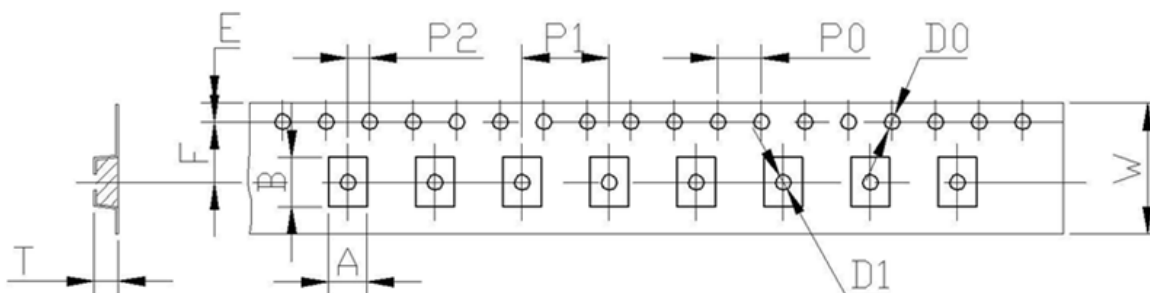


Reel Type	A(mm)	W(mm)	M(mm)	D(mm)	B(mm)
RZ1216	2.0±0.5	21±1.0	178±2.0	60±1.0	13±0.5

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9.2 包装尺寸及数量 (Packing Style And Packaging Quantity)

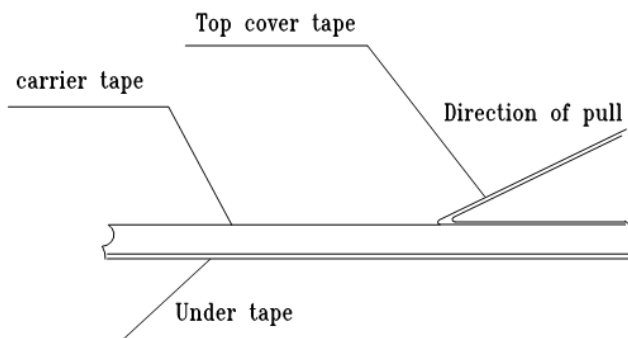


Type	A(mm)	B(mm)	W(mm)	E(mm)	F(mm)	P0(mm)	P1(mm)	P2(mm)	D0(mm)	D1(mm)	T(mm)	数量(pcs)
RZ1216	3.4 ±0.1	4.2 ±0.1	16 ±0.2	1.75 ±0.1	7.5 ±0.1	4 ±0.1	8 ±0.1	2 ±0.1	1.5 ±0.1	1.4 ±0.1	2.2 ±0.2	3000

10. 上胶带剥离力测试 (Peel force of top cover tape)

上胶带以 300mm/分钟的速度，沿 165~180 度角的方向进行剥离，如下图所示。纸带的剥离力范围为 10g~70g；载带的剥离力范围为 30~100g

The top cover tape is pulled at a speed of 300 mm/min with the angle between the tape during peel and the direction of unreeling maintained at 165 to 180 degree as following picture. The peel force of paper carrier tape shall be 0.1N to 0.7N(10 to 70 g), the peel force of plastic carrier tape shall be 0.3N to 1N (30 to 100 g)

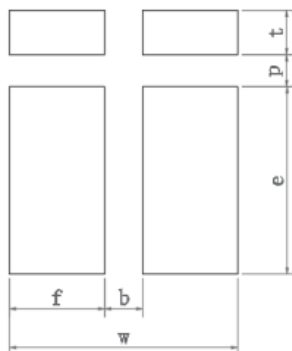


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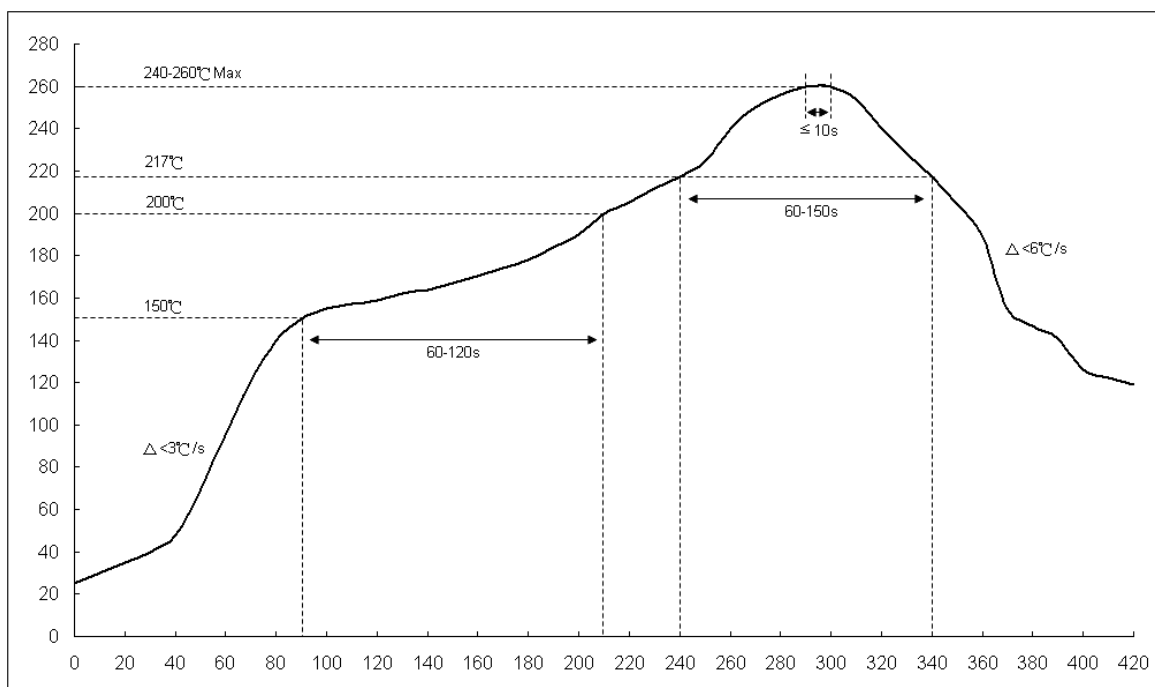
11.焊接 (soldering)

11.1 建议焊盘尺寸 (Recommended Solder Pad Dimension)



类别 Type	w(mm)	b(mm)	f(mm)	e(mm)	p(mm)	t(mm)
RZ1216	3.6±0.25	0.6±0.25	1.5±0.25	2.95±0.25	0.5±0.25	0.9±0.25

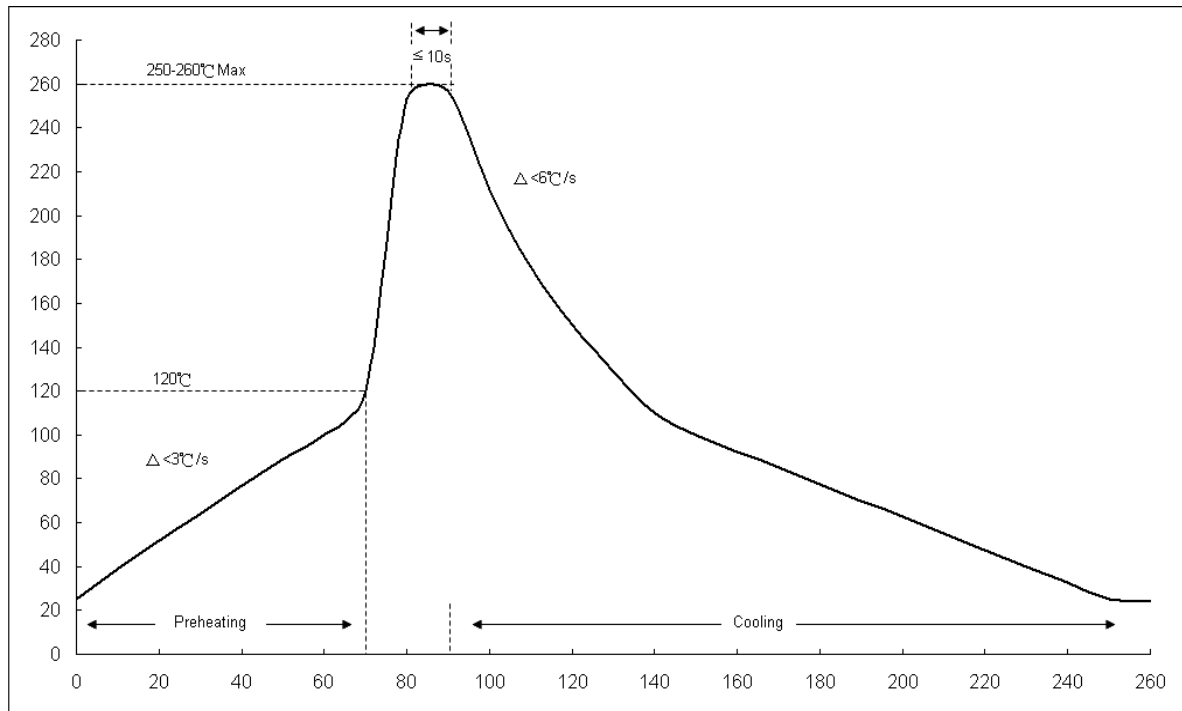
11.2 建议回流焊曲线 (Recommend reflow soldering profile)



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11.3 建议波峰焊曲线（Recommend wave soldering profile）



11.4 手工焊温度（hand soldering temperature）

烙铁温度 $350 \pm 10^{\circ}\text{C}$ ，3 秒之内，避免烙铁接触电阻本体

The iron temperature is $350 \pm 10^{\circ}\text{C}$, hand soldering time less than 3S. Avoid solder iron tip direct touch the components body

★所有产品规格改变不再另行通知

★All product specification and data are subject to change without notice.