

晶片厚膜排列电阻 Thick Film Chip Resistor Array FRA Series



应用(Application)

- Terminal for SDRAM and DDRAM
- Computer applications : laptop ; desktop
- Consume electronic equipments : PDAs ; PNDs
- Mobile phone telecom...
- SDRAM 和 DDRAM 终端
- 计算机应用
- 消费电子设备 : PDA ; PND
- 手机, 电信等

特性(Features)

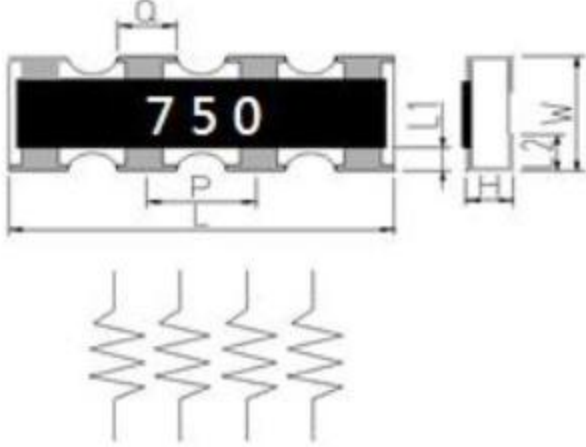
- Small size and light weight
- Reliability, high quality
- Saving of PCB space
- 体积小, 重量轻
- 可靠性, 高质量
- 节省空间

料号说明(Parts Number Explanation) :

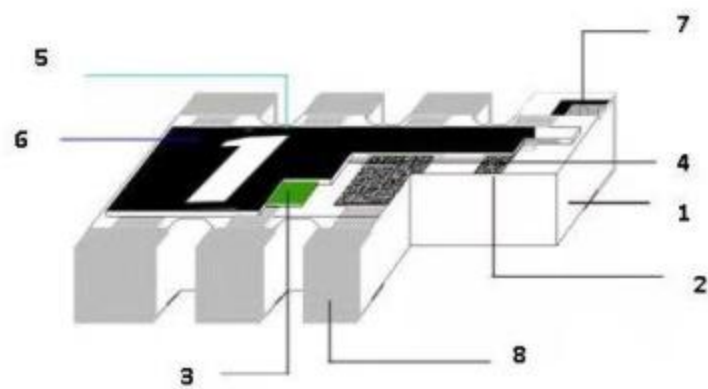
示例 Example: FRA064RJ750 TS

E 公司名	R 产品别	A 功能别	064R 型别	J 公差	103 字码	I 包装别	S 端电极	特殊型
FOJAN	R:Resistor C:Capacitor L:Inductor D:Diode A:Audion	C:Normal P:Hi-Power L:Lowohmic A:Array S:Surge H:Hi-Precision V:Hi-Voltage Q:Auto-motive R:Anti-sulfur M:Metal D: (LED)	064R 044R	B:±0.1% C:±0.25% D:±0.5% F:±1% J:±5% P : Jumper	±5%:E24 3-digits+blank 102=1KΩ 1R0=1Ω ±1%&Below : E24+E96 : 4-digits 1001=1KΩ 1R00=1Ω	T: 7 inch reel Q:10 inch reel R:13 inch reel B:Bulk	S : Sn C : Cu A : Au	N: Normal D : LED
Company code	Type code	Functional code	Size code	Tolerance code	Resistance code	Packaging code	Termination code	Special code

■尺寸 (Dimension)

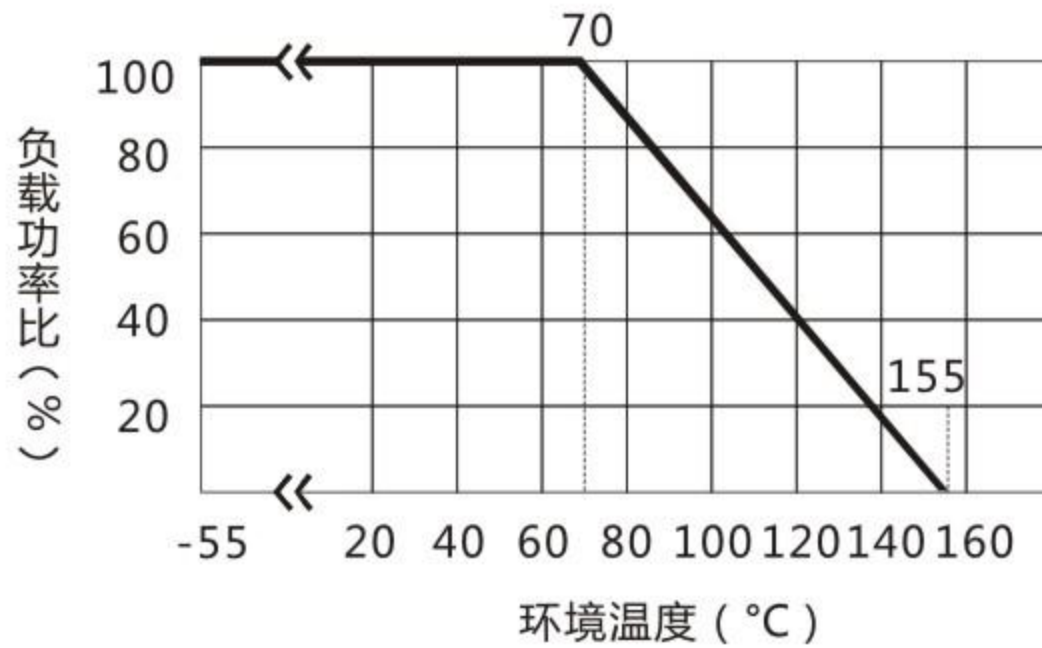
尺寸 dimension								单位 (unit) : mm
	型别 (Type)	L	W	H	L1	Q	P	L2
064R	3.20±0.15	1.60±0.15	0.60±0.10	0.30±0.15	0.50±0.15	0.80±0.15	0.30±0.15	
044R	2.00±0.10	1.00±0.10	0.45±0.10	0.20±0.10	0.30±0.10	0.50±0.10	0.20±0.10	

■电阻结构 (Construction)



NO.	结构 construction	主要材料 Major material
1	陶瓷基板 Ceramic substrate	三氧化二铝 Al ₂ O ₃
2	银电极 Conductive layer	银 Ag
3	阻体层 Resistive layer	氧化钌+玻璃 RuO ₂ + glass
4	内保护层 Inner protective layer	玻璃 Glass
5	外保护层 Outer Protective layer	环氧树脂 Epoxy
6	文字 Marking	环氧树脂 Epoxy
7	镍电极 Ni plating layer	镍 Ni
8	锡电极 Sn plating layer	锡 Matte Tin

■功率衰减曲线 (Derating Curve)



■电性规格 (Standard Electrical Specifications)

型别 Type	额定功率 (Power Rating at 70°C)	最高工作电压 Max. RCWV	最大过负荷电压 Max. Overload Voltage	绝缘耐压 Dielectric Withstanding Voltage	T.C.R. (PPM/°C)	阻值范围 Resistance Range
064R	1/10W	50V	100V	100V	± 200	1Ω~1MΩ
044R	1/16W	25V	50V	100V	± 250	1Ω~10Ω
					± 200	10Ω~1MΩ

如有非标准品的需求,请联系我们的业务部门 For non-standard parts, please contact our sales dept.

■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	JIS C 5201 4.8	$TCR = (R - R_0) / (t - t_0) R_0 \times 10^6$ (ppm) R_0 电阻在室温下的阻值(resistance at room temperature) R 电阻在 125°C或-55°C下的阻值(resistance at 125°C or -55°C) t_0 室温(room temperature) t 测试温度 (test temperature 125°C or -55°C)	044R : 1Ω<R≦10Ω: ±250 PPM/°C 10Ω<R≦1MΩ: ±200 PPM/°C 064R : ±200 PPM/°C

内容 Item	测试方法 Test Methods	测试条件 Test Conditions	规格 Specification
短时间过负荷 Short-time overload	JIS C 5201 4.13	加载 2.5 倍的额定电压 ,时间 5 秒后测量试验前后的阻值变化率。 Applied 2.5 times of rated voltage for 5 second. Measure the variation of resistance.	$\pm(1.00\% + 0.05\Omega)$
焊锡性 Solderability	JIS C 5201 4.17	沾助焊剂后浸入锡炉，锡炉温度 $245\pm 5^{\circ}\text{C}$ ，时间 3 ± 0.5 秒。 Dip the terminal in a flux and then dip into a soldering bath at $245\pm 5^{\circ}\text{C}$ for $3\pm 0.5\text{sec}$.	> 95%面积上锡 (> 95% coverage)
抗焊锡热 Resist to soldering heat	JIS C 5201 4.18	沾助焊剂后浸入锡炉，锡炉温度 $260\pm 5^{\circ}\text{C}$ ，时间 10 ± 0.5 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 $10\pm 0.5\text{sec}$. Measure the variation of resistance.	$\pm(1.00\% + 0.05\Omega)$
绝缘电阻 Insulation resistance	JIS C 5201 4.6	电阻本体上加载绝缘耐压 60 ± 5 秒后，测量绝缘阻抗。 Applied the dielectric withstanding voltage on the center of body for $60\pm 5\text{seconds}$. Then measure insulation resistance.	$>10\text{G}\Omega$
绝缘耐压 Dielectric withstanding voltage	JIS C 5201 4.7	电阻本体上加载绝缘耐压 60 ± 5 秒。 Applied the dielectric withstanding voltage on the center of body for $60\pm 5\text{seconds}$.	无击穿、飞弧及可见机械性损伤 No evidence of flashover, mechanical damage arcing or insulation breakdown

内容 Item	测试方法 Test Methods	测试条件 Test Conditions	规格 Specification
端子弯曲 Terminal bending	JIS C 5201 4.33	电阻焊接在测试板上进行弯折,弯折保持时间 20±1 秒, 1206(含) 以下的尺寸弯曲 5+0.2/0 mm; 1206 以上的尺寸弯曲 2+0.2/0 mm; 量测试前后阻值变化率 Specimen shall be mounted on test board, then bend the board and maintained for 20±1s. the distance of bending is 5+0.2/0 mm for resistors which size no larger than 1206 or 2+0.2/0 mm which size larger than 1206. Measure the variation of resistance.	±(1.00% +0.05Ω)
温度循环 Temperature Cycling	JIS C 5201 4.19	电阻放入温度循环机中,温度 155±2℃ 至-55±3℃, 共 5 个循环。量测试前后阻值变化率。 Put specimen in a chamber which temperature can be changed to 155±2℃ or -55±3℃, repeated 5 times. Measure the variation of resistance.	±(2.00% +0.05Ω)
耐湿特性 Humidity	JIS C 5201 4.24	电阻放入恒温恒湿箱, 温度 40±2℃, 湿度 90~95 %RH;通电额定电压 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。量测试前后阻值变化率。 Put the specimen in a chamber at 40±2℃ temperature and 90~95% relative humidity, then applied rated voltage for 1.5H and rested for 0.5H repeatedly till total test time is 1000 ^{+48/-0} H. Measure the variation of resistance.	±(2.00% +0.05Ω)
负荷寿命 Load life	JIS C 5201 4.25.1	电阻放入恒温箱中,温度 70±2℃, ON TIME:1.5H, OFF TIME:0.5H, 通电额定电压 1000 ^{+24/-0} 小时,量测试前后阻值变化率。 Put the specimen in a chamber at 70±2℃ temperature, ON TIME:1.5H OFF TIME:0.5H, and applied rated voltage for 1000 ^{+24/-0} H. Measure the variation of resistance.	±(2.00% +0.05Ω)
温湿循环 Moisture resistance	MIL-STD-202 METHOD 106	25℃~65℃,90~100%RH, 2.5 小时; 65℃ 90~100%RH, 3 小时; 65℃~25℃,80~100%RH,2.5 小时,10 个循环,试验结束 24±4 小时后进行测试。 25℃~65℃,90~100%RH, 2.5H; 65℃ 90~100%RH, 3H; 65℃~25℃ 80~100%RH, 2.5H, 10 cycles, Measurement at 24±4 hours after test conclusion.	±(2.00% +0.05Ω)