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

FOSAN SEMICONDUCTOR

FOJAN
富捷电阻

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

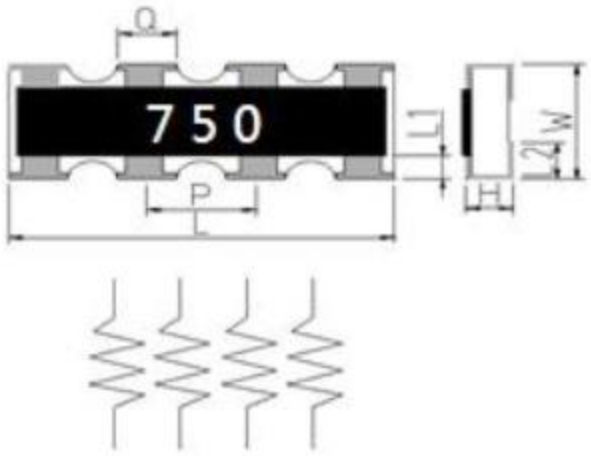
▪料号说明(Parts Number Explanation)：

示例 Example:　FRA064RJ750 TS

F 公司名	R 产品别	A 功能别	064R 型别	J 公差	103 字码	T 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)

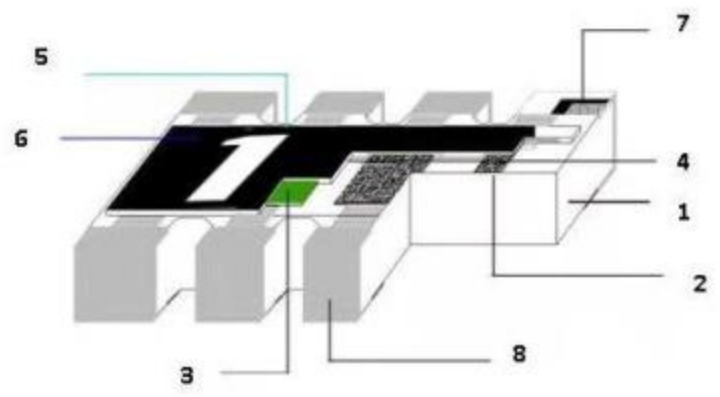
尺寸
dimension



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_2O_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

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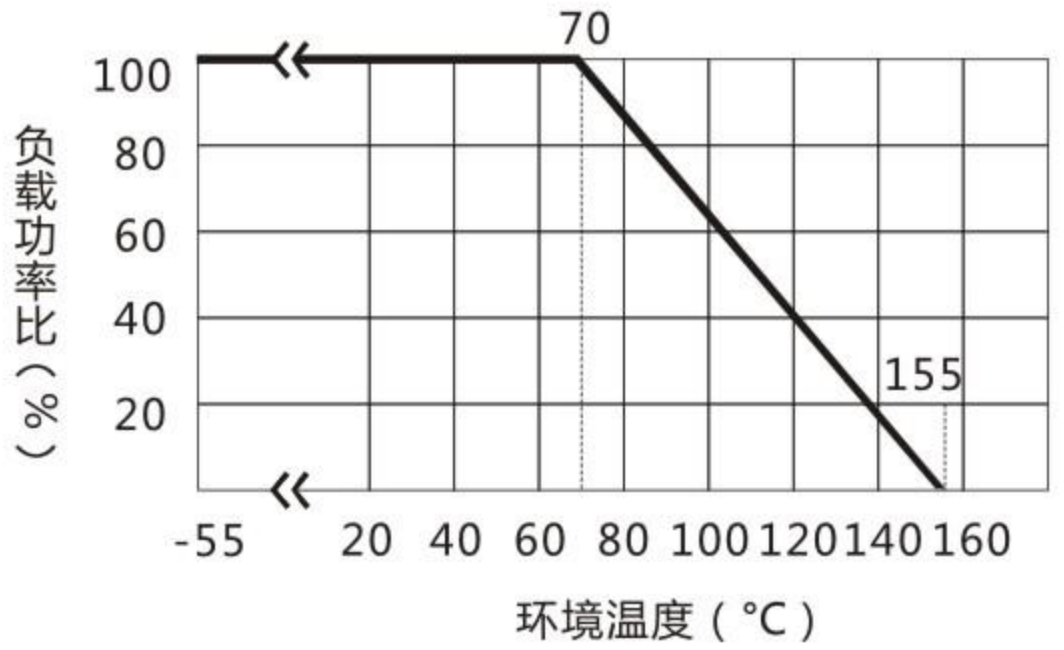
▪功率衰减曲线（ Derating Curve ）



▪电性规格（ Standard Electrical Specifications ）

型别 Type	额定功率（ Power Rating at 70℃ ）	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/℃)	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 ×10^6(ppm) R_0 电阻在室温下的阻值(resistance at room temperature) R 电阻在 125℃或-55℃下的阻值 (resistance at 125℃ or -55℃) t_0 室温(room temperature) t 测试温度（ test temperature 125℃ or -55℃ ）	044R : 1Ω<R≦10Ω: ±250 PPM/℃ 10Ω<R≦1MΩ: ±200 PPM/℃ 064R : ±200 PPM/℃

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.	±(1.00% +0.05Ω)
焊锡性 Solderability	JIS C 5201 4.17	沾助焊剂后浸入锡炉，锡炉温度 245±5℃，时间 3±0.5 秒。 Dip the terminal in a flux and then dip into a soldering bath at 245±5℃ for 3±0.5sec.	> 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±5℃，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±5℃ for 10±0.5sec. Measure the variation of resistance.	±(1.00% +0.05Ω)
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±5seconds. Then measure insulation resistance.	>10GΩ
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 for60±5seconds.	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; 量测试验前后阻值变化率 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。量测试验前后阻值变化率. 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. 量测试验前后阻值变化率. Put the specimen in a chamber at 40±2℃ temperature and 90~95% relative humidity, then applied rated voltage for1.5H 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，量测试验前后阻值变化率. 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°C~65°C,90~100%RH, 2.5 小时; 65°C 90~100%RH, 3 小时; 65°C~25°C,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°C~65°C,90~100%RH, 2.5H; 65°C 90~100%RH, 3H; 65°C~25°C 80~100%RH, 2.5H, 10 cycles, Measurement at 24±4 hours after test conclusion.	±(2.00% +0.05Ω)