

# PRECISION TYPE



## LF

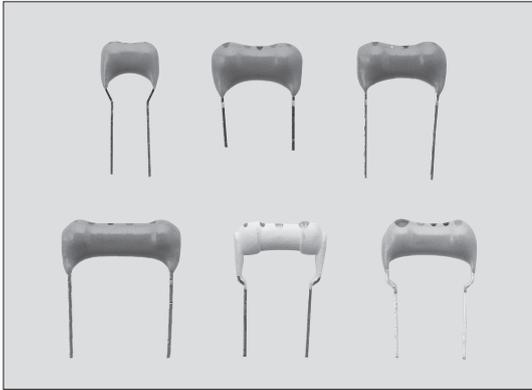
### 绝缘涂层型金属膜电阻器 Insulation-Coated Metal Film Resistors

## LFF

### 难燃性涂层型金属膜电阻器 Flame Retardant Coated Metal Film Resistors

## RK26

### 径向引线型金属釉膜电阻器 Lead Frame Radial Type Glazed Metal Film Fixed Resistors



外观颜色: 蓝色 Coating color: Blue  
表示: 彩色点 Marking: Color dot

#### 特点 Features

- L型, 端子间间距2.54mm, 5.08mm, 7.62mm, 可以高密度安装。
- 由于高度在5.5mm以下, 适用于设备的小型化。
- RK26可以对应100KΩ到33MΩ。
- LF • LFF  
对应欧盟RoHS。  
RK26  
对应欧盟RoHS。电阻中所含铅玻璃, 不包含在欧盟RoHS指令中。
- L-shaped, 2.54mm, 5.08mm and 7.62mm pitches between terminals make a high density mounting available.
- Optimal for compacting equipment due to its height of 5.5mm or under.
- RK26 is available from 100kΩ to 33MΩ.
- LF • LFF  
Products meet EU-RoHS requirements.  
RK26  
Products meet EU-RoHS requirements. EU-RoHS regulation is not intended for Pb-glass contained in resistor element.

#### 参考标准 Reference Standards

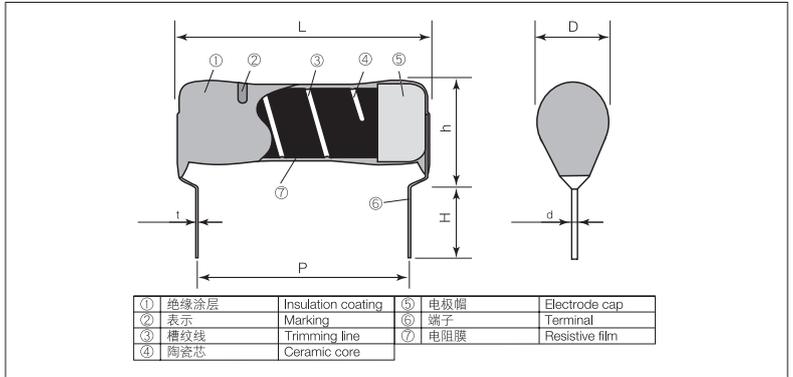
JIS C 5201-1

#### 额定值 Ratings

型号 Type	额定功率 Power Rating	电阻温度系数 T.C.R. ( $\times 10^{-6}/K$ )	电阻值范围 Resistance Range ( $\Omega$ )				最高使用电压 Max. Working Voltage	最高过载电压 Max. Overload Voltage	额定环境温度 Rated Ambient Temperature	使用温度范围 Operating Temp. Range	编带和包装数/AMMO包装 Taping & Qty/AMMO (pcs)
			D: $\pm 0.5\%$ E96	F: $\pm 1\%$ E24 • E96	G: $\pm 2\%$ E24	J: $\pm 5\%$ E24					
LF1/8	0.125W	C: $\pm 50$ D: $\pm 100$ L: $\pm 200$	45.3~562k	4.7~1M	1~1M	1~1M	200V	400V	+70°C	-55°C ~ +150°C	2,000
LF1/4 LF1/4L	0.25W	C: $\pm 50$ D: $\pm 100$ L: $\pm 200$	10~1M	10~1M	1~1M	1~1M	250V	500V			
LF1/2	0.5W	C: $\pm 50$ D: $\pm 100$ L: $\pm 200$	10~1M	10~1M	1~1M	1~1M	350V	700V			
LFF1/4	0.25W	C: $\pm 50$ D: $\pm 100$	—	10~100k	1~100k	—	250V	500V	-55°C ~ +155°C	2,000	
RK26B2E	0.25W	B: $\pm 350$	—	100k~22M	100k~33M	100k~33M	500V	700V			

额定电压是 $\sqrt{\text{额定功率} \times \text{公称电阻值}}$ 所算出的值或表中最高使用电压两者中小的值成为额定电压。  
Rated voltage =  $\sqrt{\text{Power Rating} \times \text{Resistance value}}$  or Max. working voltage, whichever is lower.

#### 结构图 Construction



#### 外形尺寸 Dimensions

型号 Type	尺寸 Dimensions (mm)							Weight (g) (1000pcs)
	L Max.	D Max.	P	d	h	H	t	
LF1/8	5.0	2.5	2.54 $\pm$ 0.2	0.5	5.08	6.0 $\pm$ 1.0	0.25	57
LF1/4	7.5		5.08 $\pm$ 0.2		3.0 $\pm$ 0.5	0.3	116	
LF1/4L	9.6		7.62 $\pm$ 0.3		5.5 $\pm$ 0.5		140	
LF1/2	7.25		5.08 $\pm$ 0.3		5.0 $\pm$ 1.0		116	

#### 品名构成 Type Designation

实例 Example

LF	1/4	D	T	T	A	1002	F
品种 Product Code	额定功率 Power Rating	电阻温度系数 T.C.R. ( $\times 10^{-6}/K$ )	端子表面材质 Terminal Surface Material	二次加工 Taping	包装 Packaging	公称电阻值 Nominal Resistance	阻值允许偏差 Resistance Tolerance
LF: 金属膜 LF: Metal film LFF: 阻燃性涂层 LFF: Flame retardant coating	1/8: 0.125W 1/4: 0.25W 1/4L: 0.25W 1/2: 0.5W	C: $\pm 50$ D: $\pm 100$ L: $\pm 200$	T: Sn	空栏: 散装 Nil: Bulk T: 编带 (1/8W, 1/4W) T: Taping (1/8W, 1/4W)	空栏: 散装 Nil: Bulk A: AMMO包装 (1/8W, 1/4W) A: AMMO (1/8W, 1/4W)	D, F: 4 digits G, J: 3 digits	D: $\pm 0.5\%$ F: $\pm 1\%$ G: $\pm 2\%$ J: $\pm 5\%$

LF1/4L只适用散装。

For LF1/4L, Only bulk type is available.

RK26	B	2E	T	T	A	1003	F
品种 Product Code	电阻温度系数 T.C.R. ( $\times 10^{-6}/K$ )	额定功率 Power Rating	端子表面材质 Terminal Surface Material	二次加工 Taping	包装 Packaging	公称电阻值 Nominal Resistance	阻值允许偏差 Resistance Tolerance
RK: 金属釉膜 RK: Glazed	B: $\pm 350$	2E: 0.25W	T: Sn	空栏: 散装 Nil: Bulk T: 编带 (1/8W, 1/4W) T: Taping	空栏: 散装 Nil: Bulk A: AMMO包装 A: AMMO	F: 4 digits G, J: 3 digits	F: $\pm 1\%$ G: $\pm 2\%$ J: $\pm 5\%$

预知关于此产品含有的环境负荷物质详情(除EU-RoHS以外), 请与我们联系。

编带细节请参考卷末附录C。

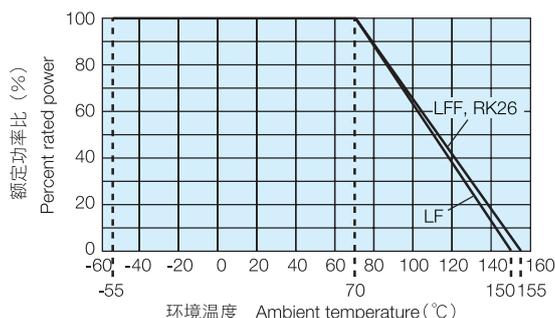
Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.

For further information on taping, please refer to APPENDIX C on the back pages.

本样本手册中记载的产品规格如有变更, 恕不一一奉告。订购以及使用之前, 请仔细确认规格表的内容。  
用于车载设备、医疗设备、航空设备以及其它涉及人身安全、或可能引起重大损失的设备上时, 请务必事先与我公司联系。这些产品在这类用途中出现故障或失灵可能导致人身事故或严重损坏。  
Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.  
Contact our sales representatives before you use our products for applications including automobiles, medical equipment and aerospace equipment.  
Malfunction or failure of the products in such applications may cause loss of human life or serious damage.

低电力用电阻  
Low Power Type Resistors

## ■ 负荷特性曲线 Derating Curve



在环境温度70℃以上使用时，应按照上图负荷特性曲线，减小额定功率。

For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

## ■ 性能 Performance

试验项目 Test Items	标准值 Performance Requirements $\Delta R \pm (\% + 0.05 \Omega)$	试验方法 Test Methods
	保证值 Limit	
电阻值 Resistance	在规定的允许偏差内 Within specified tolerance	25°C
电阻温度系数 T.C.R.	在规定值以内 Within specified T.C.R.	室温100℃以上 Room temperature + 100°C
过载 (短时间) Overload (Short time)	0.5: LF, LFF 1: RK26	额定电压×2.5倍或最高过载电压低的一方施加5秒钟。 Rated voltage × 2.5 or Max. overload vol., whichever is lower, for 5s
耐焊接热 Resistance to soldering heat	0.25: LF 0.5: LFF 1: RK26	260°C ± 5°C, 10s ± 1s or 350°C ± 10°C, 3.5s ± 0.5s
温度突变 Rapid change of temperature	0.5: LF, LFF 1: RK26	-55°C (30min.) / +25°C (10min.) / +150°C (30min.) / +25°C (10min.) 5 cycles: LF -55°C (30min.) / +25°C (10min.) / +155°C (30min.) / +25°C (10min.) 5 cycles: LFF, RK26
耐湿负荷 Moisture resistance	1: LF 2: LFF 5: RK26	40°C ± 2°C, 90%~95%RH, 1000h 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle
在70℃时的耐久性 Endurance at 70°C	1: LF 2: LFF 5: RK26	70°C ± 3°C, 1000h 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle

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## ■ 使用注意事项 Precautions for Use

### LF • LFF

- 焊剂等在本产品和安装的印刷电路板上附着离子性杂质时，其耐湿性•耐腐蚀性将受到影响。焊剂内有时含有氯•酸等离子性物质，为除去这些离子性物质应进行清洗。特别是使用无铅焊剂时，由于湿润性提高了，有时会含有大量离子性物质，所以在使用RMA系的焊锡或焊剂时，应充分进行清洗。并且，保管环境和安装条件、环境等，附着了汗•盐等离子性物质时，其耐湿性•耐腐蚀性也将受到影响。对于这种污染，为了除去这些离子性物质，应当进行清洗。
- 产品受到人的汗和唾液等中所含钠、氯等离子性物质污染时，由于可以确认会引发电蚀，因此，在保管•装载或使用时应防止污染。还有，可以确认污染时，应当用纯水清洗干燥，注意不使离子性物质残留。

### LFF

- 包装涂层是难燃性特种涂料时，由于对外部冲击比较薄弱，在使用时应注意。清洗应在最小限度。清洗后涂层膜会比较脆弱，因此在充分干燥前不要在涂层膜上加上外力。由于在干燥后才回到原来强度，因此，应注意在清洗后约20分钟内，在电阻器的涂层膜上不要施加外力。由于超声波清洗，涂膜有损伤的情况。

### LF • LFF

- Ionic impurities such as flux etc. that are attached to these products or those mounted onto a PCB, negatively affect their moisture resistance, corrosion resistance, etc. The flux may contain ionic substances like chlorine, acid, etc. Please wash them to get rid of these ionic substances especially when using lead-free solder that may contain much of the said substances for improving a wetting characteristic. Using RMA solder or RMA flux, or well-washing is needed. Also, attaching ionic substances such as perspiration, salt etc. by storage environments or mounting conditions/environments negatively affects their moisture resistance, corrosion resistance etc. Please wash them to remove the ionic substances when they are polluted.
- When the components are polluted by ionic impurities like sodium (Na<sup>+</sup>), chlorine (Cl<sup>-</sup>) etc. included in perspiration and saliva, it leads to electric erosion. Avoid the pollution when storage, mounting and using. Consider not to remain ionic substances on the components. Wash by pure water etc. and dry them when you find pollution.

### LFF

- Be careful to handle these resistors because outer coatings are comparatively weak to outer shock due to flameproof special coats. Please wash them to a minimum. No external force is given to the coating films until they are well dried because the coating films become weaker right after washing. The original strength will be returned after they are dried, so please pay attention not to apply any external force onto the coating film of resistors for 20 minutes after drying. Especially no PC boards shall be piled up. Coated films may be damaged by ultrasonic cleanings in Freon or substitute Freon.