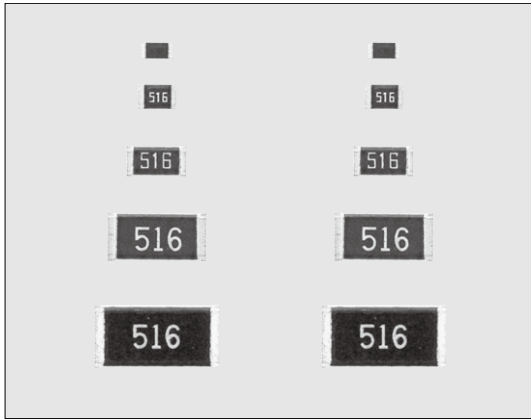


THICK FILM (FOR HIGH VOLTAGE)



矩形片式电阻器
Flat Chip Resistors

HV73 高压用片式电阻器 Flat Chip Resistors For High Voltage



外观颜色: 黑色 Coating color: Black

特点 Features

- 比起通用型片状电阻 (RK73) 把最高使用电压加以高耐压化了。
- 对应回流焊、波峰焊接。
- 对应欧盟RoHS。在电极、电阻膜层、玻璃中所含铅玻璃，不包含在欧盟RoHS指令中。
- Superior to RK73 series in maximum working voltage.
- Suitable for flow and reflow solderings.
- Products meet EU-RoHS requirements. EU-RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.

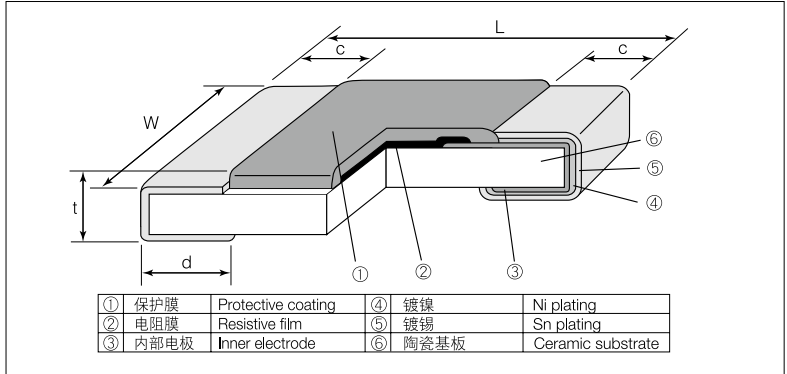
用途 Applications

- 照相机频闪观测器、液晶背光照、AC适配器等。
- Camera Strobe, LCD back-light, AC Adapters etc.

参考规格 Reference Standards

IEC 60115-8
JIS C 5201-8
EIAJ RC-2134C

结构图 Construction



外形尺寸 Dimensions

型号 Type (Inch Size Code)	尺寸 Dimensions (mm)					Weight (g) (1000pcs)
	L ±0.2	W	c	d	t ±0.1	
1J (0603)	1.6	0.8 ±0.1	0.3 ±0.1	0.3 ±0.1	0.45	2.14
2A (0805)	2.0	1.25 ±0.1	0.4 ±0.2	0.3 ^{+0.2} _{-0.1}	0.5	4.54
2B (1206)	3.2	1.6 ±0.2	0.5 ±0.3	0.4 ^{+0.2} _{-0.1}	0.6	9.14
2H (2010)	5.0	2.5 ±0.2				24.3
3A (2512)	6.3	3.1 ±0.2				37.1

品名构成 Type Designation

实例 Example	品名构成
HV73	品种 Product Code
2B	额定功率 Power Rating 1J:0.1W 2A:0.125W 2B:0.25W 2H:0.5W 3A:1W
T	端子表面材质 Terminal Surface Material T: Sn
TD	二次加工 Taping TD: 4mm pitch punch paper TE: 4mm pitch plastic embossed BK: Bulk
1004	公称电阻值 Nominal Resistance D, F: 4 digits G, J: 3 digits
F	阻值允许偏差 Resistance Tolerance D: ±0.5% F: ±1% G: ±2% J: ±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.

额定值 Ratings

型号 Type	额定功率 Power Rating	电阻温度系数 T.C.R. (×10 ⁻⁶ /K)	电阻值范围 Resistance Range (Ω)				最高使用电压 Max. Working Voltage	最高过载电压 Max. Overload Voltage	编带和包装数/卷 Taping & Q'ty/Reel (pcs)	
			D: ±0.5% E24	F: ±1% E24	G: ±2% E24	J: ±5% E24			TD	TE
1J	0.1W	±100 ^{*2}	-	10k~10M	10k~10M	10k~10M	350V	500V	5,000	-
2A	0.125W (0.25W ^{*3})	±100	100k~1M	100k~10M	100k~10M	100k~10M	400V	800V	5,000	-
		±200	-	-	-	11M~51M				
2B	0.25W	±100	100k~1M	100k~10M	100k~10M	100k~10M	500V	1000V	5,000	-
		±200	-	-	-	11M~51M				
2H	0.5W	±100	100k~1M	100k~10M	100k~10M	100k~10M	2000V (D.C.)	3000V	-	4,000
		±200	-	-	-	11M~51M				
3A	1W	±100	43k~1M	43k~10M	43k~10M	43k~10M	3000V (D.C.)	4000V	-	4,000
		±200	-	11M~20M	11M~20M	11M~51M				

额定环境温度 Rated Ambient Temperature: +70°C

使用温度范围 Operating Temperature Range: -55°C~+155°C

额定电压是√额定功率×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为额定电压。

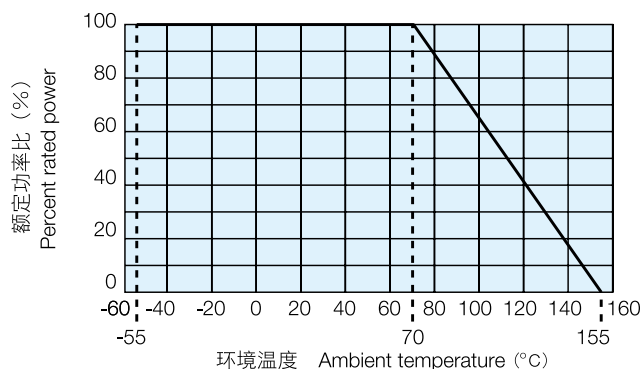
Rated voltage = √Power Rating × Resistance value or Max. working voltage, whichever is lower.

※1 最大过载电压用直流电压表示 ※1 Max. overload voltage is specified by D.C. voltage.

※2 1.1MΩ~10MΩ的冷T.C.R.为±200×10⁻⁶/K ※2 Cold T.C.R. of 1.1MΩ~10MΩ is ±200×10⁻⁶/K.

※3 请您在使用时咨询。 ※3 Please inquire to us before use.

■ 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 $\Delta R \pm$ (% +0.1 Ω)		试验方法 Test Methods
	保证值 Limit	代表值 Typical	
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.	在规定的允许偏差内 Within specified T.C.R.	-	+25°C/-55°C and +25°C/+125°C
过载(短时间) Overload (Short time)	2	0.5	额定电压×2.5倍施加5秒钟 Rated voltage × 2.5 for 5s
耐焊接热 Resistance to soldering heat	1	0.5	260°C ± 5°C, 10s ± 1s
温度突变 Rapid change of temperature	0.5: (10K Ω ≤ R ≤ 10M Ω) 1: (11M Ω ≤ R ≤ 51M Ω)	0.3: (10K Ω ≤ R ≤ 10M Ω) 0.5: (11M Ω ≤ R ≤ 51M Ω)	-55°C (30min.) / +125°C (30min.) 100 cycles
耐湿负荷 Moisture resistance	2	0.75	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	2	0.75	70°C ± 2°C, 1000h 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle
高温放置 High temperature exposure	2	0.3	+155°C, 1000h

■ 使用注意事项 Precautions for Use

- 最高过载电压作为直流电压，交流电压时，峰值电压请不要超过最高过载电压的电压。
- 片状电阻的基材是氧化铝。由于和安装基板的热膨胀系数不同，在反复提供热循环等热应力时，接合部的焊锡（焊缝部）有时会发生裂纹。特别是大型尺寸2H/3A，由于热膨胀大，而且自动发热也大，环境温度的变动有大的反复时和载荷启闭有反复时，需要注意裂纹的发生。用环氧树脂印刷电路板（FR-4）作一般性热循环试验，在使用温度范围的上下限进行时，1J~2B的类型，不容易发生裂纹，而2H/3A型，则有易于发生裂纹的倾向。由于热应力而发生裂纹，取决于安装的焊接区的大小、焊接量、安装基板的散热性等。因此，环境温度有大的变化和载荷ON/OFF的使用条件时，应充分注意后进行设计。
- Max. overload voltage is specified by D.C. voltage. When using in A.C. voltage, the peak value of A.C. voltage shall not exceed the Maximum overload voltage.
- The substrate of chip resistors is alumina. Cracks may occur at the connection of solder (solder fillet portion) due to the difference of the coefficient of thermal expansion from a mounting board when heat stress like heat cycle, etc. are repeatedly given to them. Care should be taken to the occurrence of the cracks when the change in ambient temperature or ON/OFF of load is repeated, especially when large types of 2H/3A which have large thermal expansion and also self heating. By general temperature cycle test using glass-epoxy (FR-4) boards under the maximum/minimum temperatures of operating temperature range, the crack does not occur easily in the types of 1J~2B, but the crack tends to occur in the types of 2H/3A. The occurrence of the crack by heat stress may be influenced by the size of a pad, solder volume, heat radiation of mounting board etc., so please pay careful attention to designing when a big change in ambient temperature and conditions for use like ON/OFF of load can be assumed.