HIGHBORN

连云港佰博新材料有限公司

LIANYUNGANG BAIBO NEW MATERIAL CO.,LTD

Resistors Catalogue

HIGHBORN GROUP

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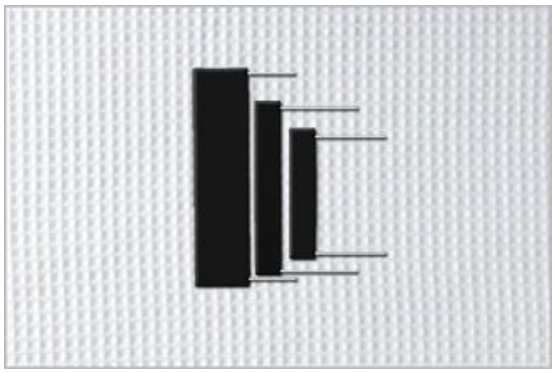
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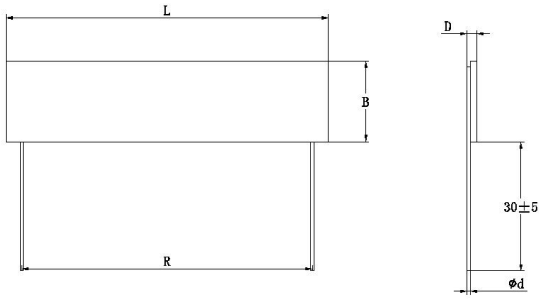
HVR 型高压电阻
HIGH VOLTAGE RESISTORS

SERIES HVR30，40，50



产 品 特 点 FEATURES

- 厚膜高压电阻
- High voltage resistors in thick film
- 通过弯曲可改变引线跨距
- Variable lead spacing by bending
- 阻值可达 10TΩ
- Resistance values up to 10 Teraohm
- 低温度系数、低电压系数
- Low values of TCR and VCR



外 形 尺 寸 DIMENSIONS

尺寸（size）	L	B	D	R	d
HVR30	30.0	6.0	1.9	27.5	0.40±0.05
HVR40	40.0	6.0	1.9	37.8	0.40±0.05
HVR50	50.0	12.5	1.9	47.8	0.40±0.05

L=长度，B=宽度，D=厚度，d=引线直径(mm)

L=Length ,B=Width,D=Thickness,d=wire diameter (in mm)

R=标准引线间距（通过弯曲可达到其他跨距）

R=standard lead spacing(other spacing possible by bending)

外形尺寸公差：±0.5mm

Tolerance of dimensions:±0.5mm

包 装 方 式 P A C K A G I N G

- 用塑料袋或盒子散装
- Bulk in plastic bags or boxes
- 最小数量：每种阻值 30 只
- Minimum quantity :30 pieces per value

供 货 示 例 ORDERING DATA

- 型号——阻值——精度——温度系数——测量电压
- Type——value——tolerance——TCR——measuring voltage
- 例如：HVR30 10G ±10% TCR 100 20V
- 如果没有提供温度系数和测量电压数据，可用标准值（下页中最高值）和测量电压 40V
- If no data for TCR and measuring voltage are supplied,the standard value(highest value in the table on next page) and measuring voltage of 40V is used

HVR 型高压电阻
HIGH VOLTAGE RESISTORS

SERIES HVR30，40，50

技 术 参 数 -根据不同尺寸 TECHNICAL DATA——DEPENDING ON SIZE

尺寸（Size）	HVR30	HVR40	HVR50
额定功率 P_{70} (W) Power rating P_{70} (W) （P_{125} =0W）	1.0	1.2	3.0
工作电压 U_-，U_{eff} （V） Working voltage U_-, U_{eff} (V)	10KV	20KV	30KV

阻值范围/精度/温度系数[1]/电压系数[2] Ranges/Tolerances/TCR[1]/VCR[2]	HVR30	HVR40	HVR50
1M~100M	0.25/.../10% TC25/50/100 <2ppm/V	0.25/.../10% TC25/50/100 <1ppm/V	0.25/.../10% TC25/50/100 <1ppm/V
> 100M~1G	1/2/5/10/20% TC50/100/250 <5ppm/V	1/2/5/10/20% TC50/100/250 <2ppm/V	1/2/5/10/20% TC25/50/100 <1ppm/V
> 1G~100G	5/10/20/30% TC250/500 <20ppm/V	5/10/20/30% TC250/500 <10ppm/V	5/10/20/30% TC100/250 <5ppm/V
> 100G~1T	5/10/20/30% TC500/1000 <100ppm/V	5/10/20/30% TC500/1000 <50ppm/V	5/10/20/30% TC250/500 <25ppm/V
> 1T~10T	-	-	10/20/30% TC500/1000 <100ppm/V

- [1] 温度系数 25/50：温度范围+25℃~+85℃
- [1] TCR25/50：Temperature range +25℃~+85℃
- [2] 电压系数在 10V 和 100V 之间测量
- [2] VCR measured between 10V and 100V
- 更好的精度、温度系数和电压系数及其他外形尺寸或电压分流器可按照要求和协议提供
- Closer values of tolerance,TCR and VCR,other dimensions or voltage dividers on request and agreement

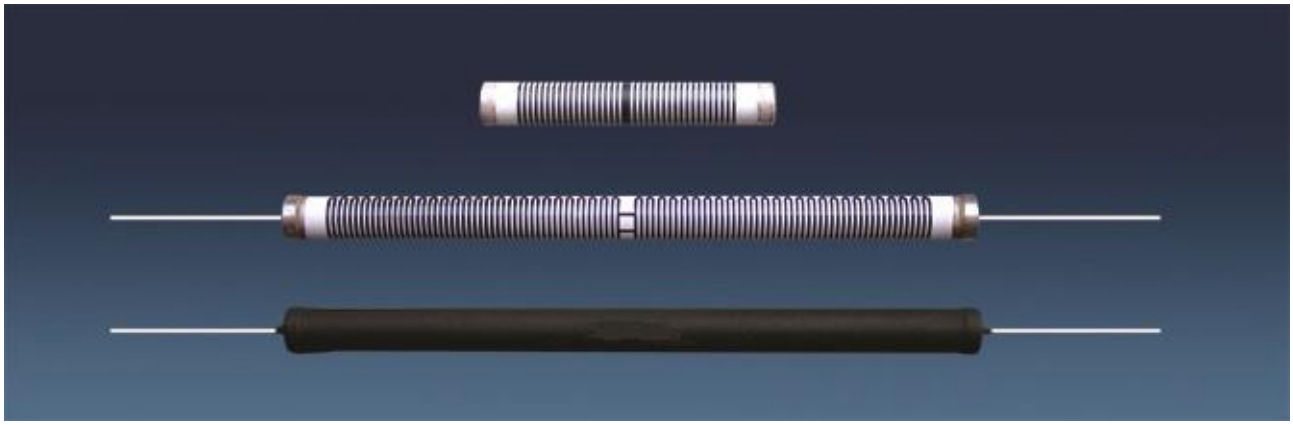
特性参数－通用 TECHNICAL DATA_GENERAL

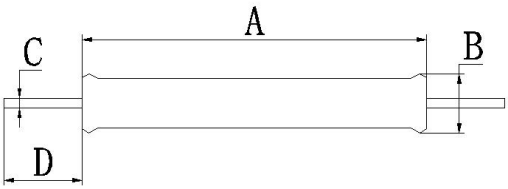
温度范围 Temperature range	-55℃~+125℃
气候类型按 IEC60068 Climatic category IEC 60068	55/125/56
湿度-/接触保护 Humidity-/contact protection	漆涂覆 Lacquer coating

长期稳定性 Long term stability	≤10G	>10G
高温贮存 125℃/1000h Storage 125℃/1000h	<1%	<2%
最大电压/1000h Max. voltage/1000h	<1%	<2%

RIP 精密高压电阻器
PRECISION HIGH VOLTAGE RESISTORS

SERIES RIP20 26 32 39 52 78 103 124 154

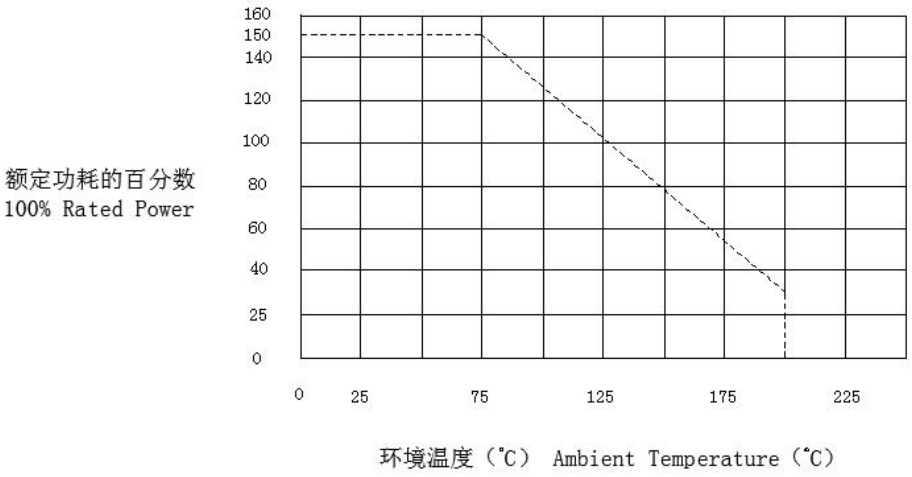




产 品 特 点　FEATURES

- 无感设计
- NO Inductance
- 高精度
- Excellent Tolerance
- 阻值范围宽
- Wider resistance values
- 高耐压
- High Voltage

降功耗曲线 POWER DERATING CURVE



RIP 精密高压电阻器
PRECISION HIGH VOLTAGE RESISTORS

SERIES RIP20 26 32 39 52 78 103 124 154

技 术 参 数　SPECIAL FEATURES

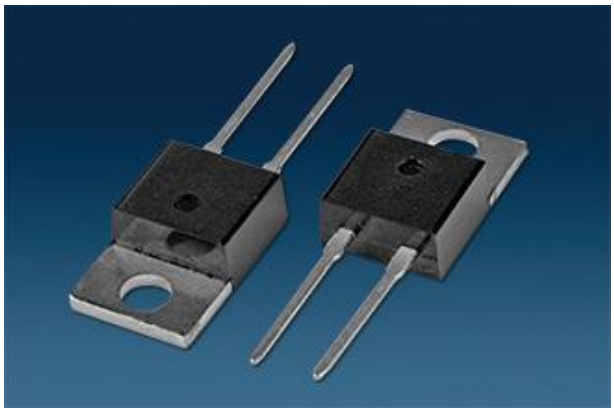
型号 Model	额定功率 Rated power(W) Ambient Temperature=75℃	额定功率 Rated power(W) Ambient Temperature=125℃	最大工作电压 Max.Continuous Oper.Volt(KV)	阻值 Resistance		外形尺寸 Dimensions			
				最小值 Min	最大值 Max	A ±1.0	B ±0.5	C ±0.05	D ±3.0
RIP15	1.0	0.6	3.0	200	1G	15	5.0	0.8	36
RIP20	2.5	1.5	4.8	200	1G	20.20	8.20	1.00	30
RIP26	3.7	2.5	6.4	250	1G	26.90	8.20	1.00	30
RIP32	4.5	3.0	8.0	300	1.5G	32.00	8.20	1.00	30
RIP39	5.2	4.0	12.8	400	1.5G	39.0	8.20	1.00	30
RIP52	7.5	5.0	16	500	2.5G	52.10	8.20	1.00	30
RIP78	11	7.5	24	900	4G	77.70	8.20	1.00	30
RIP103	12	8.0	32	1K2	6G	101.30	8.20	1.00	30
RIP124	15	10	40	1K5	8G	123.30	8.20	1.00	30
RIP154	20	15	45	2K	10G	153.7	8.20	1.00	30

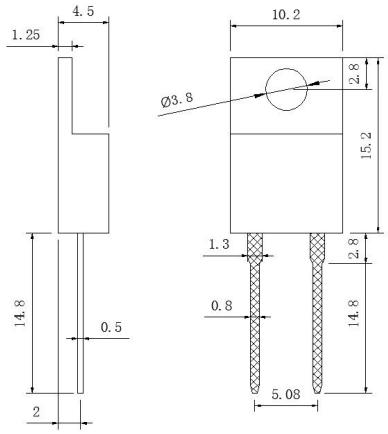
特　性　SPECIFICATION

试验项目 TEST ITEM	性能要求 SPECIFICATIONS
阻值精度 Resistance Tolerance	±1%, ±5%, ±10% 如有特殊需要可提供 0.5% Tolerance to 0.5% on special order
温度系数 Temperature Coefficient	100ppm/℃(测试区间：+25℃～+125℃；+25℃～-55℃) 100ppm/℃(Referanced to +25℃, △R taken at +125℃ and -55℃
寿命 Load life	+125℃, 1000 小时 △R≤0.5%
绝缘层电阻 Insulate resistance	10GΩ
涂覆层 Encapsulation	高温硅树脂 High temperature silicone con formal
过载 Overload	5Pe(≤1.5Max. operating voltage) 5s △R≤0.5%
热冲击 Thermal shock	△R≤0.25%
耐潮性能 Moisture resistance	△R≤0.4%

RTP35 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP35





产品特点 FEATURES

- 0.5% 精度
- 0.5% Tolerance available
- 大功率
- High power rating
- 无感设计
- Non inductive
- To-220 标准封装
- To-220 standrd package
- 阻值范围宽
- Wide ohmic value range
- 安装方便
- Easy mounting

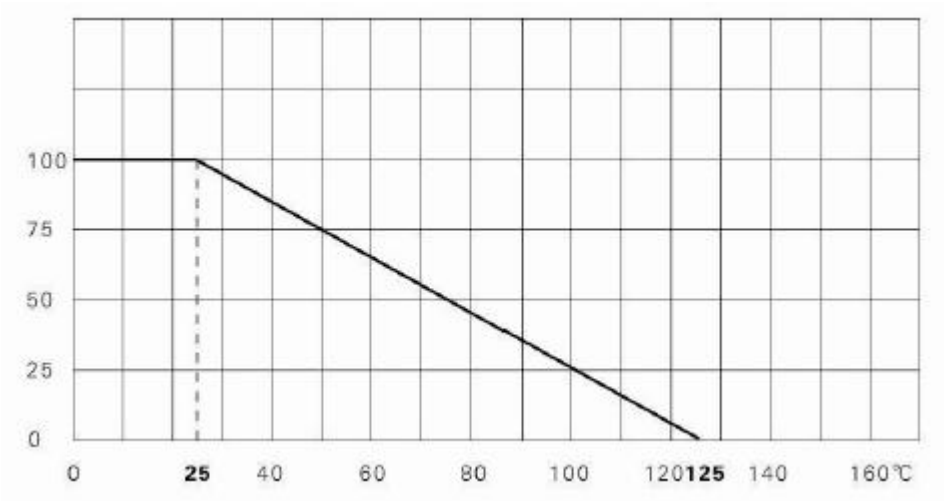
降功耗曲线 POWER DERATING CURVE

额定功耗的

百分数

100% Rated

Power



底板中心温度(℃) Bottom-Case Temperature(℃)

RTP35 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP35

技术参数 SPECIAL FEATURES

型号 TYPE	RTP35
功率 Power rating(25℃)	35W
热阻 Thermal resistance	4.5℃/W
阻值范围 Resistance value range	0.1Ω-1MΩ
精度 Tolerance	±0.5%;±1%;±5%
温度系数 TCR	±100ppm/℃;±250ppm/℃
最大工作电压 MAX. Working voltage	350V
绝缘层耐压 Dielectric Strength	1,800VAC
温度范围 Temperature range	-55℃-125℃
气候类别 Climatic category	55/125/56

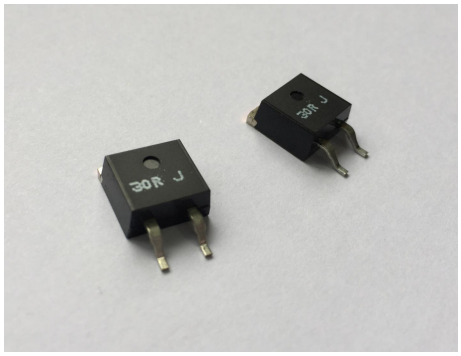
- 更高参数可协商供货。
- Special specifications can be supplied in consultation with customers.
- 所示功率需加装散热器，在无散热器的情况下功率为 2.5W
- The condition of the above power is needed to mount a heatsink if they has no heatsinks, the power only be 2.5W.

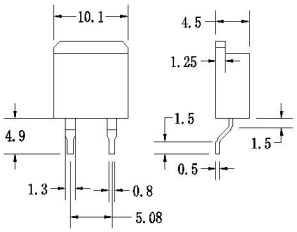
特征参数 PERFORMANCE

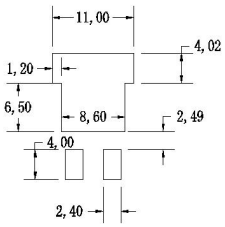
试验项目 TEST ITEM	性能要求 SPECIFICATIONS	试验方法 TEST METHOD GB/T5729-2003 IEC60115-1：2001
短时间过载 Short time overload	1.5 倍额定功率，10 秒 1.5 times rated power 10s ΔR≤±（0.25%R+0.05Ω）	4.13
快速温度变化 Rapid temperature change	ΔR≤±（0.25%R+0.05Ω）	4.19
气候顺序 Temperature cycling	ΔR≤±（1%R+0.05Ω）	4.23
稳态湿热 Humidity（steady States）	ΔR≤±（1%R+0.05Ω）	4.24
寿命 Load life	ΔR≤±（1%R+0.05Ω）	4.25.2

RTP35A 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP35A





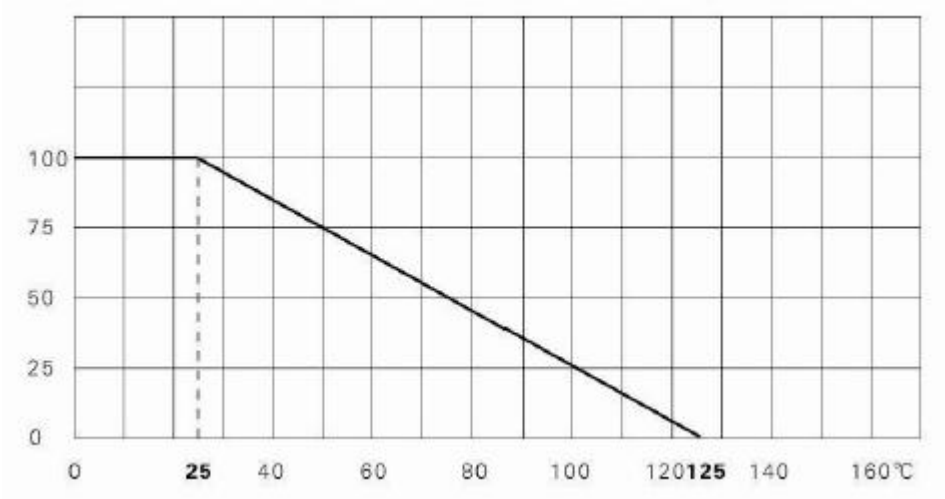


焊盘尺寸

产品特点 FEATURES

- 0.5% 精度
- 0.5% Tolerance available
- 大功率
- High power rating
- 无感设计
- Non inductive
- To-263 标准封装
- To-263 standrd package
- 阻值范围宽
- Wide ohmic value range
- 安装方便
- Easy mounting

降功耗曲线 POWER DERATING CURVE



RTP35A 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP35A

技术参数 SPECIAL FEATURES

型号 TYPE	RTP35A
功率 Power rating(25°C)	35W
热阻 Thermal resistance	4.5°C/W
阻值范围 Resistance value range	0.1Ω-1MΩ
精度 Tolerance	±0.5%;±1%;±5%
温度系数 TCR	±100ppm/°C;±250ppm/°C
最大工作电压 MAX. Working voltage	350V
绝缘层耐压 Dielectric Strength	1,800VAC
温度范围 Temperature range	-55°C-125°C
气候类别 Climatic category	55/125/56

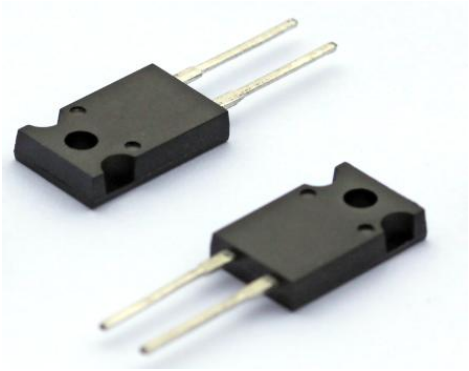
- 更高参数可协商供货。
- Special specifications can be supplied in consultation with customers.
- 所示功率需加装散热器，在无散热器的情况下功率为 2.5W
- The condition of the above power is needed to mount a heatsink if they has no heatsinks, the power only be 2.5W.

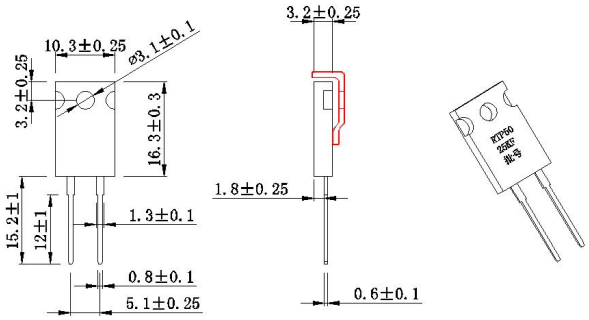
特征参数 PERFORMANCE

试验项目 TEST ITEM	性能要求 SPECIFICATIONS	试验方法 TEST METHOD GB/T5729-2003 IEC60115-1：2001
短时间过载 Short time overload	1.5 倍额定功率，10 秒 1.5 times rated power 10s ΔR≤±（0.25%R+0.05Ω）	4.13
快速温度变化 Rapid temperature change	ΔR≤±（0.25%R+0.05Ω）	4.19
气候顺序 Temperature cycling	ΔR≤±（1%R+0.05Ω）	4.23
稳态湿热 Humidity（steady States）	ΔR≤±（1%R+0.05Ω）	4.24
寿命 Load life	ΔR≤±（1%R+0.05Ω）	4.25.2

RTP50 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP50



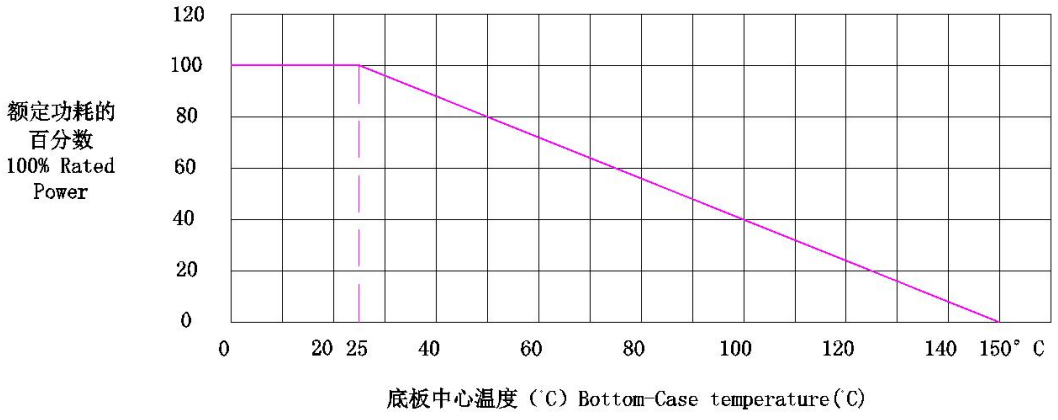


注：红色为安装弹簧片。

产品特点 FEATURES

- 0.5% 精度
- 0.5% Tolerance available
- 大功率
- High power rating
- 无感设计
- Non inductive
- To-220 标准封装
- To-220 standrd package
- 阻值范围宽
- Wide ohmic value range
- 安装方便
- Easy mounting

降功耗曲线 POWER DERATING CURVE



RTP50 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP50

技术参数 SPECIAL FEATURES

型号 TYPE	RTP50
功率 Power rating(25℃)	50W
热阻 Thermal resistance	2.5℃/W
阻值范围 Resistance value range	0.1Ω-1MΩ
精度 Tolerance	±0.5%;±1%;±5%
温度系数 TCR	±100ppm/℃;±250ppm/℃
最大工作电压 MAX. Working voltage	450V
绝缘层耐压 Dielectric Strength	1,500VAC
温度范围 Temperature range	-55℃-125℃
气候类别 Climatic category	55/125/56

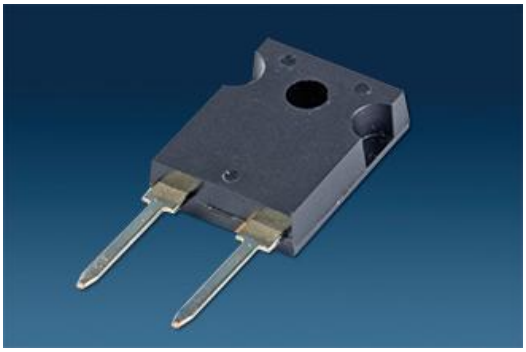
- 更高参数可协商供货。
- Special specifications can be supplied in consultation with customers.
- 所示功率需加装散热器，在无散热器的情况下功率为 2.25W
- The condition of the above power is needed to mount a heatsink if they has no heatsinks, the power only be 2.25W.

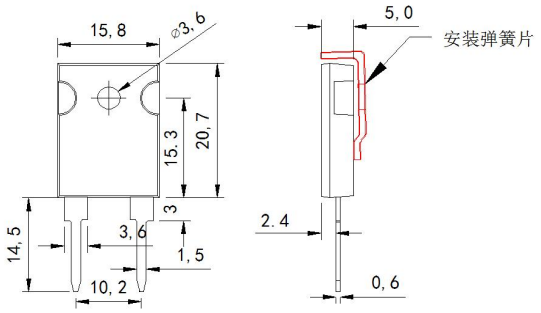
特征参数 PERFORMANCE

试验项目 TEST ITEM	性能要求 SPECIFICATIONS	试验方法 TEST METHOD GB/T5729-2003 IEC60115-1：2001
短时间过载 Short time overload	1.5 倍额定功率，10 秒 1.5 times rated power 10s ΔR≤±（0.25%R+0.05Ω）	4.13
快速温度变化 Rapid temperature change	ΔR≤±（0.25%R+0.05Ω）	4.19
气候顺序 Temperature cycling	ΔR≤±（1%R+0.05Ω）	4.23
稳态湿热 Humidity（steady States）	ΔR≤±（1%R+0.05Ω）	4.24
寿命 Load life	ΔR≤±（1%R+0.05Ω）	4.25.2

RTP100 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP100

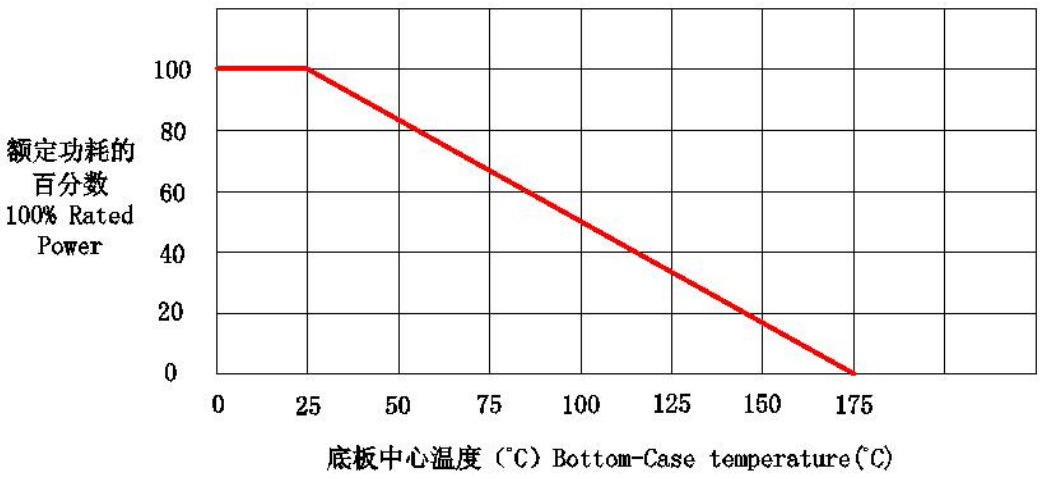




产品特点 FEATURES

- 采用厚膜，无感设计，TO-247 标准封装
- Using thick film,Non-inductive,TO-247 Standard package
- 额定功率：100W（在底板中心温度≤25℃时）
- Rating power 100W (the temp of floor center less than 25℃
- 阻值范围宽
- Wide ohmic value range
- 安装方便
- Easy mounting

降功耗曲线 POWER DERATING CURVE



RTP100 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP100

技术参数 SPECIAL FEATURES

型号 TYPE	RTP100
功率 Power rating(25℃)	100W
热阻 Thermal resistance	1.5℃/W
阻值范围 Resistance value range	0.01Ω-1MΩ
精度 Tolerance	±1%～±10%
温度系数 TCR	±150ppm/℃
电感 Inductance	≦80nH
最大工作电压 MAX. Working voltage	700V
绝缘层耐压 Dielectric Strength	1,800VAC
温度范围 Temperature range	-55℃～175℃
气候类别 Climatic category	55/125/56

- 更高参数可协商供货。
- Special specifications can be supplied in consultation with customers.
- 所示功率需加装散热器，在无散热器的情况下功率为 3.5W
- The condition of the above power is needed to mount a heatsink if they has no heatsinks, the power only be 3.5W.

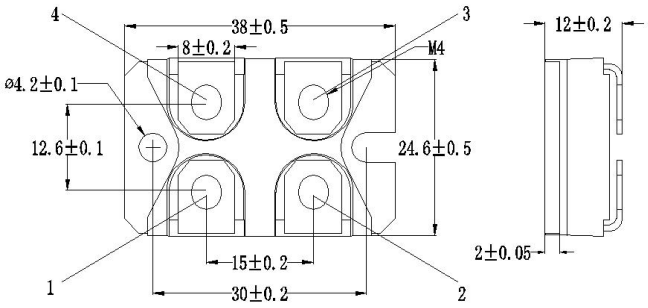
特征参数 PERFORMANCE

试验项目 TEST ITEM	性能要求 SPECIFICATIONS	试验方法 TEST METHOD GB/T5729-2003 IEC60115-1：2001
短时间过载 Short time overload	1.5 倍额定功率，10 秒 1.5 times rated power 10s ΔR≤±（0.5%R+0.05Ω）	4.13
快速温度变化 Rapid temperature change	ΔR≤±（0.5%R+0.05Ω）	4.19
气候顺序 Temperature cycling	ΔR≤±（1%R+0.05Ω）	4.23
稳态湿热 Humidity（steady States）	ΔR≤±（0.5%R+0.05Ω）	4.24
寿命 Load life	ΔR≤±（1%R+0.05Ω）	4.25.2

RTP200 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP200

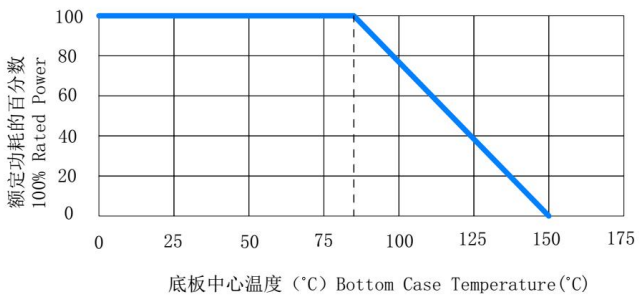




产 品 特 点　FEATURES

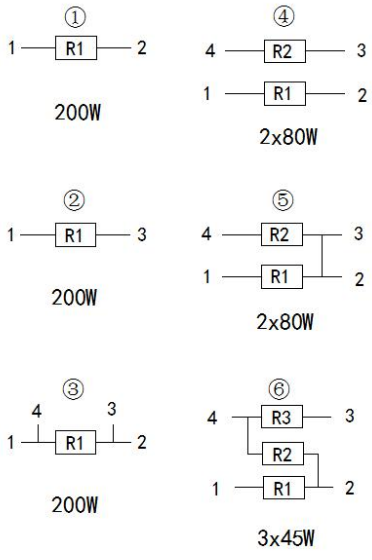
- 0.5%精度
- 0.5% Tolerance available
- 大功率
- High power rating
- 无感设计
- Non inductive
- 阻值范围宽
- Wide ohmic value range
- 安装方便
- Easy mounting
- 同一封装可有 3 个不同阻值电阻
- 3 Different resistors in 1 module available
- 四个引出端子
- 4 Terminals available
- SOT-227 标准封装
- SOT-227 standrd package

降 功 耗 曲 线　POWER DERATING CURVE



说明：当温度≤85℃时，可以满功率使用，当温度>85℃时，如曲线图所示，可以达到的功率逐渐变小，当温度在 150℃时，功率为 0。为提高导热率，电阻与散热器表面应涂抹导热硅脂，基板使用 M4 螺丝最大扭矩 1.5Nm，引出端使用 M4 螺丝最大扭矩 1.3Nm。

内 部 电 路 图 ELECTRICAL DIAGRAM



RTP200 型功率型厚膜电阻器
POWER THICK FILM RESISTORS

SERIES RTP200

技 术 参 数 SPECIAL FEATURES

型号 TYPE	RTP200
阻值范围 Resistance value range	0.1Ω-1MΩ
精度 Tolerance	±0.5%;±1%;±5%
温度系数 TCR	±50ppm/℃；±100ppm/℃；±250ppm/℃；
最大工作电压 Max. working voltage	500V
绝缘层耐压 Dielectric Strength	4000VDC
温度范围 Temperature range	-55℃~150℃

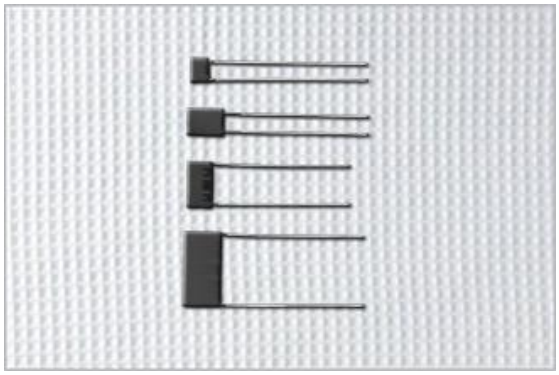
- 更高参数可协商供货。
- Special specifications can be supplied in consultation with customers.
- 所示功率需加装散热器，在无散热器的情况下功率为 5W。
- The condition of the above power is needed to mount a heatsink if they has no heatsinks，the power only be 5W.

特 征 参 数 PERFORMANCE

试验项目 TEST ITEM	性能要求 SPECIFICATIONS	试验方法 TEST METHOD GB/T5729-03 IEC115-1
短时间过负荷 Short time overload	1.5 倍额定功率，10 秒 1.5 times rated power 10s △R≤±（0.25%R+0.05Ω）	4.13
快速温度变化 Rapid temperature change	△R≤±（0.25%R+0.05Ω）	4.19
寿命 Load life	△R≤±（1%R+0.05Ω）	4.25.2
稳态湿热 Humidity (steady states)	△R≤±（1%R+0.05Ω）	4.24
气候顺序 Temperature cycling	△R≤±（1%R+0.05Ω）	4.23

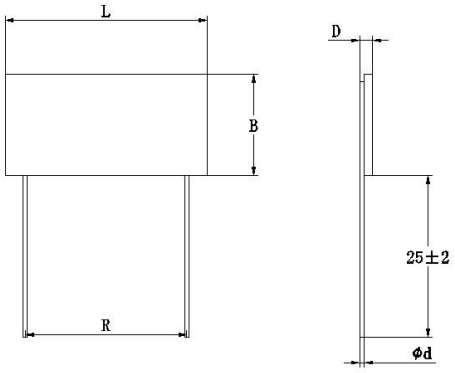
插件型高压电阻
HIGH VALUE RESISTORS RADIAL LEADED

SERIES GST1210,25,2512,4020



产 品 特 点　FEATURES

- 厚膜高阻电阻
- High value resistors in thick film
- 引线间距可变
- Variable lead spacing
- 阻值可达 1TΩ
- Resistance values up to 1 Teraohm
- 极好的阻值精度、温度系数和电压系数
- Excellent values of tolerance,TCR and VCR
- 未刻值能经受更高的工作电压
- Untrimmed for higher Working Voltage



外 形 尺 寸　DIMENSIONS

尺寸（size）	L	B	D	R	d
1210	3.2	2.5	0.9	2.0	0.40±0.05
25	3.8	5.0	1.0	2.5	0.40±0.05
2512	6.3	3.5	1.0	5.5	0.40±0.05
4020	10.2	5.1	1.0	9.5	0.40±0.05

L=长度，B=宽度，D=厚度，d=引线直径(mm)

L=Length ,B=Width,D=Thickness,d=wire diameter (in mm)

R=标准引线间距（通过弯曲引线其他间距也可以）

R=standard lead spacing(other spacing possible by bending)

外形尺寸公差：±0.2mm

Tolerance of dimensions:±0.2mm

包 装 方 式　P A C K A G I N G

- 散装在塑料袋或用卡纸做的盒子里
- Bulk in plastic bags or cardboard-boxes
- 最小数量：每种阻值 100 只
- Minimum quantity :100 pieces per value

供 货 示 例　ORDERING DATA

- 型号——阻值——精度——温度系数——测量电压
- Type——value——tolerance——TCR——measuring voltage
- 例如：GST4020 10G ±10% TCR100 20V
- 如果没有提供温度系数和测量电压数据，则按标准值（最高值在下一页表中）和测量电压 10V
- If no data for TCR and measuring voltage are supplied,the standard value(highest value in the table on next page) and measuring voltage of 10V is used

插件型高压电阻
HIGH VALUE RESISTORS RADIAL LEADED

SERIES GST1210,25,2512,4020

技 术 参 数 -根据不同尺寸　TECHNICAL DATA——DEPENDING ON SIZE

尺寸（Size）	1210	25	2512	4020
额定功率 P_{70} (W) Power rating P_{70} (W) (P_{125}=0W)	0.5	0.7	1.0	2.0
工作电压 U_-, U_{eff} (V) Working voltage U_-, U_{eff} (V) 刻槽 trimmed 未刻槽 untrimmed(Tol≥5%)	 300 1000	 300 500	 1200 2500	 4000 6000

阻值范围/精度/温度系数[1]/电压系数[2] Ranges/Tolerances/TCR[1]/VCR[2]	1210	25	2512	4020
1M~100M	1/2/5/10% TC25/50/100 <50ppm/V	2/5/10% TC50/100 <50ppm/V	1/.../10% TC25/50/100 <10ppm/V	1/.../10% TC25/50/100 <5ppm/V
> 100M~500M	2/5/10/20% TC50/100/250 <100ppm/V	5/10/20% TC100/250 <100ppm/V	1/2/5/10/20% TC25/50/100 <25ppm/V	1/2/5/10/20% TC25/50/100 <10ppm/V
> 500M~1G	5/10/20% TC100/250 <100ppm/V	5/10/20% TC100/250 <10ppm/V	1/2/5/10/20% TC100/250 <25ppm/V	1/2/5/10/20% TC25/50/100 <10ppm/V
> 1G~10G	5/10/20/30% TC250/500 <500ppm/V	10/20/30% TC250/500 <500ppm/V	2/5/10/20% TC100/250 <25ppm/V	2/5/10/20% TC50/100 <25ppm/V
> 10G~100G	5/10/20/30% TC500/1000 <1000ppm/V	10/20/30% TC500/1000 <1000ppm/V	5/10/20/30% TC250/500 <250ppm/V	5/10/20/30% TC100/250 <100ppm/V
> 100G~1T	-	-	10/20/30/50% TC500/1000 <500ppm/V	5/10/20/30% TC250/500 <250ppm/V

- [1] 温度系数 25/50：温度范围+25℃~+85℃
- [1] TCR25/50：Temperature range +25℃~+85℃
- [2] 电压系数在 10V 和 100V 之间测量
- [2] VCR measured between 10V and 100V
- 更好的精度、温度系数和电压系数及其他外形尺寸或电压分流器可按照要求和协议提供
- Closer values of tolerance,TCR and VCR,other dimensions or voltage dividers on request and agreement

技 术 参 数 -通用　TECHNICAL DATA——GENERAL

温度范围 Temperature range	-55℃~+125℃
气候类型按 IEC60068 Climatic category IEC 60068	55/125/56

长期稳定性 Long term stability	≤1G	≤10G	> 10G
高温贮存 125℃/1000h Storage125℃/1000h	<1%	<2%	<5%
最大电压/1000h　Max. voltage/1000h	<0.5%	<1%	<2%

厚 膜 基 板
THICK FILM SUBBTRATE

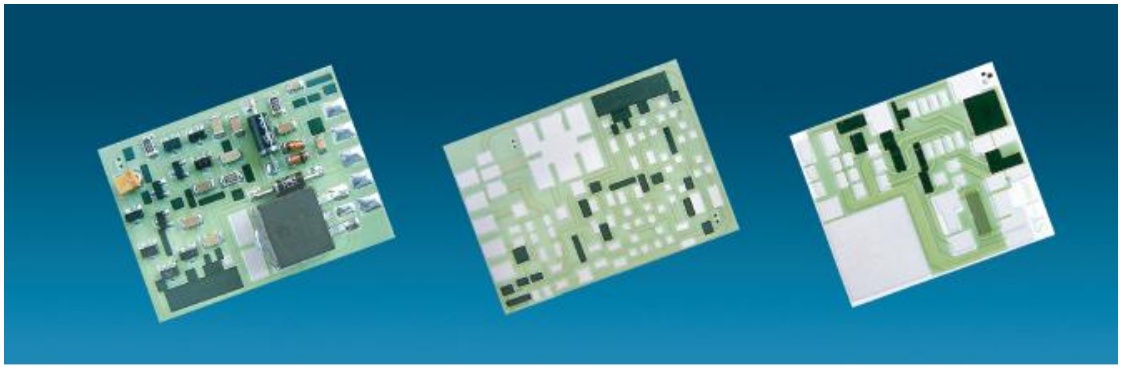
汽车摩托车油位传感器　AUTOMOTIVE OIL-LEVEL DETECTOR



产 品 特 点　FEATURES

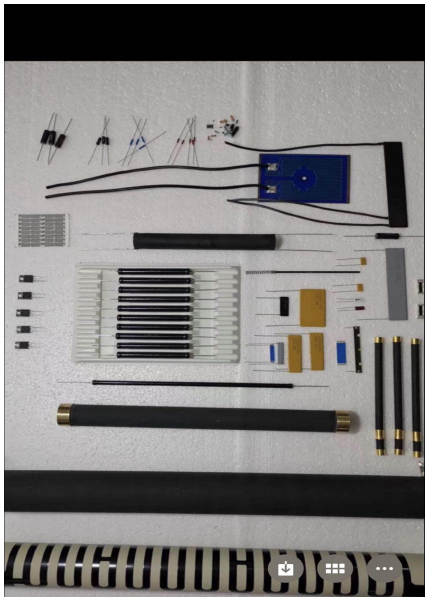
- 0.18mm—0.25mm 超细间距印刷
- Ultra-precision pitch printing between 0.18mm and 0.25mm
- 电阻阻值稳定，精度高
- Perfect stability and high accuracy
- 耐磨次数 30 万次以上，最高 200 万次
- Wear-resisting frequency range: 300,000 times to 2,000,000 times
- 另可生产不同形状、不同规格的油位传感器
- Other sizes or other types are also available if requested

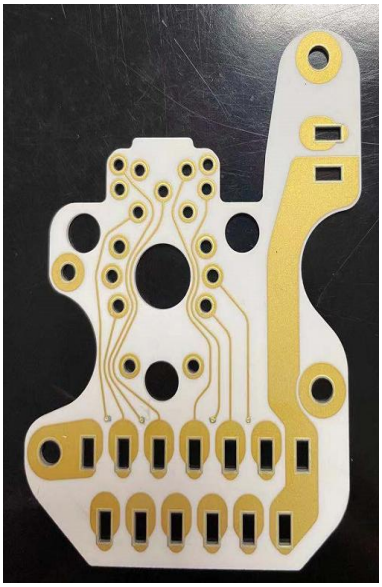
厚膜电路　Thick film circuit



产 品 特 点　FEATURES

- 可焊性好
- Excellent solderability
- 阻值精度高
- Perfect resistance tolerance
- 可根据客户要求定量生产
- Custom product with the quantity they prefer is also available









汽车点火线圈



陶瓷电路



PCB电路



PCB电路



PCB电路



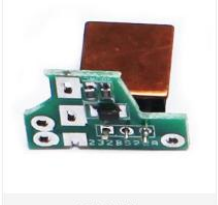
陶瓷电路



陶瓷电路



PCB电路



PCB电路



PCB电路



加热器



厚膜功率



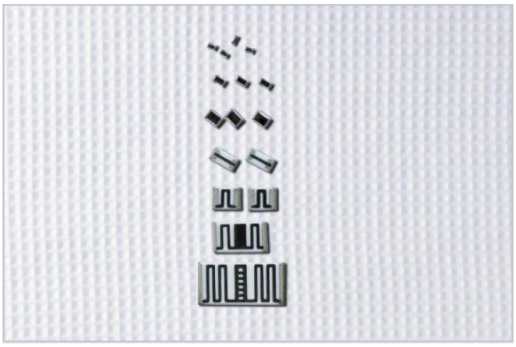
RTP35



PFS

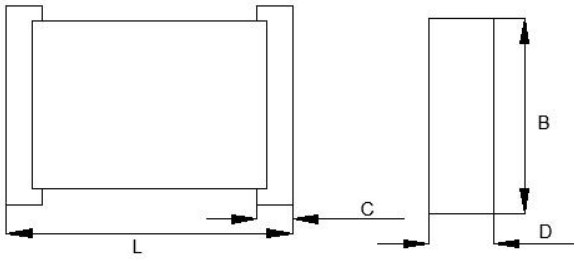
贴片高阻-兆欧片式电阻器
HIGH – MEGOHM CHIP RESISTORS

SERIES CHS0402，0603，0805，1206，1210，2512，4020



产 品 特 点　FEATURES

- 厚膜高阻片式电阻器
- High value Chip Resistors in Thickfilm
- 低温低压工作
- Low temperature and voltage dependency
- 端头 PtAg 电极以供粘接和焊接
- Contact areas PtAg for glueing and soldering
- 未刻槽型供更高电压使用，可达到 6000V
- Untrimmed for higher Working Voltage up to 6000V



外 形 尺 寸　DIMENSIONS

尺寸(size)	L	B	D	C
0402	$1.04^{\pm0.05}$	$0.50^{\pm0.05}$	$0.30^{\pm0.05}$	$0.1^{\pm0.05}$
0603	$1.50^{+0.15/-0.05}$	$0.80^{+0.15/-0.05}$	$0.40^{+0.15/-0.05}$	$0.2^{+0.2/-0.1}$
0805	$2.00^{+0.15/-0.05}$	$1.25^{+0.15/-0.05}$	$0.40^{+0.15/-0.05}$	$0.3^{+0.2/-0.1}$
1206	$3.20^{+0.15/-0.05}$	$1.50^{+0.2/-0.05}$	$0.40^{+0.15/-0.05}$	$0.3^{+0.2/-0.1}$
1210	$3.20^{+0.15/-0.05}$	$2.50^{+0.2/-0.05}$	$0.50^{+0.15/-0.05}$	$0.8^{\pm0.2}$
2512	$6.30^{+0.15/-0.05}$	$3.50^{+0.2/-0.05}$	$0.60^{+0.15/-0.05}$	$0.9^{\pm0.2}$
4020	$10.20^{+0.15/-0.05}$	$5.10^{+0.2/-0.05}$	$0.60^{+0.15/-0.05}$	$0.9^{\pm0.2}$

L=长度，B=宽度，D=厚度，C=包围电极宽度(mm)

L=Length ,B=Width, D=Thickness,

C=Width of wrap around (in mm)

包 装 方 式　P A C K A G I N G

- 散装装在塑料袋或管式包装－每一种阻值最低数量 100 只
- Bulk in plastic bags or tubes-minimum quantity 100 pieces per value
- 编带包装按 IEC 60286-3－每种阻值最少 1000 只
- Blistertape acc.to IEC 60286-3－minimum 1000 pieces per value
- 料盘直径 180mm 或 330mm
- Reel diameter 180mm or 330mm

供 货 示 例　ORDERING DATA

- 型号——阻值——精度——温度系数——包装方式——测量电压
- Type——value——tolerance——TCR——Packaging——Measuring voltage
- 例如：CHS 4020 10G ±10% TCR100 编带 180mm 20V
- Example: CHS 4020 10G ±10% TCR100 Tape 180mm 20V
- 如果对温度系数、测量电压和包装方式无要求，将按标准温度系数提供（表中最大值），测量电压 10V,包装是散装
- If no requirements for TCR, measuring voltage and taping are given the standard value(highest value in table)will be supplied, measuring voltage of 10V is used and packaging is bulk

贴片高阻-兆欧片式电阻器
HIGH – MEGOHM CHIP RESISTORS

SERIES CHS0402，0603，0805，1206，1210，2512，4020

技 术 参 数 -根据不同尺寸　TECHNICAL DATA——DEPENDING ON SIZE

尺寸（Size）	0402	0603	0805	1206	1210	2512	4020
额定功率 P_{70}（mW） Power rating P_{70}（mW） (P_{155}=0mW)	50	75	125	250	350	1000[1)]	1500[1)]
工作电压 U_Ueff(V) Working voltage U,_Ueff(V) 刻槽 trimmed 未刻槽 untrimmed(Tol,≥5%)	 30 90	 75 200	 100 300	 200 600	 300 900	 1000 2000	 4000 6000

阻值范围/精度/温度系数[2)]/电压系数[3)] Ranges/Tolerances/TCR[2)]/VCR[3)]	0402	0603	0805	1206	1210	2512	4020
10M~100M	5/10/20% TC100/250 <500ppm/V	1/5/10/20% TC100/250 <250ppm/V	1/5/10/20% TC50/100 <100ppm/V	1/5/10/20% TC20/50/100 <100ppm/V	1/5/10/20% TC25/50/100 <50ppm/V	1/…/20% TC25/50/100 <10ppm/V	1/…/20% TC25/50/100 <5ppm/V
> 100M~500M	5/10/20% TC100/500 <1000ppm/V	2/5/10/20% TC100/250 <500ppm/V	2/5/10/20% TC100/250 <250ppm/V	2/5/10/20% TC100/250 <100ppm/V	2/5/10/20% TC100/250 <100ppm/V	1/5/10/20% TC25/50/100 <25ppm/V	1/5/10/20% TC25/50/100 <10ppm/V
> 500M~1G	5/10/20% TC100/250 <500ppm/V	5/10/20% TC250/500 <500ppm/V	5/10/20% TC250/500 <250ppm/V	5/10/20% TC100/250 <250ppm/V	5/10/20% TC100/250 <100ppm/V	1/5/10/20% TC100/250 <25ppm/V	1/5/10/20% TC25/50/100 <10ppm/V
> 1G~10G	1020/30% TC1000/2000 <2000ppm/V	5/10/20/30% TC500/1000 <2000ppm/V	5/10/20% TC500/1000 <1000ppm/V	5/10/20% TC500/1000 <1000ppm/V	5/10/20% TC250/500 <500ppm/V	2/5/10/20% TC250/500 <250ppm/V	2/5/10/20% TC50/100 <25ppm/V
> 10G~100G	-	10/20/30% TC1000/2000 <5000ppm/V	10/20/30% TC1000/2000 <2000ppm/V	10/20/30% TC1000/2000 <2000ppm/V	5/10/20% TC500/1000 <1000ppm/V	5/10/20% TC250/500 <250ppm/V	5/10/20/30% TC100/150 <100ppm/V
> 100G~1T	-	-	20/30% TC3000 <5000ppm/V	10/20/30% TC3000 <5000ppm/V	10/20/30% TC1000/2000 <2000ppm/V	10/20/30% TC500/1000 <1000ppm/V	10/20/30% TC500/1000 <500ppm/V

- [1)]如果想获得持续的功率耗散，焊接区域的面积应能保证足够的热传导
- [1)]At continuous power dissipation the dimensions of solder – pads have to secure sufficient heat – conduction
- [2)]温度系数 20/50：Temperature range +25°C…+85°C
- [2)]TC25/50: Temperature range +25°C…+85°C
- [3)]电压系数在 10V 和 100V 之间测量
- [3)]VCR measured between 10V and 100V
- 较低精度值、温度系数和电压系数可按要求和协议供货
- Lower values of tolerance, TCR and VCR on request and agreement

特性参数－通用 TECHNICAL DATA_GENERAL

温度范围 Temperature range	-55℃~+155℃
气候类型按 IEC60068 Climatic category acc.to IEC60068	55/155/56
可焊性按 IEC60068 T2-20,Ta 方法 1[4)] Solderability acc.IEC60068 T2-20,Ta Meth.1[4)]	235℃ 5s
耐焊接热按 IEC60068 T2-20,Tb 方法 1[4)] Max.soldering temperature acc. IEC60068 T2-20,Tb Meth.1A	260℃ 10s

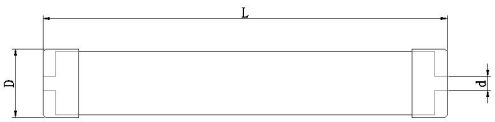
长期稳定性 Long term stability	<1G	<10G	≥10G
高温贮存 125℃/1000h Storage 125℃/1000h	<1%	<2%	<5%
	<1%	<2%	<2%

- [4)]装运后至 6 个月要求贮存在氮气中
- [4)]Up to 6 months after shipment resp, at storage in Nitrogen
- 未列特性按 CECC40401-802
- Data not specified according CECC 40401-802

圆柱型高功率厚膜电阻器
HIGH POWER THICK FILM RESISTORS

SERIES PFS





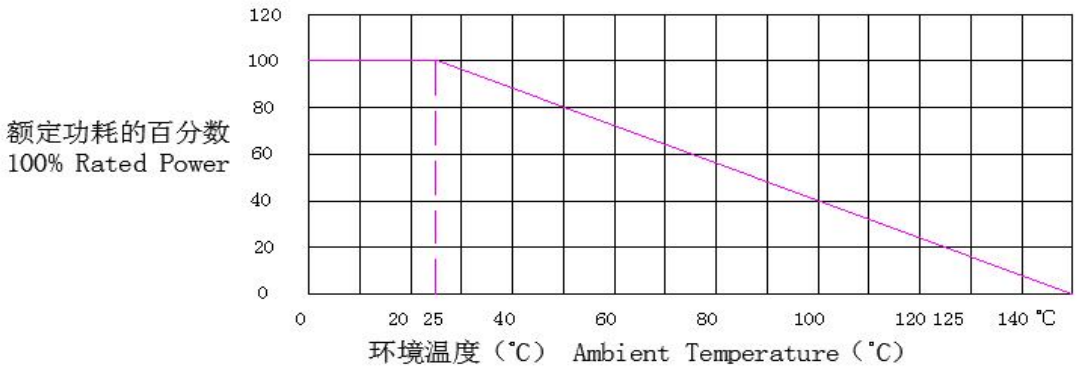
产 品 特 点　FEATURES

- 功率密度大
- High power density
- 高频特性好
- Excellent HF characteristics
- 耐湿、耐高温
- Anti-pulse,　High temperature appliance
- 抗浪涌能力强、稳定性高
- Anti-pulse, High stability

典型应用　TYPICAL APPLIANCE

- 广播发射，雷达，高、中频设备负荷。
- Broadcasting transmiting device ,Rader system, Loading resistor
  For high and medium frequency devices.

降功耗曲线 POWER DERATING CURVE



圆柱型高功率厚膜电阻器
HIGH POWER THICK FILM RESISTORS

SERIES PFS

技 术 参 数　SPECIAL FEATURES

型号 Model	额定功率 Rated power(W)	外形尺寸 Dimensions		
		D	L	d
PFS30	30	14.5	156	M4
PFS50	50	27.0	130	M6
PFS100	100	30.5	158	M6
PFS150	150	27.0	200	M6
PFS180	180	30.5	273	M6
PFS200	200	30.5	303	M6
PFS300	300	30.5	373	M6
PFS400	400	43.0	412	M8

- 可根据客户需要制作其他尺寸管状功率电阻器
- Special dimensions tube high power resistor can be made according to customer's requirements

特　性　SPECIFICATION

试验项目 TEST ITEM	性能要求 SPECIFICATIONS
阻值范围 Resistance Range	1Ω～20MΩ
阻值精度 Resistance Tolerance	20%, 10%, 5%, 1%
寿命 Load life	Max.5% change after 1000hrs at ratde power
短时间过载 Short time overload	Max.1% change (1.5times rated power 10s)
温度系数 Temperature Coefficient	200ppm/°C
电压系数 Voltage Coefficient	Max.1% KV/In
最高表面温度 Max.Surface Temperature	350°C