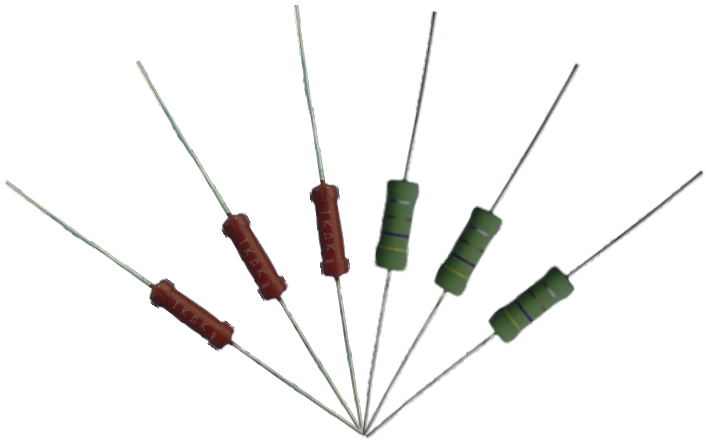
Ceramic Resistors For Anti Pulse And Surge(HVB)



Introduction

Ⅰ HVB ’ s Resistor series are for high volt age,power charging/discharging circuits,surge energy applications and conform to RoHS directive and lead-free.

Ⅱ For customed designs,tighter tolerances,nonstandard technical requirements,or custom special applications,please contact our sales for more information.

Ⅲ The HVB is perfect for medical defibrillators.

Ⅳ Surface insulation optional palm red or green.

Ⅴ Compared with HVA,the HVB offers more choices for customer.

Features

Ⅰ Special ceramic resistor , was made of Clay , Silicon dioxide and Porcelain cement . After sintering under high temperature and high voltage , the resistor core was build ,then take the insulation coating.

Ⅱ Saver than the wire-wound resistor and film resistor , which will avoid the wire disconnecting and the film breaking up .

Ⅲ High peak power can be reached at 5KW-30KW in short time

Ⅳ Good performance in bearing high voltage and high current

Ⅴ Products meet the RoHS requirments.

Applications

Ⅰ Radar,Motor Drives,Broadcast Transmitters,

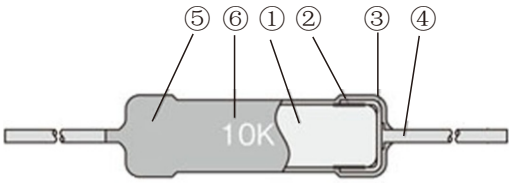
Ⅱ X-Ray,Lasers,Medical Defibrillators.

Ⅲ Dynamic Braking,Soft-start/Current-limit.

Ⅳ Snubber Circuits,Dummy Loads,Energy Research.

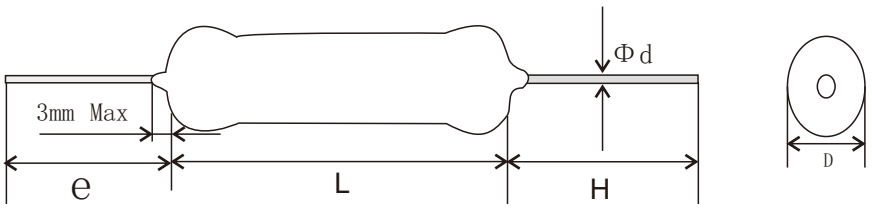
Ⅴ RF Amplifiers,Semiconductor Process,Power Conditioning .

Construction



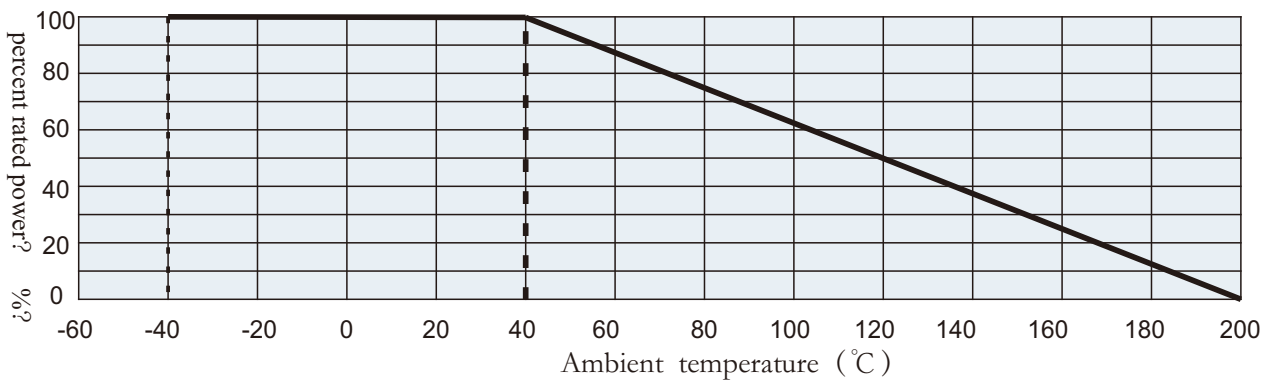
①	Resistive body	④	Lead wire
②	Inner electrode	⑤	Coating
③	Electrode cap	⑥	Marking

Dimensions



Type	Dimensions(mm)				Weight(g) (1000pcs)
	L±1.0	D±1.0	d	H±3	
HVB1/2	11	3.5	0.8	38.0	700±10
HVB1	16	4.5			1250±10
HVB1.5	19	5.0			1450±10
HVB2	21	5.0			1800±20
HVB3	26	5.0			2800±30
HVB4	38	7.0	1.0		6000±30
HVB5	44	7.5			8000±50

Derating Curve



For resistors operated at an ambient temperature of 70℃ or above,
the power rating should be derated in accordance with the above derating curve.

Power And Resistance etc

Type	Power rating @40℃	Rsesistance range(Ω) K:±10% E12	Rsesistance range(Ω) M:±20% E6	T.C.R ($\times 10^{-6}$/K)	Max. Working	Max. overload voltage	Max. pulse voltage	Rated Ambient Temperture	Operating temp Range
HVB1/2	0.5W	10-390K	3.3-330K	-900±300 :R<100Ω -1200±300 :R≥100Ω	200V	400V	10KV	+40℃	-40℃-200℃
HVB1	1W				300V	600V	15KV		
HVB1.5	1.5W				400V	800V	25KV		
HVB2	2W				450V	900V	25KV		
HVB3	3W				500V	1000V	25KV		
HVB4	4W				550V	1100V	25KV		
HVB5	5W				600V	1200V	30KV		

Remark:

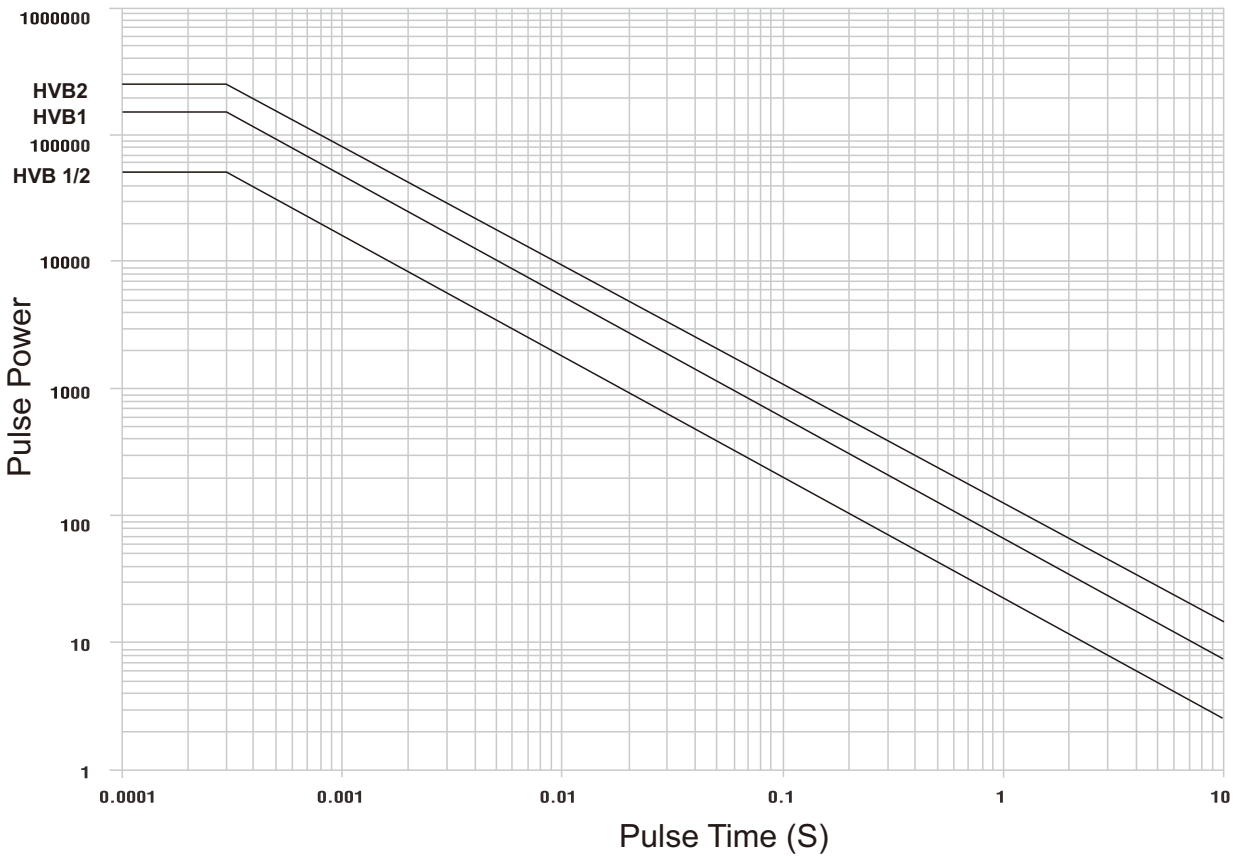
Ⅰ Rated Ambient Temperature:+70℃.

Ⅱ Operating temperature range:-40℃～+200℃.

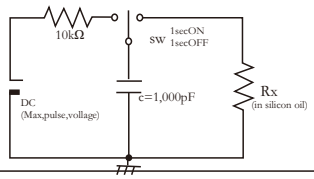
Ⅲ Rated voltage=$\sqrt{\text{power rating*resistance value}}$ orMax.working voltage,whichever is lower.

Ⅳ The maximum pulse voltage in the "resistance to pulse"examination condition of the performance column.

Pulse Limiting Power(Po)One Pulse



Performance(Reference Standards:IEC60115-1 and JIS C5201-1)

Test Items	Performance Requirements △R±(%+0.05Ω) Limit	Typical	Test Methods
Resistance	Within specified tolerance	—	25℃ Resistance / Measuring voltage 3.3Ω-8.2Ω: 0.3V 10Ω-82Ω: 1.0V 100Ω-390KΩ: 3.0V
T.C.R	-900±300℃*10 /K (R＜100Ω) -1200±300℃*10 /K (R≥100Ω)	—	+25℃/-40℃, and +25℃/+125℃
Voltage Coefficient (Apply for 1KΩ or over)	0～-0.20%/V (HVB1/2) 0～-0.10%/V (HVB1) 0～-0.05%/V (HVB2,3,4,5)	—	Rated voltage and rated voltage*10%
overload(short time)	≤△R±(2%+0.05Ω)	0.4	Rated voltage*2.5 or Max.overload vol. whichever is lower for 5s
Resistance to pulse	≤△R±(5%+0.05Ω)	—	The resistor mounted on to the test circuit as below is applied with high voltage impulse 10,000 cycles. 
Resistance to soldering heat	≤△R±(2%+0.05Ω)	0.8	350℃±10℃、3.5S±0.5S
Rapid change of temperature	≤△R±(2%+0.05Ω)	0.4	-40℃ (30min) /+85℃ (30min) 5 cycles
Moisture resistance	≤△R±(5%+0.05Ω)	0.6	40℃±2℃.90%-95%RH,1000h 1.5h ON\0.5h OFF cycles
Load life	≤△R±(5%+0.05Ω)	0.4	40℃±2℃,1000h 1.5h ON\0.5h OFF cycles
High temperature exposure	≤△R±(5%+0.05Ω)	1.7	+200℃, 1000h
Resistance to solvent	No abnormality in appearance. Marking shall be easily legible	—	Dipping in IPA or Xylene for 3 min. and leaving for 10 min. after removing drops,then brushing 10 times.

When testing the resistance value ,the ambient temperature should keep at 25℃±2℃ and the moisture keep at 65%

Type Designation

Example

HVB	1	C	T631	R	103	K
Product code	Power rating	Terminal Surface Material	Taping	Packing	Nominal Resistance	Resistance Tolerance
	1/2: 0.5W 1 : 1.0W 1.5 : 1.5W 2 : 2.0W 3 :3.0W 5 : 5.0W	C:SnCu			3 digits	K:±10% M:±20%