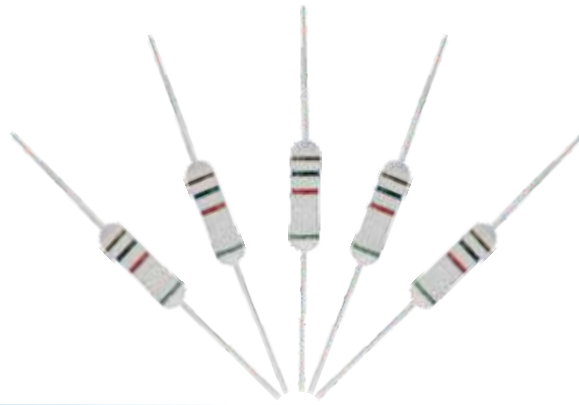


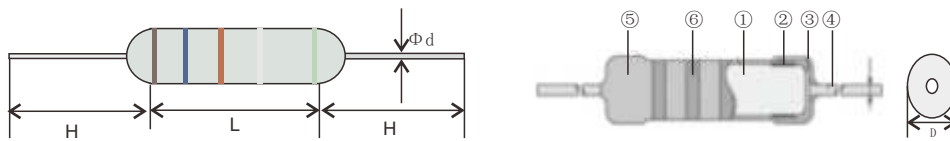
HVA Ceramic Resistors For Anti Pulse And Surge



● Introduction

- I KH X' s HVA Resistor series are primarily designed for high voltage,high energy and high current products.
- II HVA' s function is much better than carbon composition resistor, in some fileds, several carbon composition resistors can be replaced by only one ceramic resistor.
- III Operating ambient temperature:-55°C ~200°C.
- IV Resistance value:3Ω~2MΩ.
- V Tolerance:K(±10%),M(±20%) are recommended, F(±1%),G(±2%),J(±5%) are available.
- VI For customized products please contact with us.

● Construction



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

● 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

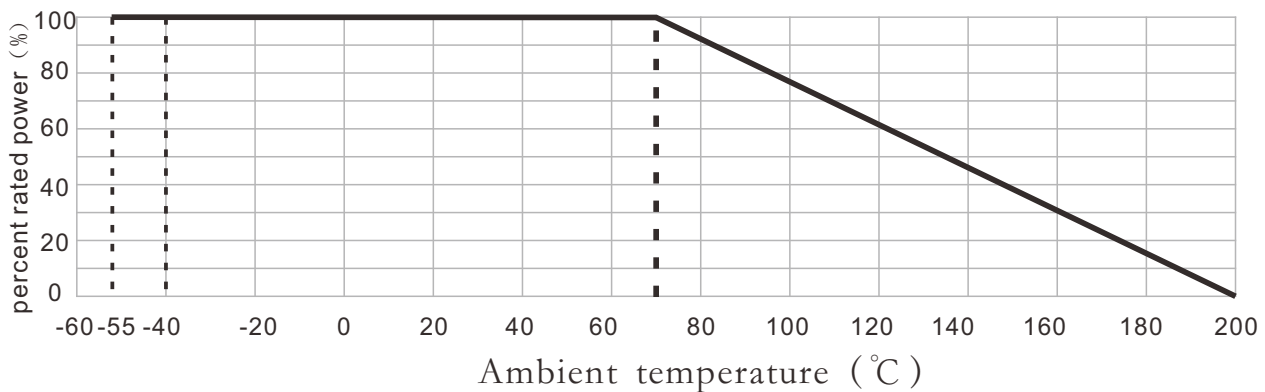
- I Radar, Motor Drives, Broadcast Transmitters.
- II X-Ray equipment ,Lasers, Medical Defibrillators.
- III Dynamic Braking, Soft-start/Current-limit equipment.
- IV Snubber Circuits, Dummy Loads, Energy Research field..
- V RF Amplifiers, Semiconductor Process, Power Conditioning.

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● Dimensions

Type	Dimensions(mm)				Weight(g) (1000PCS)
	L±1.5	D±1.0	d±0.05	H±3	
HVA 012	9	3.5	0.7	30	455g±10g
HVA 01B	16	5.5	0.75	33	1350g±10g
HVA 02B	19	7.0	0.8	33	2250g±10g

● Derating Curve



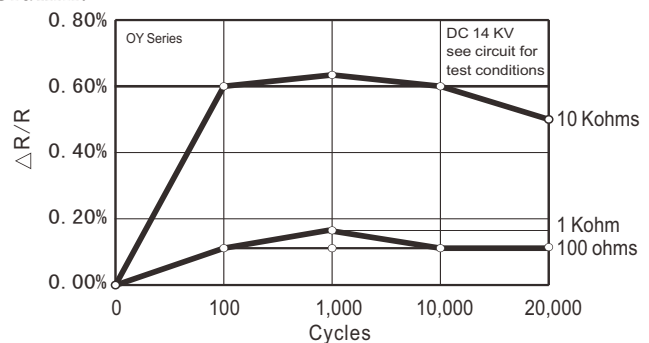
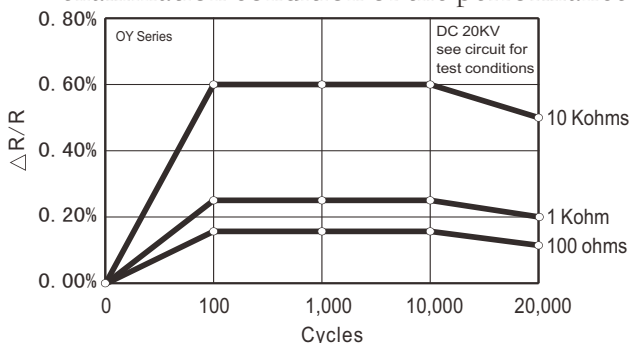
For resistors operated at an ambient temperature of 70°C or above, the power rating should be derated in accordance with the above derating curve.

● Power And Resistance Etc

Type	Power Rating	Resistance Range(Ω)		T.C.R (*10 ⁻⁶ /K)	Max. Working Voltage	max. overload voltage	Max. Pulse Voltage	Rated Ambient Temperature
		K:±10% E12	M:±20% E6					
HVA 012	0.5W	4.7Ω-2MΩ	4.7Ω-2MΩ	-800±300 :R<100Ω	200V	400V	10KV	500V
HVA 01B	1.0W	3.3Ω-2MΩ	3.3Ω-2MΩ		-1200±300 :R≥100Ω	300V	600V	
HVA 02B	2.0W						400V	800V

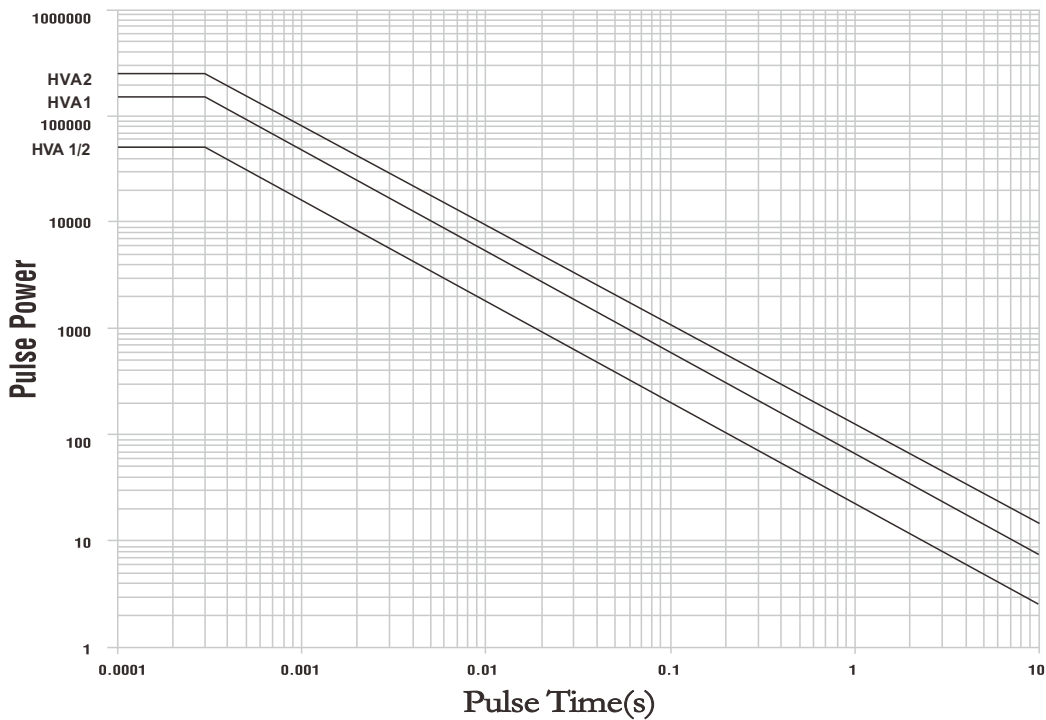
Remark:

- I Rating Ambient Temperature: +70°C
- II Operating temperature range: -40°C ~ +200°C
- III Rated voltage = $\sqrt{\text{power rating} * \text{resistance value}}$
- IV The maximum pulse voltage in the "resistance to pulse" examination condition of the performance column.

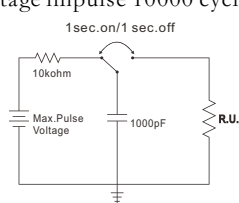


HVA Ceramic Resistors For Anti Pulse And Surge

Pulse Limiting Power(Po) One Pulse



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

Test Items	Performance Requirements $\Delta R \pm (\%+0.05\Omega)$		Test Methods	
	Limit	Typical		
Resistance	Within specified tolerance	1k Ω , 2k Ω 3k Ω , 5k Ω	25 $^{\circ}$ C	
			Resistance	Measuring voltage
			3.3 Ω -8.2 Ω	0.3V
			10 Ω -82 Ω	1.0V
			100 Ω -390K Ω	3.0V
T.C.R	-800 \pm 300*10 $^{-6}$ /K:R < 100 Ω -1200 \pm 300*10 $^{-6}$ K:R \geq 100 Ω	~	+25 $^{\circ}$ C / -40 $^{\circ}$ C , +25 $^{\circ}$ C / +75 $^{\circ}$ C 和 +25 $^{\circ}$ C / +125 $^{\circ}$ C	
Voltage Coefficient (Apply for 1K Ω or above)	0 ~ -0.20%/V	~	Rated voltage and rated voltage*10%	
Overload(Short time)	$\leq \Delta R \pm (2\%+0.05\Omega)$	0.4	Rated voltage *2.5 or Max. over vol. which is lower for 5s	
Resistance to pulse	$\leq \Delta R \pm (5\%+0.05\Omega)$	~	The resistor mounted on to the test circuit as below is applied with high voltage impulse 10000 cycles 1sec.on/1 sec.off  14KV and 20KV values used in circuit as shown; full voltage not applied directly to resistor.	
Resistance to soldering heat	$\leq \Delta R \pm (2\%+0.05\Omega)$	0.8	350 $^{\circ}$ C \pm 10 $^{\circ}$ C 、 3.5S \pm 0.5S	
Rapid change of temperature	$\leq \Delta R \pm (2\%+0.05\Omega)$	0.4	-40 $^{\circ}$ C (30min) / +85 $^{\circ}$ C (30min) 5 cycles	
Moisture resistance	$\leq \Delta R \pm (5\%+0.05\Omega)$	0.6	40 $^{\circ}$ C \pm 2 $^{\circ}$ C 90%-95%RH, 1000h 1.5h ON \ 0.5h OFF cycles	
Load life	$\leq \Delta R \pm (5\%+0.05\Omega)$	0.4	70 $^{\circ}$ C \pm 2 $^{\circ}$ C, 1000h 1.5h ON \ 0.5h OFF cycles	
Resistance to solvent	No abnormality in appearance marking shall be easily legible	~	Dipping in IPA or Xylene for 3 min. and leaving for 10min. after removing drops, then brushing 10 times.	

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When testing the resistance value ,the ambient temperature should keep at $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and the moisture keep at 65%

● Ordering Information

Example:	HVA	01B	J	T520	R100
	(1)	(2)	(3)	(4)	(5)
	Series Name	Power Rating	Resistance Tolerance	Forming	Resistance

(1)Type: HVA SERIES

(2)Power Rating: 012=1/2W,01B=1W,02B=2W

(3)Tolerance:F= $\pm 1\%$,G= $\pm 2\%$,J= $\pm 5\%$,K= $\pm 10\%$

(4)Forming:T520=T52,T710=T71

(5)Resistance Value:R100=0.1R、1R00=1 Ω 、10R0=10 Ω 、100R0=100 Ω