

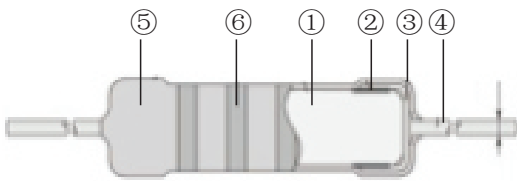
## ● Applications

- 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.

## ● 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 0.5KW-5KW in short time.
- IV Good performance in bearing high voltage and high current.
- V Products meet the RoHS requirements.

## ● Construction



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

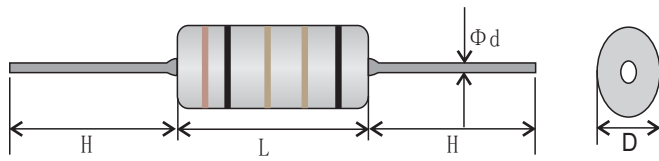
## ● Ordering Information

Example:

HBC	1	K	100R0
(1)	(2)	(3)	(4)
Series Name	Power Rating	Resistance Tolerance	Resistance

- (1) Type: HBC、PGF SERIES
- (2) Power Rating: 1/2=0.5W, 1W=1W, 2W=2W
- (3) Tolerance: K=±10%, M=±20%
- (4) Resistance Value: 10R0=10Ω、100R0=100Ω

## ● Dimensions



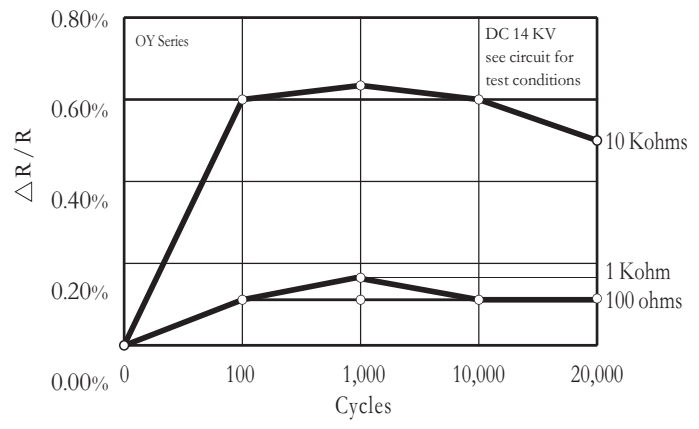
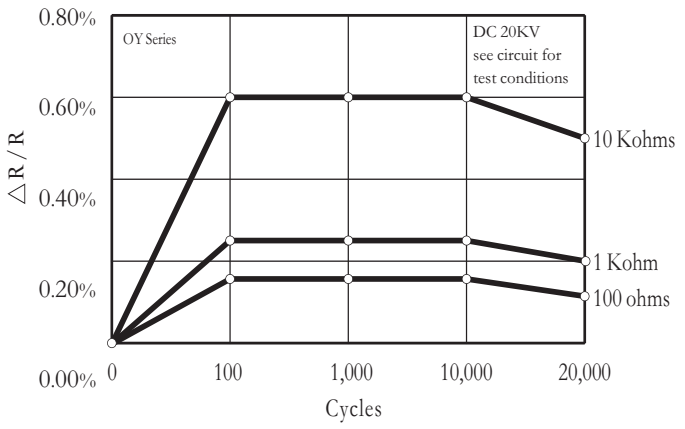
Type	Power	Dimensions(mm)			
		L ± 1.0	D ± 1.0	Φd ± 0.05	H ± 3
HBC	0.5W	12.0	3.5	0.8	33
	1.0W	17.0	4.5	0.8	33
	2.0W	22.0	5.0	0.8	38
	3.0W	27.0	6.0	0.8	38
	4.0W	39.0	7.0	1.0	38
	5.0W	45.0	7.5	1.0	38
PGF	0.5W	9.0	3.5	0.7	33
	1.0W	16.5	5.5	0.8	38
	2.0W	19.0	7.0	0.8	38

## ● Power And Resistance Etc

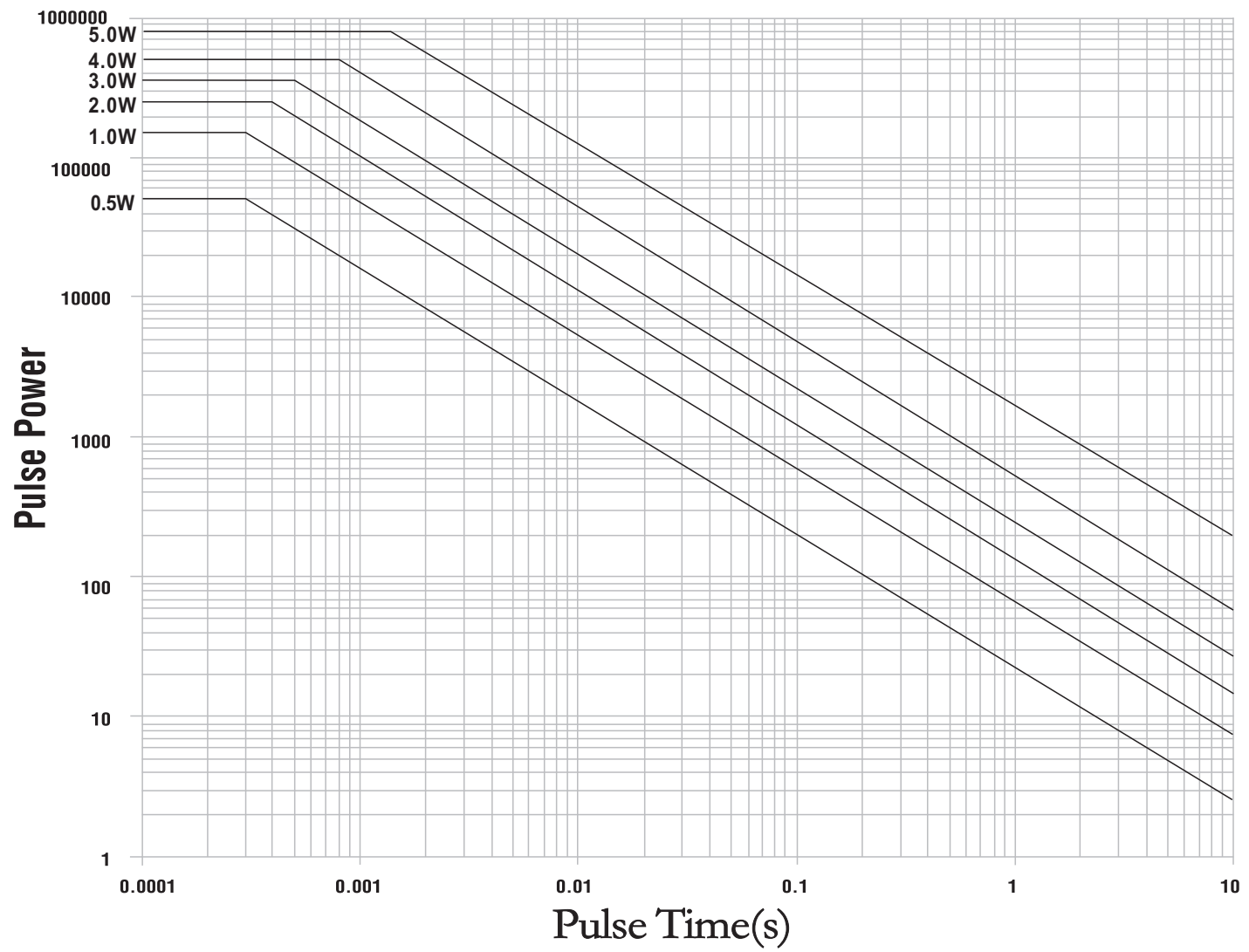
Type	Power (W)	Resistance Range (Ω) E-12(±10%) E-6(+20%)	T C R	Minimum Dielectric Withstanding Voltage	Max.Working Voltage	Max.overload Voltage	Max.Pulse Voltage	Operating Temperature Range
HBC	0.5W	10Ω~390KΩ (±10%) 3.3Ω~330KΩ (±20%)	-900 ± 300 :R < 100Ω -1200 ± 300 :R ≥ 100Ω	200V	200V	400V	8KV	-40°C to +200°C
	1.0W			300V	300V	600V	15KV	
	2.0W			400V	400V	800V	25KV	
	3.0W			450V	450V	900V	25KV	
	4.0W			500V	500V	1000V	25KV	
	5.0W			550V	550V	1100V	25KV	
PGF	0.5W	4.7Ω~100KΩ	-900 ± 300 :R < 100Ω -1300 ± 300 :R < 100Ω	500V	200V	400V	10KV	
	1.0W	3.3Ω~390KΩ		500V	300V	600V	14KV	
	2.0W			700V	400V	800V	20KV	

\*Resistance to pulse: change shall be ± 5% of the pre-test values. 1 sec. ON, 1 second OFF, 20,000 cycles. The voltage is applied with maximum pulse voltage.

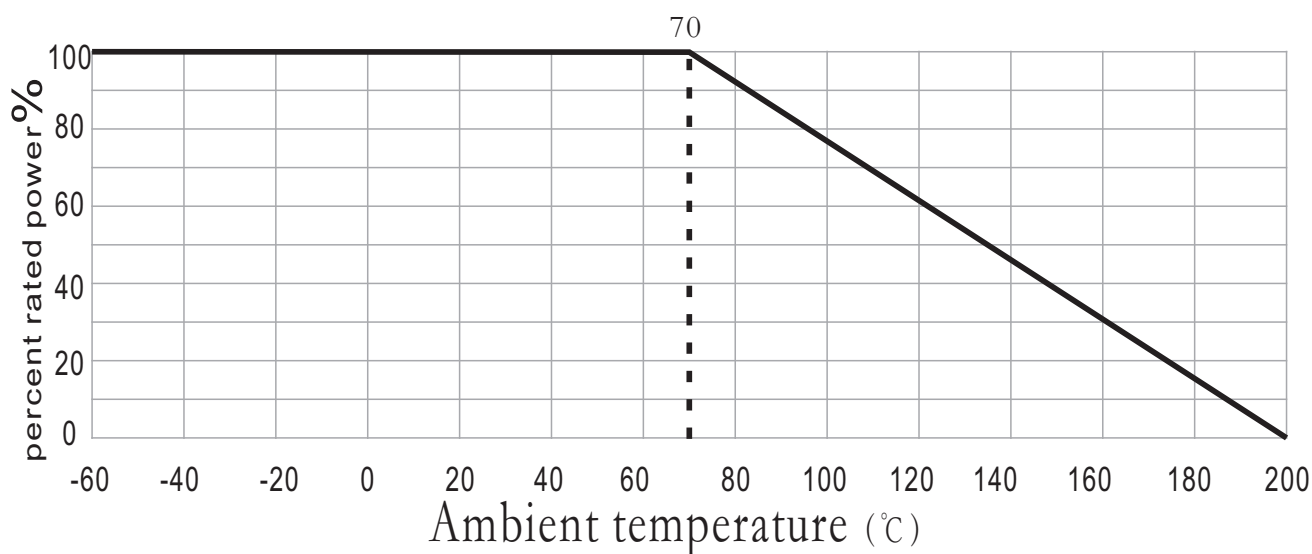
## ● Resistance to Pulse



## ● Pulse Limiting Power(Po) One Pulse



## Derating Curve



## Performance

Test Items	Performance Requirements		Test Methods	
	Limit	Typical		
Resistance	Within specified tolerance	1kΩ, 2kΩ 3kΩ, 5kΩ .....	25°C	
			Resistance	Measuring voltage
			3.3Ω-8.2Ω	0.3V
			10Ω-82Ω	1.0V
T.C.R	HBC: -900 ± 300*10 <sup>-6</sup> /K:R < 100Ω -1200 ± 300*10 <sup>-6</sup> K:R ≥ 100Ω	~	+25°C / -40°C , and +25°C / +125°C	
	PGF -900 ± 300:R < 100Ω -1300 ± 300:R > 100Ω			
Voltage Coefficient (Apply for 1KΩ or above)	0~-0.2%/V(HBC1/2,PGF) 0~-0.1%/V(HBC1) 0~-0.05%/V(HBC2,3,4,5)	~	Rated voltage and rated voltage*10%	
Overload(Short time)	≤ ΔR ± (2%R+0.05Ω)	0.4	Rated voltage *2.5or Max.over vol.which is lower for 5s	
Resistance to pulse	≤ ΔR ± (5%R+0.05Ω)	~	The resistor mounted to the test circuit as below. 1 sec. ON and 1 sec. OFF. 20,000 cycles. The voltage is applied with maximum pulse voltage.	
Resistance to soldering heat	≤ ΔR ± (2%R+0.05Ω)	0.8	350°C ± 10°C、3.5S ± 0.5S	
Rapid change of temperature	≤ ΔR ± (2%R+0.05Ω)	0.4	-40°C (30min) / +85°C (30min) 5 cycles	
Moisture resistance	≤ ΔR ± (5%R+0.05Ω)	0.6	40°C ± 2°C 90%-95%RH,1000h 1.5hON\0.5hOFF cycles	
Load life	≤ ΔR ± (5%R+0.05Ω)	0.4	HBC:40°C ± 2°C,1000h 1.5hON\0.5hOFF cycles PGF:70°C ± 3°C,1000h 1.5hON\0.5hOFF cycles	