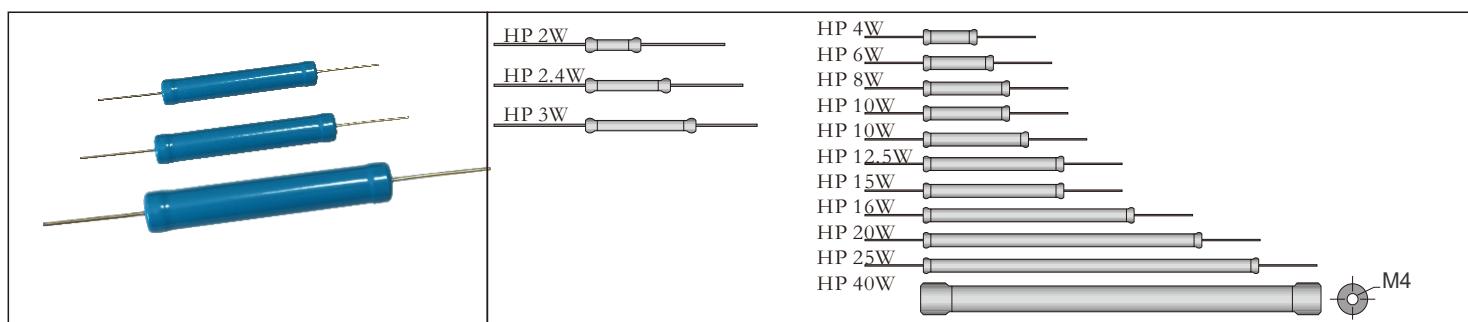
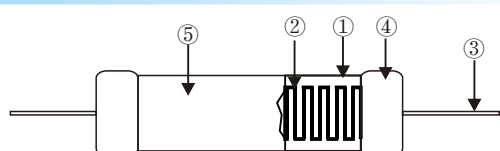




● Feature

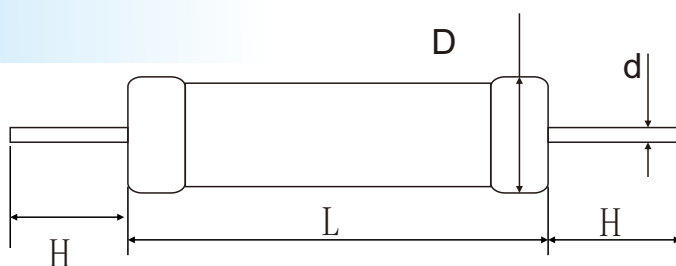
- I up to 40 KV operating voltage
- II Non-Inductive design
- III ROHS compliant
- IV Full power and voltage ratings (derating not required)

● Construction



- ① Ceramic core
- ② Glazed resistive film
- ③ Lead
- ④ Silver plated brass cap
- ⑤ Protective coating

● Dimensions



Type	Power @125℃	Resistance values (Ω)	Dimensions(mm)			
			L ± 1	D ± 0.5	H ± 3	d ± 0.1
HP	2.0W	0.1Ω-10M	11.7	3.7	38	0.6
	2.4W	0.1Ω-12M	13.3	4.2	38	0.6
	3.0W	0.1Ω-15M	19.7	4.2	38	0.6
	4.0W	0.1Ω-15M	20.2	8.2	38	1.0
	6.0W	0.1Ω-15M	26.9	8.2	38	1.0
	8.0W	0.1Ω-20M	33.0	8.2	38	1.0
	10W	1Ω-10M	33.0	8.2	38	1.0
	10W	0.1Ω-30M	39.5	8.2	38	1.0
	12.5W	0.1Ω-30M	52.1	8.2	38	1.0
	15W	1Ω-30M	52.1	8.2	38	1.0
	16W	1Ω-30M	77.7	8.2	38	1.0
	20W	1Ω-30M	102.9	8.2	38	1.0
	25W	1Ω-30M	123.7	8.2	38	1.0
	40W	1Ω-30M	155.0	16	38	

Ordering Information

Example:

HP	2W	F	50M	50
(1)	(2)	(3)	(4)	(4)
Series Name	Power Rating	Resistance Tolerance	Resistance	TCR

(1)Type: HP ERIES

(2)Power Rating: 2=2W、3=3W、6=6W、8=8W、10=10W.....

(3)Tolerance: F=±1%、G=±2%、J=±5%、K=±10%

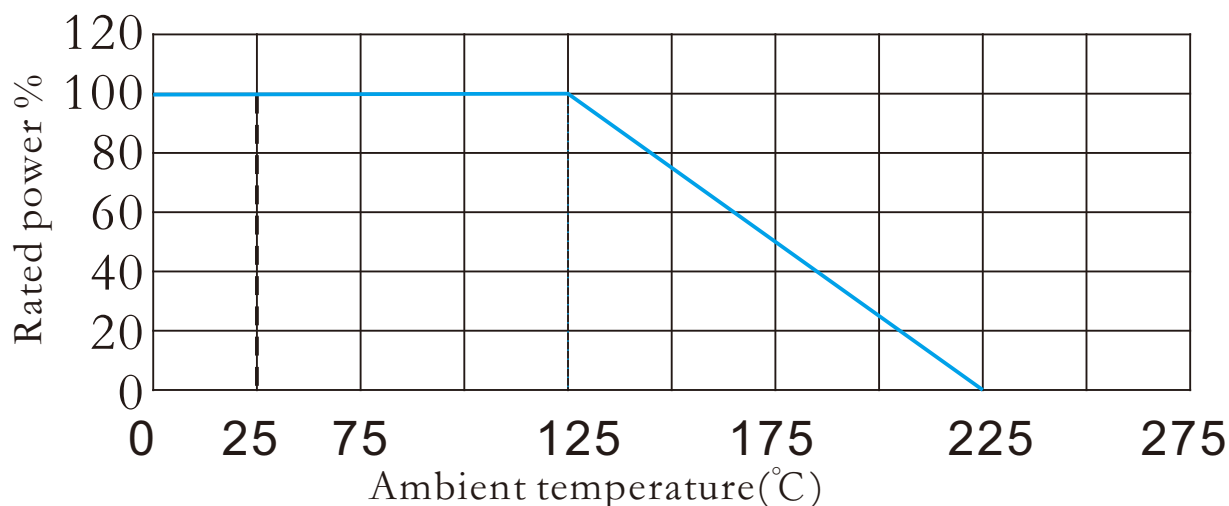
(4)Resistance Value:0R10=0.1Ω、1R00=1Ω、30MR0=30MΩ

(5)TCR: ±25ppm/°C

Power And Resistance etc

Type	Power @125°C	Resistance values (Ω)	T.C.R (PPM/°C)	Max. Power Voltage(KV)	Max. operating temperature(°C)	Resistance tolerance
HP	2.0W	0.1Ω-10M	$\geq 10 \Omega$: 50 ppm/°C (referenced to 25°C, ΔR taken at -15°C and +85°C) 25 ppm/°C on special request for limited ohmic values,ask for details	1.0KV	225°C	F(±1%) G(±2%) J(±5%) K(±10%)
	2.4W	0.1Ω-12M		1.0KV		
	3.0W	0.1Ω-15M		1.0KV		
	4.0W	0.1Ω-15M		0.8KV		
	6.0W	0.1Ω-15M		2.0KV		
	8.0W	0.1Ω-20M		4.5KV		
	10W	1Ω-10M		4.5KV		
	10W	0.1Ω-30M		4.5KV		
	12.5W	0.1Ω-30M		6.0KV		
	15W	1Ω-30M		6.0KV		
	16W	1Ω-30M		6.0KV		
	20W	1Ω-30M		6.0KV		
	25W	1Ω-30M		6.0KV		
	40W	1Ω-30M		6.0KV		

Derating Curve



● Performance

Test Item	Specifications
Resistance value	$0.1 \Omega \leq 30 \text{ M}\Omega$ (see model specifications)
Resistance tolerance	$\pm 1\%$ to $\pm 10\%$
Temperature coefficient	$\geq 10 \Omega$: 50 ppm/°C (referenced to 25°C, ΔR taken at -15°C and +85°C) 25 ppm/°C on special request for limited ohmic values, ask for details
Max. operating temperature	+ 275 ° C
Dielectric strength	1,000 V DC max
Insulation resistance	10 G Ω min. at 1,000 V DC
Overload / overvoltage	5x rated power at 125°C (referenced to specified power at +125°C) with applied voltage not to exceed 1.5x maximum continuous operating voltage for 5 sec. ΔR 0.5 % max.
Load life	1,000 hours at 125° C and rated power, components with 1 % tol. ΔR 0.2 % max.,
Thermal shock	MIL-Std-202, method 106, ΔR 0.4 % max.
Other terminals available	screw end caps [6/32", M4 (torque max. 1 Nm), customer-specific], golden leads with diameter 0,8 mm available for 40W series (ask for details)

● Pulse Energy Curve (4W~15W)

Note: These energy values are reference values → depending on ohmic value e.g. 1 Ω to 10 Ω and used resistive paste, a variation in max. energy load capability is possible

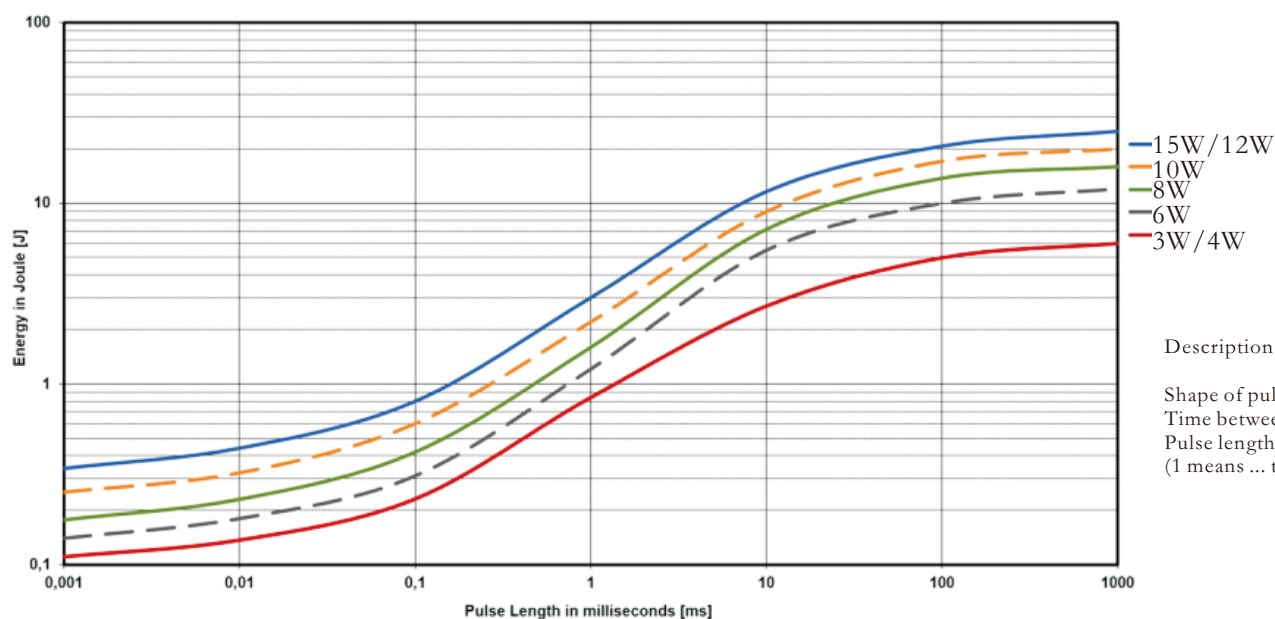
Test procedure

Every test resistor was mounted with brackets in free air at +25°C ambient temperature

The test time of each tested resistor: 10min.

Break time between two pulses: 1sec.

To determine good / defect parts the ohmic value was measured before and after tests:
a change of tolerance of more than 0.1% means defect



Description of Pulse Energy Curve

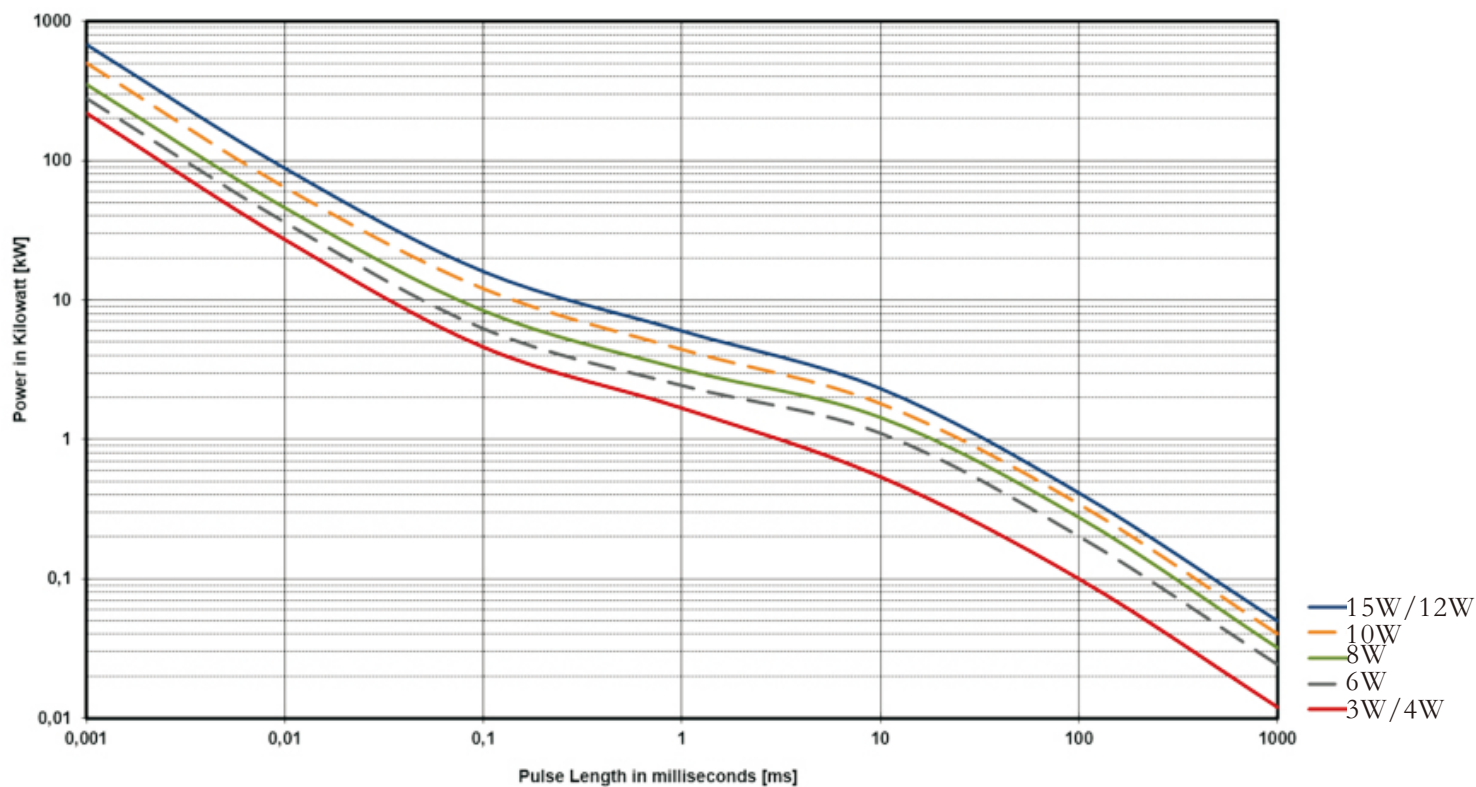
Shape of pulse = e-function
Time between two pulses = 1 second
Pulse length = time constant of 1 tau
(1 means ... tau = 1ms)

Example

At 1 ms tau the 12.5 with e.g. 1 Ω to 10 Ω can withstand an energy level of about 3 J, when the pulse pause time is ≥ 1 s

Pulse Power Curve

The power curve shows the max. possible power which can be applied for a certain duration. Referring to the same test procedure as described above.



*Description of Pulse Power Curve

Shape of pulse = e-function

Time between two pulses = 1 second

Pulse length = time constant of 1 tau (1 means ... tau = 1 ms)

For 12.5w the time-constant of 1 ms you can apply about 6 kW max., if the time between two such peaks is ≥ 1 s