Feature

The large thermal capacity features unsurpassed strength against impulse voltage and as well as higher durability. These non- inductive resistors are ideal for such applications as shown right.

Applications

- Impulse voltage generators
- X-ray generators
- Protection of rectifiers
- High-frequency circuits
- Disconnectors and grounding resistors
- Accelerators
- Other high-voltage circuits
- Charging/discharging of capacitors
- Protection of electrostatic dust collectors
- Dummy loads
- Surge absorption
- Fusion devices
- Distributors

Power And Resistance etc

Type	Rated Power(W)	Resistance Value Range (Ω)	Max. Allowable ImpulseVoltage (kV)1.2x50μS	TCR (PPM/℃)	Resistance Tolerance	Allowable injection Energy(J)
AS 2	2	10~56K	3.5	±300ppm/℃	K±10% M±20%	14
AS 3	3	10~18K	4.5			80
AS 5	5	10~33K	9.0			140
AS 10	10	18~22K	20			370
AS 20	20	27~27K	30			560
AS 30	30	22~22K	35			1060
AS 50	50	47~56K	70			2450
AS 80	80	47~47K	80			4360
AS 100	100	56~100K	100			5430
AS 150	150	27~27K	100			14760
AS 270	270	22~22K	160			29850
ASH 20	20	10~100K	85			1300
ASH 40	40	20~170K	100			2000
ASH 60	60	10~120K	150			5500
ASH80	80	15~150K	185			7000

Ordering Information

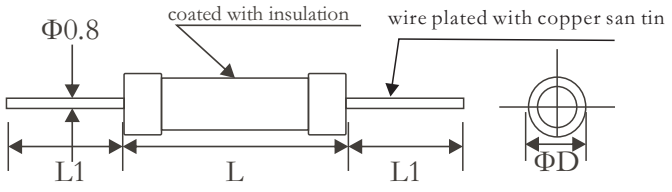
Example:

AS	10	K	R100
(1)	(2)	(3)	(4)
Series Name	Power Rating	Resistance Tolerance	Resistance

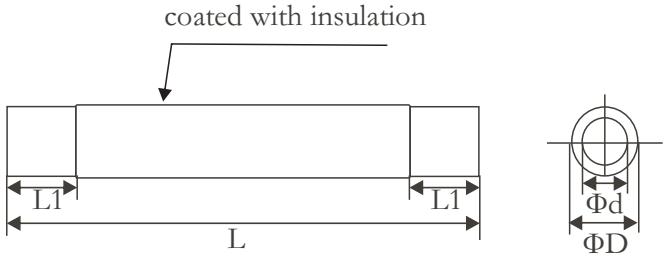
(1)Type: AS、ASH SERIES
(2)Power Rating: 2=2W、3=3W、5=5W、10=10W、、、、
(3)Tolerance: K±10%、M±20%
(4)Resistance Value:R100=0.1R、1R00=1Ω、10R0=10Ω、100R0=100Ω

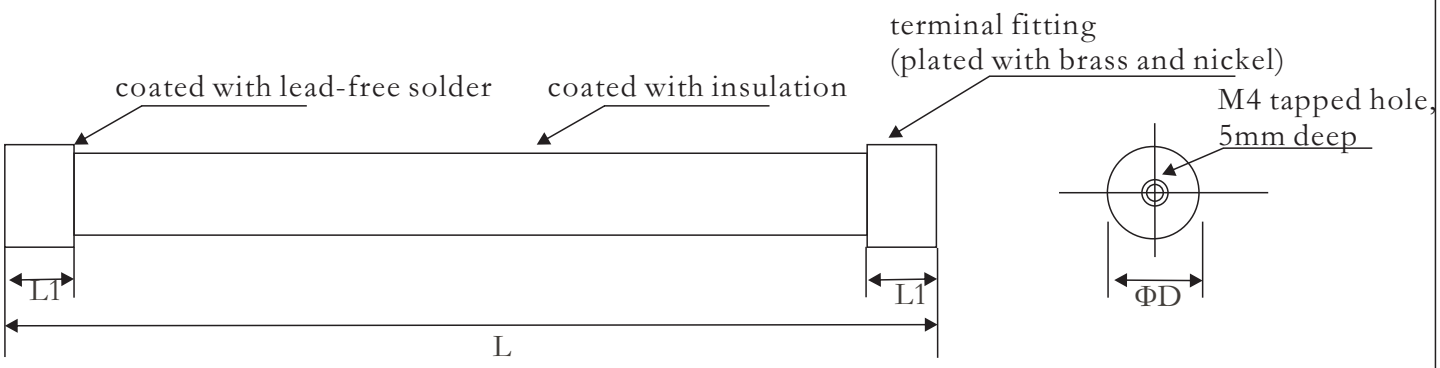
Dimensions

(AS with lead wires AS2~AS5)



(SP without terminal SP20~SP500)





Type	Power	Dimensions(mm)				Cross sections (cm^2)	Effective length (cm)	Volume (cm^3)
		ΦD	Φd	L	L1			
AS	2	4.5±1.0	-	20±1.0	38±2.0	0.13	1.4	0.18
	3	8.5±1.0	-	25±1.0	38±2.0	0.50	1.8	0.90
	5	8.5±1.0	-	40±1.0	38±2.0	0.50	3.3	1.66
	10	14±0.5	8	60±1.0	10±2.0	1.04	3.4	3.52
	20	14±0.5	8	80±1.0	10±2.0	1.04	5.4	5.60
	30	20±0.8	14	100±1.0	13±2.0	1.60	6.8	10.9
	50	20±0.8	14	200±2.0	15±2.0	1.60	16.4	26.3
	80	25±1.0	18	250±2.0	22±2.0	2.36	20	47.3
	100	25±1.0	18	300±2.0	22±2.0	2.36	25	59.1
	150	40±1.3	28	300±2.0	22±2.0	6.41	25	160
	270	50±1.5	38	450±2.0	25±2.0	8.29	39.4	327
ASH	20	12±0.2	10±0.5	200±2.0	19±0.1	0.79	15.35	12.1
	40	12±0.2	10±0.5	300±2.0	19±0.1	0.79	25.35	19.9
	60	16±0.2	14±0.5	400±2.0	19±0.1	1.54	35.35	54.4
	80	16±0.2	14±0.5	500±2.0	19±0.1	1.54	45.35	69.8

.The As2 to As5 models come with lead wires
.Upon request, we will attach a standard terminal to any of the As10 to As270 models.(for details, see "standard mounting terminals" on page 14)
.All the ASH models are solid and come with terminal fittings.
.*1 The maxImum operating impulse voltage varies depending on the resistance value. see fig.7 for details
.Note: if using your resistor in oil, be sure to ask us to apply an oil-resistant coating(with a maximum operating temperature of 85℃)to the resistor.

Reference Standards

JIS C 5201-1

Derating Curve

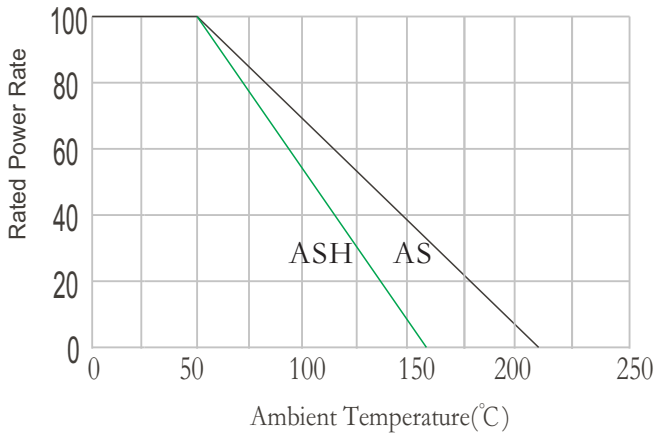


Fig:1 :Derating Curves for AS and ASH

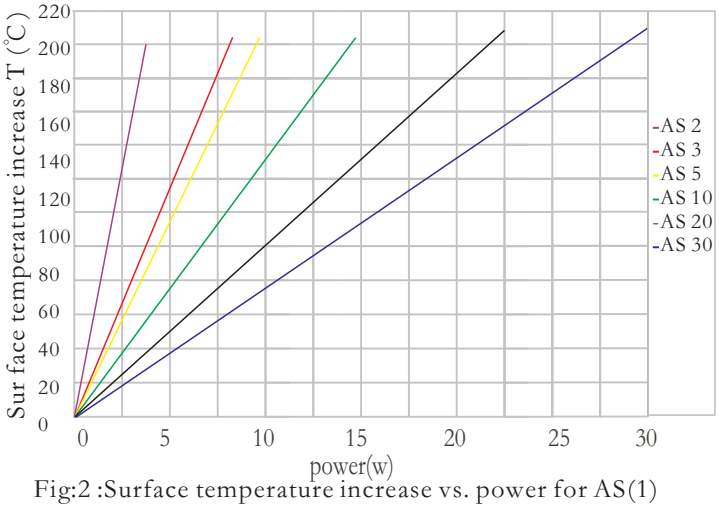


Fig:2 :Surface temperature increase vs. power for AS(1)

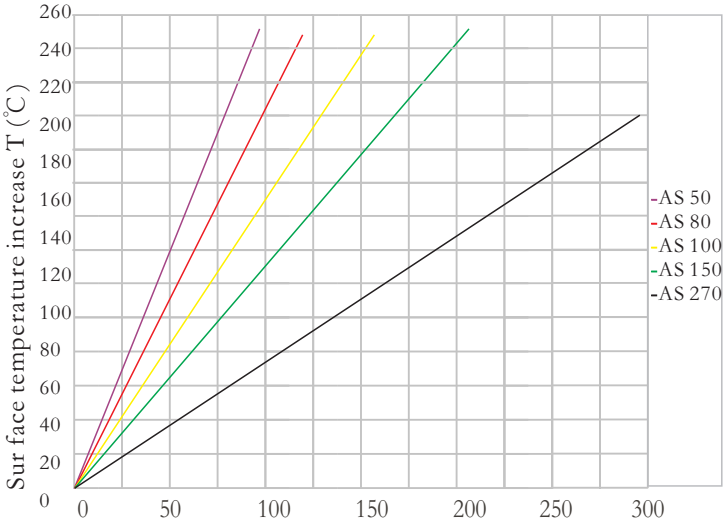


Fig:3: Surface temperature increase vs. power for AS(2)

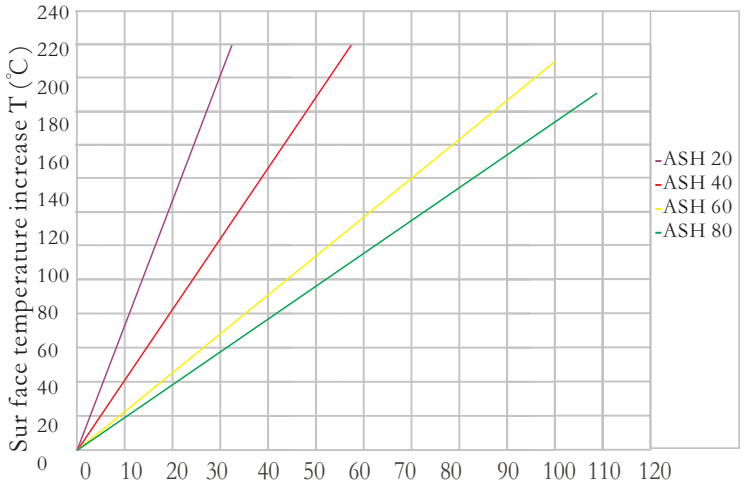


Fig:4 :Surface temperature increase vs. power for ASH

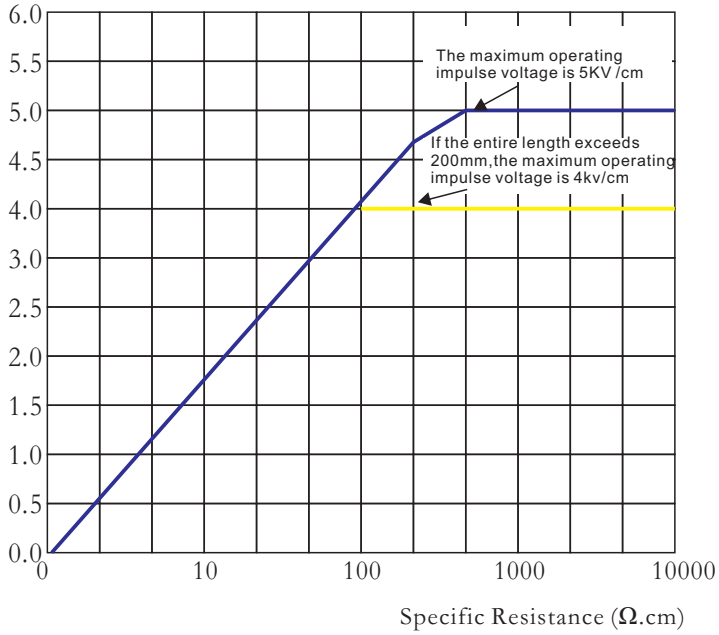


Fig:5: Impulse withstand voltage vs. specific resistance (12/50 , μ s in air)

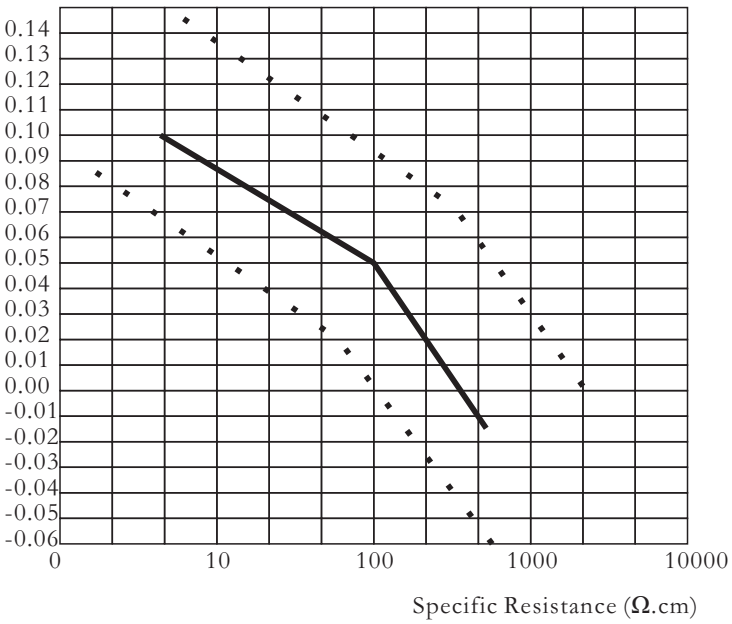


Fig:6: Temperature coefficient of resistance vs. specific resistance (room temperature to200)

Peformance

Item	Characteristic value
Maximum operating temperature	250℃
Temperature coefficient	-800~-1500PPM/℃
Withstand voltage(1.2/50μs)	See Fig.7.
Rate of change of resistance when current is applied (rated time of 500h)	+15% or less
Short-time overloading (10 times *5sec)	±25 (Max)
Short-time injection capacity	90J/cm³
bulk specific gravity	2.20~2.65
Specific heat	630J/(kg.k)
Thermal expansion coefficient	5~7x10-6(/℃)

Notes on using the AS and ASH resistors

Note on Using the AS and ASH Resistors

.The AS and ASH resistors have hygroscopic characteristics, which result in increased resistance. To minimize the increase in resistance , store resistors at room temperature in an environment with no moisture absorption.

.The resistance tends to increase gradually as voltage is applied .To use resistors for long periods of time, you need to set load conditions that ensure the surface temperature of the resistor does not exceed 1000C.

.Under high-voltage conditions, the resistance will decrease at a specific resistance of 2000 Ω · cm or higher. Check the operating conditions before use

.The voltage coefficients of the AS and ASH resistors tend to vary significantly depending on the specific resistance and applied voltage. Check the operating conditions when using resistors for voltage division , measurement, or other applications where the resistance value matters when voltage is applied.

.Under high impulse voltage conditions, the electrode on resistors can spark at 100 Ω or less. Contact us for information about resistors with anti-discharge protection or a modified electrode structure.

.Be aware that using a resistor with an inner diameter in oil will cause its resistance to increase by about 5% to 20% from the initial amount due to the level of sealing between the resistor and the electrode and other factors. For applications in oil, we recommend using an ASH.