

# AS AND ASH TYPES

AS and ASH with a large thermal capacity have features of unsurpassed strength against impulse voltage and higher durability. These non-inductive resistors are ideal for such applications shown right.



### TYPICAL APPLICATIONS:

Impulse generators, charge-discharge of capacitors, X-ray generators, protection of electrostatic dust collectors, protection of rectifiers, dummy load, high-frequency circuits, surge absorption, grounding resistance, nuclear fusion devices, high-voltage circuits, etc.

### CHARACTERISTICS:

Item	AS,ASH Characteristics
Working temperature:	230°C
Temperature coefficient:	-0.15%/°C Max.
Voltage coefficient:	-5%/kV/cm Max. For specific resistance of 3000Ω·cm or lower, refer to below.
Withstand voltage: (1.2X50μs)	5kV/cm Max.

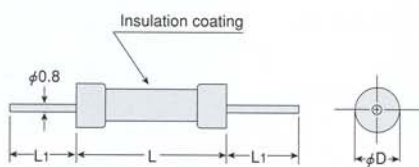
Item	AS,ASH Characteristics
Load life stability (500h)	±7% Max.
Short time overload: (10 times of rated power for 5 sec)	±2% Max.
Bulk density:	2.65
Specific heat:	630~1250J/(kg·K)
Max operating temperature:	250°C
Short time allowable injection energy:	90J/cm³ Max.

### AS STANDARD SPECIFICATIONS:

Type No.	Rated Power (W)	Dimensions (mm)				Max Allowable Impulse Voltage (kV) 1.2X50μs	Resistance Value Range(Ω)	Allowable Injection Energy (J)
		φ D	φ d	L	L <sub>1</sub>			
ER 2AS	2	4.5±1.0	—	20±1.0	38±2	3.5	10~56k	14
ER 3AS	3	8.5±1.0	—	25±1.0	38±2	4.5	10~18k	80
ER 5AS	5	8.5±1.0	—	40±1.0	38±2	9	10~33k	140
ER 10AS	10	14±0.5	8	60±0.8	10±2	20	18~22k	370
ER 20AS	20	14±0.5	8	80±1.0	10±2	30	27~27k	560
ER 30AS	30	20±0.75	14	100±1.0	13±2	35	22~22k	1060
ER 50AS	50	20±0.75	14	200±1.2	15±2	70	47~56k	2450
ER 80AS	80	25±1.0	18	250±1.5	22±2	80	47~47k	4360
ER 100AS	100	25±1.0	18	300±1.5	22±2	100	56~100k	5430
ER 150AS	150	40±1.25	28	300±1.5	22±2	100	27~27k	14760
ER 270AS	270	50±1.5	38	450±2.0	25±3	160	22~22k	29850

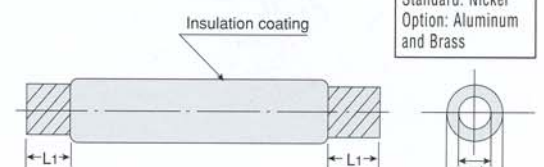
- ER2AS through ER5AS will be supplied with lead wires.
- ER10AS through ER270AS will be supplied with terminals as option, if so requested with an order. (The details on the terminals are shown at page 12).
- If the resistor is expected to be used in oil, please advise in placing an order. The resistor will be supplied with oil-resisting coating durable at operating temperature of 85 °C maximum.

#### [AS with lead wires]



(ER2AS~ER5AS)

#### [AS without terminal]



(ER10AS~ER270AS)

**[Standard Resistance]**

While the resistance values available currently are as shown left, those frequently ordered are now standardized. The resistors with the standard resistance values will be supplied with a shorter delivery.

**AS STANDARD RESISTANCE VALUES:**

Type No.	Standard Resistance (Ω)								Resistance Tolerances ±10%	
ER 2AS	5.6	10	22	47	100	220	470	1k		
ER 3AS	10	22	47	100	220	470	1k	2.2k		
ER 5AS	5.6	10	22	47	100	220	470	1k	2.2k	4.7k
ER 10AS			47	100	220	470	1k			
ER 20AS					100	220	470	1k	2.2k	
ER 30AS					100	220	1k	2.2k	4.7k	

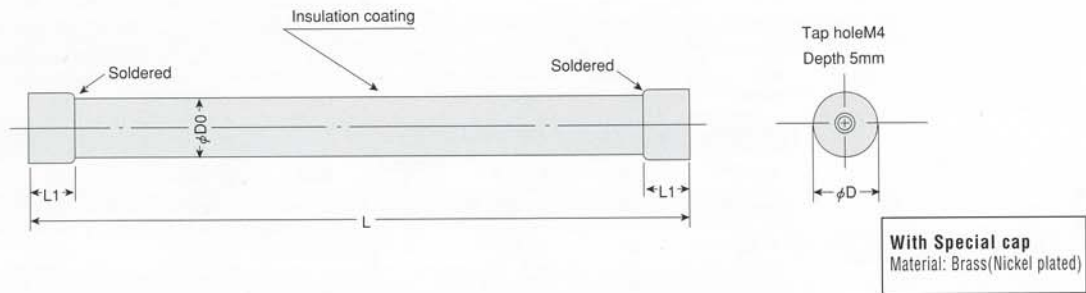
Type No.	Standard Resistance (Ω)					Resistance Tolerances ±10%	
ER 50AS	47	100	470	1k	2.2k	4.7k	
ER 80AS	47	100	220	1k	4.7k		
ER 100AS	47	100	220	470	1k	4.7k	
ER 150AS		100	470	1k	2.2k	4.7k	
ER 270AS		100	470	1k	2.2k	4.7k	

**ASH STANDARD SPECIFICATIONS(High Withstand Resistance Type):**

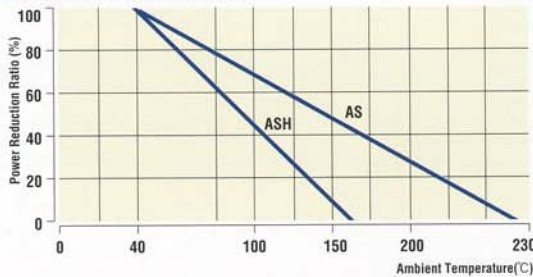
Type No.	Rated Power (W)	Dimensions (mm)			L <sub>1</sub>	Max Allowable Impulse Voltage (kV) 1.2×50μs	Resistance Value Range(Ω)	Allowable Injection Energy (J)
		φ D	φ D <sub>0</sub>	L				
ER 20ASH	20	12±0.1	10±0.5	200±2	19±0.1	85	10~100k	1.3K
ER 40ASH	40	12±0.1	10±0.5	300±2	19±0.1	100	20~170k	2.0K
ER 60ASH	60	16±0.1	14±0.5	400±2	19±0.1	150	10~120k	5.5K
ER 80ASH	80	16±0.1	14±0.5	500±3	19±0.1	185	15~150k	7.0K
ER 100ASH	100	16±0.1	14±0.5	600±3	19±0.1	225	20~180k	8.5K

● If the resistor is expected to be used in oil, please advise in placing an order. The resistor will be supplied with oil-resisting coating durable at operating temperature of 85 °C maximum.

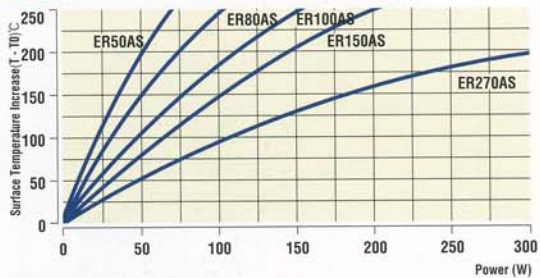
**[ASH (High withstand resistance type)]**



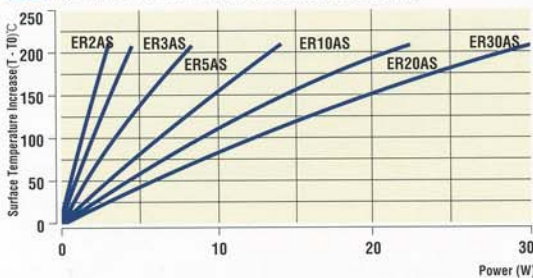
**Fig. 3 3 AS.ASH Derating Curve**



**Fig. 5 AS Power vs. Surface Temperature Increase (2)**



**Fig. 4 AS Power vs. Surface Temperature Increase (1)**



**Fig. 6 Voltage Coefficient**

