



**KANTHAL**  
**GLOBAR**

**SERIES 100 & 200**  
**AXIAL LEADED RESISTORS**



# KANTHAL GLOBAL



- Non-inductive “bulk ceramic” resistor
- Uniform distribution of energy throughout resistor body
- Replacement of Carbon Composition Resistors
- Large peak energy in small size
- High power dissipation (Type SP)
- High voltage and energy absorption (Type AS)
- Through-hole or post mountable

## Series 100 & 200 Axial Leaded Non-Inductive Bulk Ceramic Resistors

provide excellent performance where high peak power or high-energy pulses must be handled in a small size. The advantage of the bulk construction is that it produces an inherently non-inductive resistor; and it allows energy and power to be uniformly distributed through the entire ceramic resistor body — there is no film or wire to fail. We offer a full line of rugged, reliable ceramic resistors — including custom designs.

Two distinctly different ceramic materials are available in each size to afford the designer with unique components to meet the most demanding requirements:

**Type SP** resistors are composed of materials that withstand high operating temperatures resulting in high power dissipation. Maximum continuous operating temperature is specified at 350°C. This type is suitable for use in oil without an oil-resistant coating.

**Type AS** resistors are best suited for high energy and voltage pulse applications. Maximum continuous operating temperature is specified at 230°C. The standard dielectric coating is recommended for use in air, and the oil-resistant coating is recommended for use in oil.

## Typical Applications

Series 100 & 200 resistors are ideal for applications such as:

- Soft Start/In-rush Limiters
- RC Snubber Circuits
- Spark-Gap Limiters
- Parasitic Suppression
- High Voltage Power Supplies
- Pulse Waveform
- EMI/EFI Test Circuits

As alternatives to hard to find carbon composition resistors, Global resistors can be used as drop-in replacements for 1 and 2 watt sizes. Much larger sizes, up to 70 watts in a single component, are available for new or re-designs where an array of smaller resistors may have been previously required.

## Ordering Information

Part Numbering System

**Example Part Number: 102AS101KDS**



### Construction Type

### Resistance Value ( $\Omega$ )

For  $\geq 10 \Omega$ : First 2 digits are significant figures, third digit is number of zeros to follow, e.g. 101 = 100  $\Omega$   
For  $< 10 \Omega$  An R replaces the decimal point, e.g. 7R5 = 7.5  $\Omega$

### Resistance Tolerance

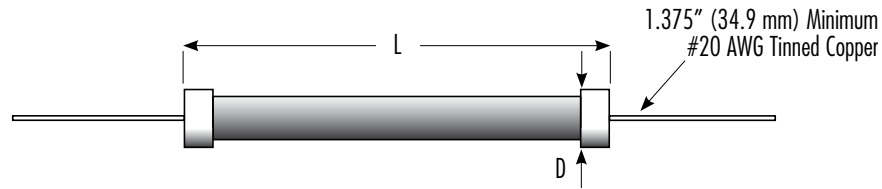
J =  $\pm 5\%$   
K =  $\pm 10\%$   
L =  $\pm 20\%$

### Terminal End Options

SP	No Suffix = Standard Includes aluminum metalization under caps/leads.
AS	DS = Standard Includes dielectric coating and silver metalization under caps/leads. O = Oil resistant coating.

Packaging: Bulk in poly bags is standard.  
Tape & Reel is also available.

# SPECIFICATIONS



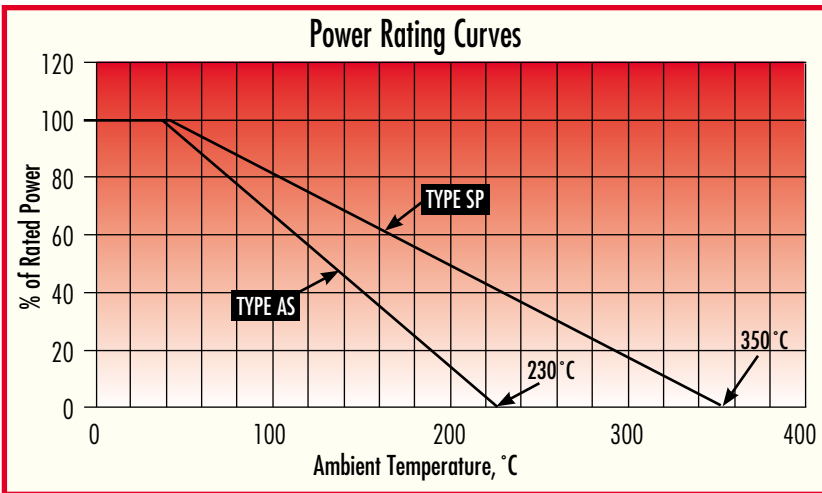
Body Size	Resistance Range, Ohms	Dia. (D) Max. in. (mm)	Length (L) Max. in. (mm)	Average (1) Power Rating, @ 40°C Amb., Watts	Rated (2) Peak Energy, Joules	Rated (2) Peak Voltage	Rated (3) Peak Current, Amps	Typical(4) Resistor Body Weight, Grams
231AS	25 – 6,350	0.2 (5.1)	0.75 (19.1)	1.5	75	1,500 V	90	0.44
231SP	1 – 1,000	0.2 (5.1)	0.75 (19.1)	2.5	15	375 V	350	0.44
233AS	6 – 1,800	0.31 (7.9)	0.75 (19.1)	2	170	1,100 V	150	1.2
233SP	1 – 120	0.31 (7.9)	0.75 (19.1)	7	20	375V	550	1.2
234AS	12 – 3,000	0.31 (7.9)	1.125 (28.6)	3	275	2500 V	150	1.9
234SP	1 – 330	0.31 (7.9)	1.125 (28.6)	10	30	500 V	550	1.9
250AS	4 – 1,200	0.44 (11.1)	0.75 (19.1)	2.5	260	1,500 V	190	1.9
250SP	1 – 150	0.44 (11.1)	0.75 (19.1)	8.5	20	375 V	700	1.5
251AS	8 – 2,300	0.44 (11.1)	1.125 (28.6)	3.5	400	2,500 V	190	3.0
251SP	1 – 330	0.44 (11.1)	1.125 (28.6)	12	30	500 V	700	2.4
102AS	30 – 9,000	0.31 (7.9)	2.125 (54.0)	5	600	3,000 V	150	3.8
102SP	1 – 700	0.31 (7.9)	2.125 (54.0)	15	50	1,000 V	550	3.8
252AS	20 – 5,800	0.44 (11.1)	2.125 (54.0)	6	900	3,000 V	190	6.0
252SP	1 – 460	0.44 (11.1)	2.125 (54.0)	18	75	1,000 V	700	4.8
104AS	55 – 18,000	0.31 (7.9)	4.125 (104.8)	9	1,200	9,000 V	150	7.6
104SP	2 – 1,500	0.31 (7.9)	4.125 (104.8)	25	95	3,600 V	550	7.6
254AS	36 – 12,000	0.44 (11.1)	4.125 (104.8)	11	1,800	9,000 V	190	12.0
254SP	2 – 1,000	0.44 (11.1)	4.125 (104.8)	31	150	3,600 V	700	9.6
106AS	90 – 30,000	0.31 (7.9)	6.125 (155.6)	13	1,900	15,000 V	150	11.4
106SP	3 – 2,400	0.31 (7.9)	6.125 (155.6)	36	155	5,000 V	550	11.4
256AS	60 – 20,000	0.44 (11.1)	6.125 (155.6)	16	2,900	15,000 V	190	18.0
256SP	2 – 1,600	0.44 (11.1)	6.125 (155.6)	45	240	5,000 V	700	14.4
109AS	150 – 48,000	0.31 (7.9)	9.125 (231.8)	20	3,000	25,000 V	150	17.1
109SP	4 – 3,800	0.31 (7.9)	9.125 (231.8)	55	250	8,800 V	550	17.1
259AS	100 – 32,000	0.44 (11.1)	9.125 (231.8)	25	4,600	25,000 V	190	27.0
259SP	3 – 2,500	0.44 (11.1)	9.125 (231.8)	70	380	8,800 V	700	21.6

1. Rated Power: De-rate linearly to 0 Watts at 230°C for Type AS. De-rate linearly to 0 Watts at 350 °C for Type SP.
2. Allowable peak energy/voltage will depend on the resistance value and pulse width. Energy ratings are based on pulse < 10 milliseconds. Type SP rating can be substantially greater for longer pulses. Consult Kanthal Global.
3. Peak Current Ratings presume energy approaching rated peak energy values. Allowable current can be higher for lower energy values. Consult Kanthal Global.
4. Excludes caps/leads and coating.

Characteristics	Type SP	Type AS
Operating Temperature (1)	-55°C to +350°C	-55°C to +230°C
Resistance Temperature Coefficient	+ 0.2 to - 0.08 %/°C	+ 0.0 to - 0.08 %/°C
Voltage Coefficient Max. % per kilovolt per inch active length	-1.0%	-1.0%
Short Time Overload Max. % change after 10 cycles of 1000% rated power 5 sec. On, 90 sec. Off	± 5%	± 2%
Load Life Max. % change after 1000 hrs. at rated power	± 5%	± 5%
Thermal Shock Max. % change after 10 cycles -55°C to +125°C	± 3%	± 3%
Moisture Resistance Max. % change when tested per MIL-STD-202, Method 103	± 5%	± 5%

(1) Note: When required, Type SP material can withstand short periods of use at red-heat conditions, i.e. up to 550 to 600°C

Typical Physical Properties:	SP Resistors	AS Resistors
Density	2.2 - 2.4 gm/cc	2.2 - 2.6 gm/cc
Specific Heat	0.24 - 0.26 cal/gm°C	0.23 - 0.25 cal/gm°C
Thermal Conductivity	0.14 - 0.16 cal/cm-°C-sec	0.003 - 0.006 cal/cm-°C-sec



Power ratings are based on maximum allowable surface temperature in still air at 40°C ambient temperature.

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