

# 800 & 1000 Series

## Tubular High Energy Bulk Ceramic

The Ohmite Ceramic Resistor Division Tubular Non-Inductive Bulk Ceramic Resistors provide excellent performance for high peak power or high-energy pulses. Bulk construction advantageously 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. Ohmite offers a full line of rugged, reliable ceramic resistors.

Ohmite offers three distinctly different ceramic materials to allow designers to meet the most demanding requirements.



### MATERIAL TYPES

#### TYPE SP

Material composition type SP is formulated to 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.

##### Applications

- Motor drive circuits
- Snubber circuits
- High-frequency circuits
- RF dummy loads
- Dynamic braking
- Transformer protection
- Harmonic filter

#### TYPE AS

Material composition type AS is formulated to withstand high energy and high voltage 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.

##### Applications

- Impulse generators
- High-voltage circuits
- X-ray equipment
- High voltage power supplies
- Laser/Imaging equipment
- Capacitor charge/discharge

#### TYPE A

Material composition type A is formulated with to reach higher resistance values. 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.

##### Applications

- Bleeder
- Capacitor charge/discharge

(continued)

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### SPECIFICATIONS

Series 800 and 1000 Tubular Resistors are available in a wide variety of sizes and terminations from 2" to 24" in length and ½" to 2" in diameter. These resistors can handle up to 1000 watts, 165 kJ and 165 kV in resistance values from 1 ohm to 1 megohm.

\* Allowable peak energy/voltage will depend on the resistance value. Consult factory.

\*\* Derate by 50% with oil resistant coating on Type AS resistors. Energy ratings are based on pulses <10 milliseconds. Type SP ratings can be substantially greater for longer pulses. Consult factory.

Type	Length x Diameter	Resistance		Avg. Power @40°C (W)	Peak* Energy (J)	Peak* Voltage** (V)
		Min.	Max.			
884SP	2" x 1/2"	1.0	200	22.5	250	1,000
885SP	2 1/2" x 3/4"	1.0	130	45	250	1,000
885AS		6.0	1200	15	2,800	8,000
885A	5" x 3/4"	1500	220K	15	750	3,750
886SP		1.0	330	90	500	4,000
886AS		15.0	3300	30	7,000	20,000
886A	6" x 1"	3900	390K	30	1,500	10,000
887SP		1.0	330	150	1,600	4,000
887AS		12.0	3300	50	13,000	30,000
887A	6" x 1 1/2"	3900	390K	50	6,000	12,000
1026AS		5.0	1200	70	30,000	30,000
888SP		1.0	390	190	2,100	6,000
888AS	8" x 1"	15.0	3900	75	16,500	45,000
888A		4700	470K	60	7,500	15,000
1028AS		6.5	1900	100	46,000	45,000
889SP	12" x 1"	1.0	680	275	3,200	10,000
889AS		25.0	6800	100	27,000	75,000
889A		8200	680K	90	12,500	25,000
1032AS	12" x 1 1/2"	9.0	2500	150	75,000	75,000
890SP		1.0	1000	375	4,200	16,000
890AS		40.0	10K	150	43,000	120,000
890A	18" x 1"	12K	1M	125	20,000	40,000
1038AS		15.0	3800	225	119,000	120,000
891SP		1.0	450	750	15,000	16,000
892SP	24" x 2"	1.0	600	1000	17,500	22,000
1044AS		20.0	4800	300	164,000	165,000

### CHARACTERISTICS

Characteristic	Test	Type SP	Type AS	Type A
<b>Operating Temp.</b>		-55°C to +350°C*	-55°C to +230°C	-55°C to +230°C
<b>Resistance Temp. Coefficient</b>		+0.2 to -0.08 %/°C (+ 2000 ppm - 800 ppm)	+0.0 to -0.08 %/°C (+ 0 ppm - 800 ppm)	+0.0 to -0.2 %/°C (+ 0 ppm - 2000 ppm)
<b>Voltage Coefficient</b>	Max. % per kilovolt per inch active length	-1.0%	-1.0%	-
<b>Short Time Overload</b>	Max. % change after 10 cycles of 1000% rated power 5 sec. On, 90 sec. Off	±5%	±2%	-
<b>Load Life</b>	Max. % change after 1,000 hours at rated power	±5%	±5%	-
<b>Thermal Shock</b>	Max. % change after 10 cycles -55°C to +125°C	±3%	±3%	-
<b>Moisture Resistance</b>	Max. % change when tested per MIL-STD-202, Method 103	±5%	±5%	±5%
<b>Density</b>		2.2-2.4 gm/cc	2.2-2.6 gm/cc	2.2-2.6 gm/cc
<b>Specific Heat</b>		0.24-0.26 cal/gm -°C	0.23-0.25 cal/gm -°C	0.23-0.25 cal/gm -°C
<b>Thermal Conductivity</b>		0.14-0.16 cal/(cm-°C-sec)	0.003-0.006 cal/(cm-°C-sec)	0.003-0.006 cal/(cm-°C-sec)

\*When required, Type SP material can withstand short periods of use at red-heat conditions, i.e. up to 550°C to 600°C

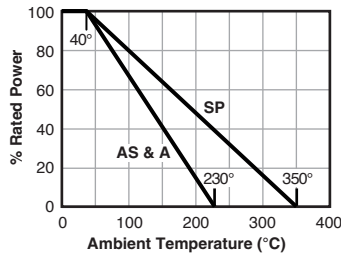
# 800 & 1000 Series

## Tubular High Energy Bulk Ceramic

### CHARACTERISTICS

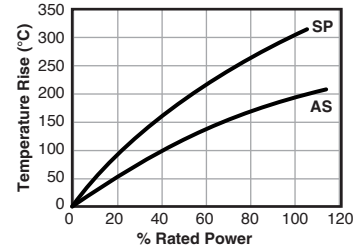
#### Derating

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



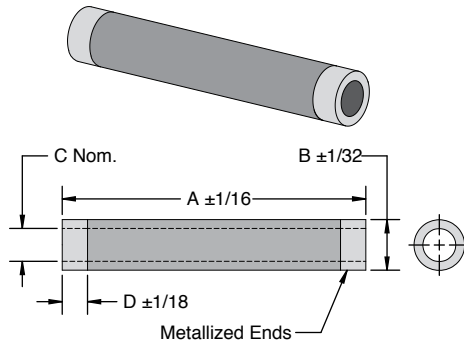
#### Surface Temperature

Curve is typical for resistor midpoint with horizontal orientation in still air.



### DIMENSIONS

(in.)



Series	A	B	C (SP & AS)	C (A)	D
884 SP	2.0	0.50	0.22	—	0.25
885 SP, AS, & A	2.5	0.75	0.50	N/A*	0.50
886 SP, AS, & A	5.0	0.75	0.50	N/A*	0.62
887 SP, AS, & A	6.0	1.00	0.75	0.5	0.50
888 SP, AS, & A	8.0	1.00	0.75	0.5	0.88
889 SP, AS, & A	12.0	1.00	0.75	0.5	0.88
890 SP, AS & A	18.0	1.00	0.75	0.5	0.88
891 SP	18.0	2.00	1.50	—	1.00
892 SP	24.0	2.00	1.50	—	1.00
1026 AS	6.0	1.50	1.00	—	0.50
1028 AS	8.0	1.50	1.00	—	0.88
1032 AS	12.0	1.50	1.00	—	0.88
1038 AS	18.0	1.50	1.00	—	0.88
1044 AS	24.0	1.50	1.00	—	0.88

Special sizes are available. Consult factory.  
\*885 and 886 in type A material are solid rods

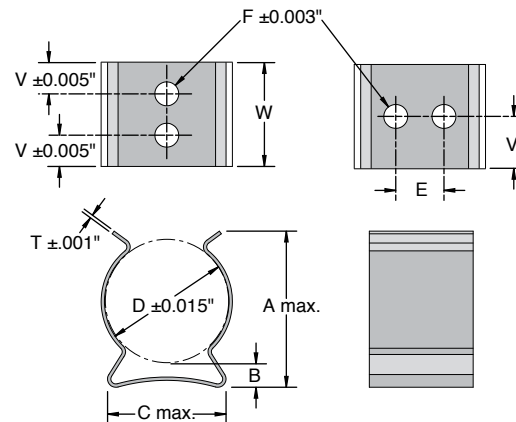
### TERMINATION OPTIONS

Electrical connection to the resistive bodies of resistors is made by metal end bands. The standard metal is aluminum for Type SP, silver for Type AS and nickel for Type A. Special terminations of brass, copper or soldered ends are also available.

#### Mounting Clips

In most cases, connections to the resistors may be made by using these stock clips.

Material: Beryllium Copper  
Finish: Electro Tin Plate



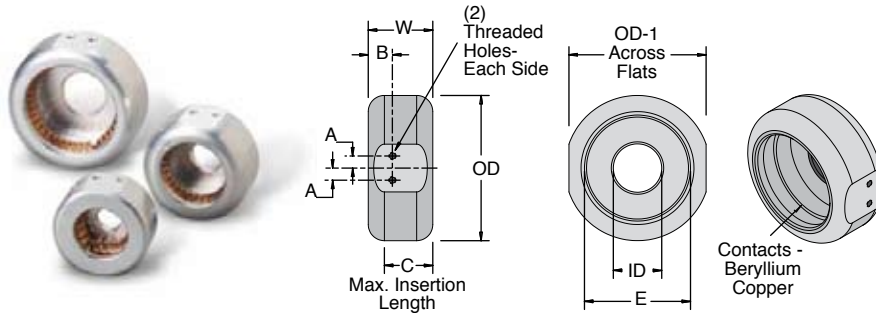
Part No.	Resistor series	Resistor OD	Holes	A	B	C	D	E	F	T	V	W (in.)
35370	884	1/2	1	0.620	0.090	0.560	0.500	N/A	0.093	0.020	0.188	0.375
35267	885, 886	3/4	1	0.940	0.155	0.830	0.750	N/A	0.144	0.020	0.312	0.625
35268	887 - 890	1	2	1.230	0.170	1.070	1.000	0.320	0.128	0.024	0.156	0.625
35371	891, 892	1 1/2	2	1.650	0.100	1.650	1.500	0.925	0.103	0.032	0.250	0.500
35269	1026 - 1044	2	2	2.375	0.544	1.080	2.000	0.375	0.188	0.043	0.375	0.750

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### TERMINATION OPTIONS

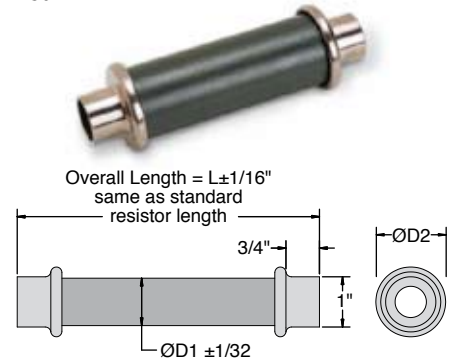
#### Aluminum Connector Caps



Part No.	Resistor OD	OD	OD-1	W	E	ID	A	B	C	Threaded Holes	(in.)
36075	3/4	1 1/2	1 3/8	3/4	0.830	3/8	3/16	3/16	.50	M3 x .5P x 3/16" DP	
36100	1	1 3/4	1 5/8	1	1.080	1/2	3/16	3/8	.75	M3 x .5P x 3/16" DP	
36150	1 1/2	2 1/4	2 1/8	1	1.580	3/4	3/16	3/8	.75	M4 x .7P x 3/16" DP	
36200	2	3	2 3/4	1 1/8	2.080	1	5/16	7/16	.88	M5 x .8P x 1/4" DP	

#### Optional No-Arc Termination

"N" suffix

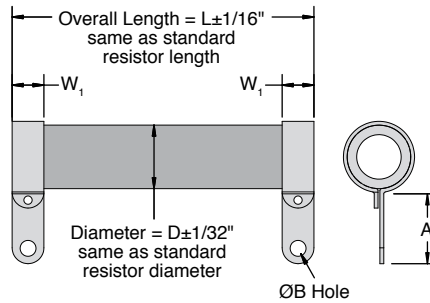


D1	D2 (in.)
1	1.56
1 1/2	1.84

#### Optional Radial Tab Termination

"G1" suffix - riveted only

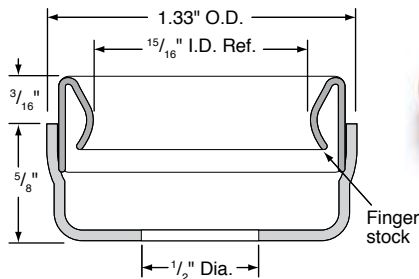
"G" suffix - riveted with solder



D	W1	A	B (in.)
1/2	3/16	17/32	0.062
3/4	3/8	25/32	0.156
1	3/8	25/32	0.156
1 1/2	3/8	25/32	0.156
2	5/8	1.25	0.281

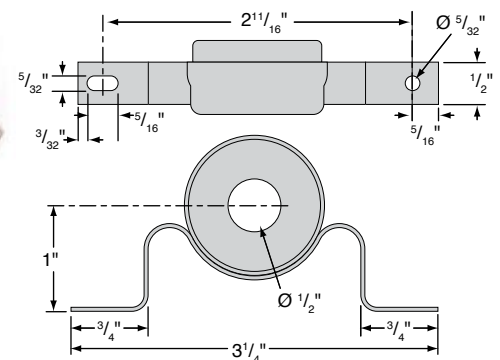
#### 1" Copper Connector Cap

Part No. NG5746  
(Lead Free & RoHS Compliant)



#### 1" Copper Connector Cap with Strap

Part No. NG5747  
(Lead Free & RoHS Compliant)



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### ORDERING INFORMATION

890AS101KDS			
Construction Type	Resistance ( $\Omega$ )	Tolerance	Terminal Options
	For $\geq 10\Omega$ : First 2 digits are significant, third is number of zeros to follow, e.g. 101 = 100 $\Omega$	J = $\pm 5\%$ K = $\pm 10\%$ L = $\pm 20\%$	see chart
	For $< 10\Omega$ : R replaces decimal point, e.g. R50 = 0.50 $\Omega$ , 7R5 = 7.5 $\Omega$		

Type	Terminal Option	
<b>SP</b>	No Suffix = Standard aluminum metalized ends	
	No-arc terminal not available on SP products	
	G = Radial tab, riveted and soldered G1 = Radial tab, riveted and no solder	
<b>AS</b>	DS = Standard dielectric coating and silver metalized ends	
	N = No-arc terminal and dielectric coating NO = No-arc terminal with oil resistant coating	
	DG = Radial tab, riveted and soldered with dielectric coating DG1 = Radial tab, riveted and no solder with dielectric coating GO = Radial tab, riveted and soldered with oil resistant coating	
	TO = Soldered end and oil resistant coating	
	<b>A</b>	No Suffix = Standard nickel metalized ends
		D = Dielectric coating DG = Radial tab, riveted and soldered with dielectric coating
N = No-arc terminal and dielectric coating NO = No-arc terminal with oil resistant coating		
DG = Radial tab, riveted and soldered with dielectric coating DG1 = Radial tab, riveted and no solder with dielectric coating GO = Radial tab with oil resistant coating		
TO = Soldered end and oil resistant coating		