

# SURGE & PULSE

## COMPOSITION

Little Demon series has a rugged construction and is comparable to Mil RC07, RC20 and RC32 types.

RoHS compliant		Tape & reel optional
<b>O D</b>	<b>683 JE</b>	-TR
Series	Ohms	Tolerance
OD 68G=	6.8	OD, OF: J = 5%
OF 680=	68	OA: K = 10%
OA 681=	680	
682=	6,800	
683=	68,000	
684=	680,000	

OX/OY series are rated up to 80 joules and have a maximum pulse voltage of 20KV.

RoHS compliant		Tape & reel optional
<b>O X</b>	<b>8 2 G K E</b>	-TR
Size	Ohm Value	Tolerance
OX = 1W	Example: K = 10% Standard	
OY = 2W	33G = 3.3 Ohms	
	330 = 33 Ohms	
	331 = 330 Ohms	

Made of Ceramic composition  
The A series is capable of 2800 joules with an impulse voltage of 2500 volts.

E = RoHS compliant		
<b>A W</b>	<b>5 6 G</b>	<b>K E</b>
Size	Ohm Value	Tolerance
AW = 2.5W	Example: K = 10% Standard	
AX = 3.5W	33G = 3.3 Ohms	
AY = 4.5W	330 = 33 Ohms	
AZ = 5.5W	331 = 330 Ohms	

A Pulse or Surge is a brief and sudden change in an electrical quality (e.g. Voltage, Wattage, Amperage). The Pulse/Surge will produce an instantaneous heating of the resistor internals. This sudden increase can wreak havoc on the internals of a resistor not designed for this purpose. Using special processes and materials Ohmite is capable of offering resistor types that can handle Pulse/Surge applications.

## THICK FILM

The TFS Series has been specifically developed to absorb large amounts of energy by efficient use of its compact mass. Ideal for medical surge protection applications, these thick film resistors offer non-inductive performance in an axial package.

RoHS compliant			
<b>T F S A</b>	<b>1 0 0 K</b>	<b>J E</b>	
Series	Energy Rating	Ohm Value	Tolerance
	joules	Example	Example
A = 6	D = 33	100R = 100Ω	F = 1%
B = 9	E = 44	2k40 = 2400Ω	G = 2%
C = 11	F = 55		J = 5%
			K = 10%

## WIREWOUND

The G series capacitor discharge series is specially designed to meet repetitive pulse loading. The welded terminals offer superior vibration resistance. Parts are tested to IEC 115-1.

G Series - <b>G W 1 0 J 5 K 0 0 E</b> - E = RoHS compliant				
Component	Modifier	Wattage	Tolerance	Resistance Value
W - Wirewound		10 Watts	K = 10%	R = Decimal Examples
		13 Watts	J = 5% K = 1,000	1K00 = 1,000Ω
			G = 2%	10K0 = 10,000Ω
			F = 1%	82K0 = 82,000Ω
				120K = 120,000Ω

Most surge applications are done on a case by case basis. If in doubt please contact Technical Support.

## SPECIFICATIONS

### Material

Terminals: Solder-coated copper lead.

Body: Molded Phenolic

### Electrical

Tolerance:  $\pm 5\%$  (OD/OF);  $\pm 10\%$  (OA)

Derating: Linearly from 100% @  $+70^\circ\text{C}$  to 0% @  $130^\circ\text{C}$

Series	Wattage	Ohms	Tolerance	Max. Voltage	Dielectric VAC	Lead Diameter
OD	0.25	2.2-5.6M	$\pm 5\%$	250	500	0.024/0.60
OF	0.5	2.2-20M	$\pm 5\%$	350	700	0.028/0.70
OA	1	2.2-1M	$\pm 10\%$	500	1000	0.035/0.9



## SPECIFICATIONS

### Material

Terminals: Pb-free solder-coated axial leads

Coating: Silicone ceramic

Derating: Linear from 100% @  $+70^\circ\text{C}$  to 0% @  $+200^\circ\text{C}$

Operating Temp. Range:  $-40^\circ\text{C}$  to  $+220^\circ\text{C}$

### Electrical

Tolerance:  $\pm 10\%$  standard

Power Rating: Based on  $70^\circ\text{C}$  free air rating.

Temperature Coefficient:  $-1300 \pm 300 \text{ ppm}/^\circ\text{C}$ .

Series	Watts Max.	Ohms	Joules Max.	Dielectric withstanding volts
OX	1	3.3 - 100K	50	300
OY	2	3.3 - 1M	80	400



## SPECIFICATIONS

### Material

Resistance Element: Bulk Ceramic

Terminals: Radial; 100% Sn solder coated radial terminals (60/40 solder available upon request)

Coating: UL94VO, solvent resistant epoxy

### Electrical

Tolerance:  $\pm 10\%$  Standard

Operating Temp. Range:  $-55^\circ\text{C}$  to  $150^\circ\text{C}$

Derating: Derates linearly from 100% @  $50^\circ\text{C}$  to 0% @  $150^\circ\text{C}$

Temperature Rise:  $100^\circ\text{C}$  @ 100% rated power,  $50^\circ\text{C}$  ambient

Series	Resistance (ohm)	P avg. (watts)	Impulse Voltage (volt)	Energy (joule)	Term Wire Guage	Weight (g)
AW	4.7-15K	2.5	1500	400	20AWG	5.4
AX	1.0-3.3K	3.5	1000	700	18AWG	10
AY	2.2 - 6.8K	4.5	2000	1400	18AWG	19
AZ	1.5 - 4.7K	5.5	2500	2800	18AWG	33



## SPECIFICATIONS

### Material

Resistive Element: Thick Film

Encapsulation: Screen Printed Glass

### Electrical

Resistance Value: 100 ohms up to 100K ohms

Temperature Coefficient:  $100 \text{ ppm}/^\circ\text{C}$

Tolerance: 1%, 2%, 5%, 10%

Operating Temperature:  $-55^\circ\text{C}$  to  $+200^\circ\text{C}$

Test: VDE 0750 (Pulse Duration 10 msec)

Series	U (KV)	Energy (J)	Power (W)
TFSA	3	6	0.5
TFSB	3.5	9	0.5
TFSC	4	11	0.75
TFSD	7	33	1
TFSE	7	44	1.5
TFSD	11	55	2



## SPECIFICATIONS

Temperature Range:  $-55^\circ\text{C}$  to  $200^\circ\text{C}$

Terminal Strength: >25N

Derating: 25°C to 350°C, Linearly

TCR:  $\pm 100 \text{ ppm}/^\circ\text{C}$

Tolerance: 1%,  $\pm 2\%$ ,  $\pm 5\%$ ,  $\pm 10\%$

Series	Wattage @25C	Wattage @70C	Limiting Voltage	Critical Value	Ohmic Range	Length P in. $\pm .39$ /mm $\pm 1$
GW10	10	8.5	685	47K $\Omega$	1 $\Omega$ -82K	0.866/22.0
GW13	13	11	940	68K $\Omega$	1 $\Omega$ -120k	1.252/31.8



Review full data sheets online at [Ohmite.com](http://Ohmite.com) for full details on each series

[www.ohmite.com](http://www.ohmite.com)

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