

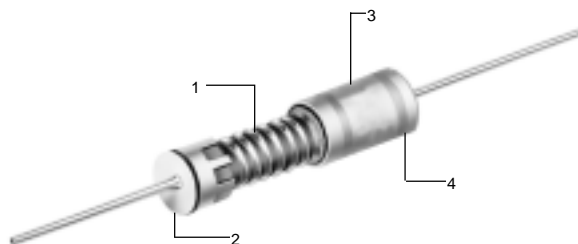
# GENERAL-PURPOSE FAILSAFE MOLDED WIREWOUND RESISTOR

ISO-9001  
Registered



## SPH/SPF SERIES

- Drop-in replacement for BWH/BWF
- 2 watt rated with 1 watt dimensions
- $\pm 5\%$ ,  $\pm 10\%$  tolerance
- 0.1 ohm to 2400 ohms
- TCR's as low as  $\pm 150$  ppm/ $^{\circ}\text{C}$  std (custom TC's available)
- Weldable and solderable leads



See notes below

### SPECIFICATIONS:

IRC Type		SPH	SPF
EIA RS-344 Style		CRU 2	CRU 2
MIL-R-11 Style		RC32/RC42	RC32/RC42
Resistance - Std.		0.1 $\Omega$ to 2400 $\Omega$	0.1 $\Omega$ to 1000 $\Omega$
Tolerance - Std.		$\pm 5\%$ , $\pm 10\%$	$\pm 5\%$ , $\pm 10\%$
Power Rating		2 watt @ 70 $^{\circ}\text{C}$ 1 watt @ 115 $^{\circ}\text{C}$ Derating to 0 @ 160 $^{\circ}\text{C}$	2 watt @ 70 $^{\circ}\text{C}$ 1 watt @ 115 $^{\circ}\text{C}$ Derating to 0 @ 160 $^{\circ}\text{C}$
Max. Continuous Working Voltage		$\sqrt{\text{PR}}$	$\sqrt{\text{PR}}$
Min. Insulation Resistance	Dry Wet	10,000 Meg 100 Meg	10,000 Meg 100 Meg
Min. Dielectric Withstanding Volts (RMS)	ATM Reduced Pressure	1000 V 625V	1000 V 625V
Hotspot Temperature Rise		145 $^{\circ}\text{C}$ @ 2 watts	145 $^{\circ}\text{C}$ @ 2 watts
Typical Load Life		5%	5%
Current Noise		Negligible	Negligible

#### 1. Resistive Element

All resistor types have resistance alloy winding on a braided fiberglass substrate. Intermediate silicone coatings are used to enhance processibility and to provide protection to the resistive element.

#### 2. Termination

The SPH and SPF resistors are terminated using an alloy coated copper flashed steel lead welded to a cap of the same material. This termination assembly is mechanically crimped, utilizing an improved crimp design, to the resistive element.

#### 3. Encapsulation

The SPH and SPF are encapsulated utilizing a compression molded phenolic plastic material. The SPF has a flame-resistance coating applied over the resistive element to provide flammability protection when destructive overloads may occur.

#### 4. Marking

All products are marked utilizing heat and solvent resistant color code bands consistent with EIA/MIL requirements. The first band is double width to designate wirewound construction. A fifth band, blue in color, is used for flameproof identification.

### DIMENSIONS (Inches and (mm)):

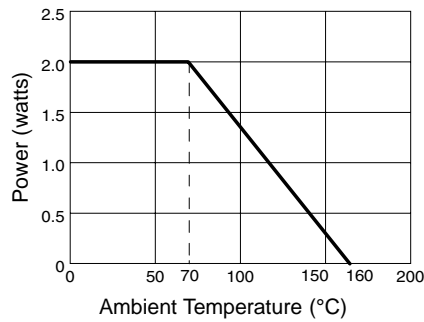
IRC TYPE	A	B	C	D
SPH	0.562 $\pm$ 0.010 (14.3 $\pm$ 0.25)	0.225 $\pm$ 0.008 (5.72 $\pm$ 0.20)	0.032 $\pm$ 0.002 (0.813 $\pm$ 0.05)	1.50 $\pm$ 0.126 (38.1 $\pm$ 3.2)
SPF	0.562 $\pm$ 0.010 (14.3 $\pm$ 0.25)	0.225 $\pm$ 0.008 (5.72 $\pm$ 0.20)	0.032 $\pm$ 0.002 (0.813 $\pm$ 0.05)	1.50 $\pm$ 0.126 (38.1 $\pm$ 3.2)

**SPH/SPF CHARACTERISTICS (TYPICAL PERFORMANCE):**

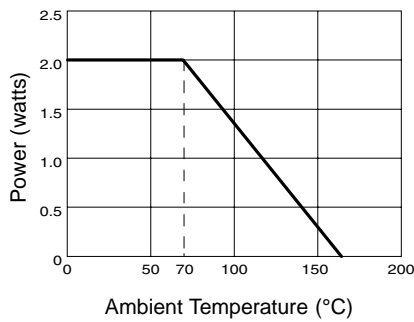
Test	SPH	SPF
Temperature Coefficient (ppm)*	0.1Ω - 0.16Ω ±1000 0.18Ω - 0.68Ω ±800 0.75Ω - 2400Ω ±400	0.10Ω ±1700 0.11Ω - 0.16Ω ±1000 0.18Ω - 0.68Ω ±800 0.75Ω - 1000Ω ±400
Dielectric Withstanding Voltage (RMS)	1000V	1000V
Momentary Overload	5%	5%
Low Temperature Operation	5%	5%
Temperature Cycle	5%	5%
Humidity	5%	5%
Load Life	5%	5%
Terminal Strength	5%	5%
Resistance to Solder Heat	5%	5%
Solderability	No Failures	No Failures

\*All ppm levels listed are maximum.

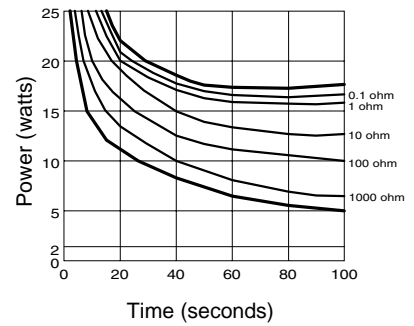
**SPH POWER DERATING:**



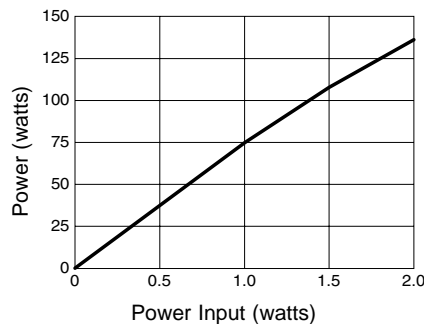
**SPF POWER DERATING:**



**SPF TYPICAL FUSING:**



**SPH AND SPF TEMPERATURE RISE:**



**HOW TO ORDER:**

Sample Part No.:

