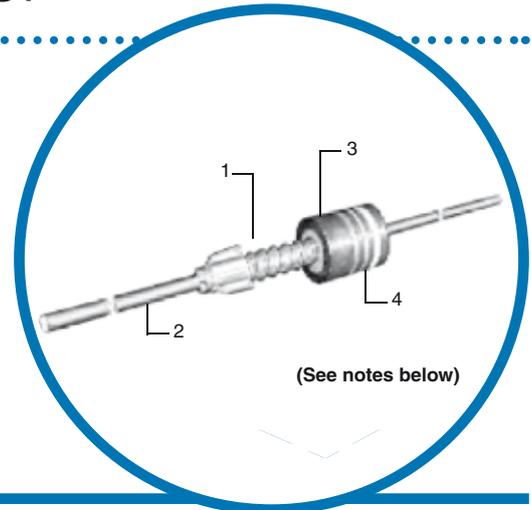


General Purpose Failsafe Molded Wirewound Resistor

SPH/SPF Series

- **SPF is fusible**
- **±5%, ±10% tolerance**
- **0.1 ohm to 2400 ohms**
- **Weldable and solderable leads**
- **2 watt rated with 1 watt dimensions**
- **Drop-in replacement for BWH/BWF**
- **Lead free, RoHS compliant construction available**
- **TCR's as low as ±150 ppm/°C standard (custom TC's available)**



Electrical Data

IRC Type		SPH	SPF
EIA RS-344 Style		CRU2	CRU2
MIL-R-11 Style		RC32/RC42	RC32/RC42
Resistance - Std.		0.1Ω to 2400Ω	0.1Ω to 1000Ω
Tolerance - Std.		±5%, ±10%	±5%, ±10%
Power Rating		2 watt @ 70°C 1 watt @ 115°C Derating to 0 @ 160°C	2 watt @ 70°C 1 watt @ 115°C Derating to 0 @ 160°C
Max. Continuous Working Voltage		\sqrt{PR}	\sqrt{PR}
Min. Insulation Resistance	Dry Wet	10,000 Meg 100 Meg	10,000 Meg 100 Meg
Min. Dielectric Withstanding Volts (RMS)	ATM Reduced Pressure	1000V 625V	1000V 625V
Hotspot Temperature Rise		145°C @ 2 watts	145°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 the 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.

General Note

TT electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT electronics' own data and is considered accurate at time of going to print.

Environmental Data

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

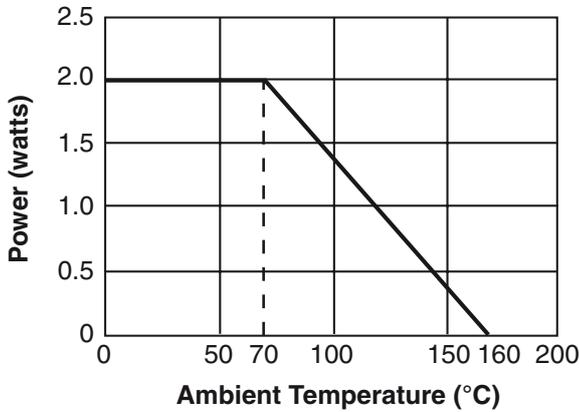
Physical Data

Dimensions (Inches and (mm))				
IRC Type	A	B	C	D
SPH	0.562 ± 0.010 (14.3 ± 0.25)	0.225 ± 0.008 (5.72 ± 0.20)	0.032 ± 0.002 (0.813 ± 0.05)	1.50 ± 0.126 (38.1 ± 3.2)
SPF	0.562 ± 0.010 (14.3 ± 0.25)	0.225 ± 0.008 (5.72 ± 0.20)	0.032 ± 0.002 (0.813 ± 0.05)	1.50 ± 0.126 (38.1 ± 3.2)

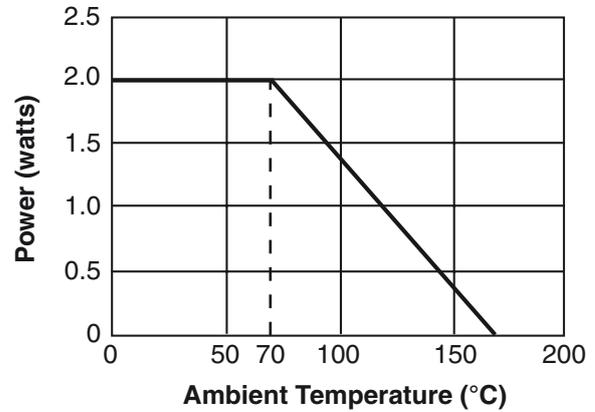
General Note

TT electronics reserves the right to make changes in product specification without notice or liability.
All information is subject to TT electronics' own data and is considered accurate at time of going to print.

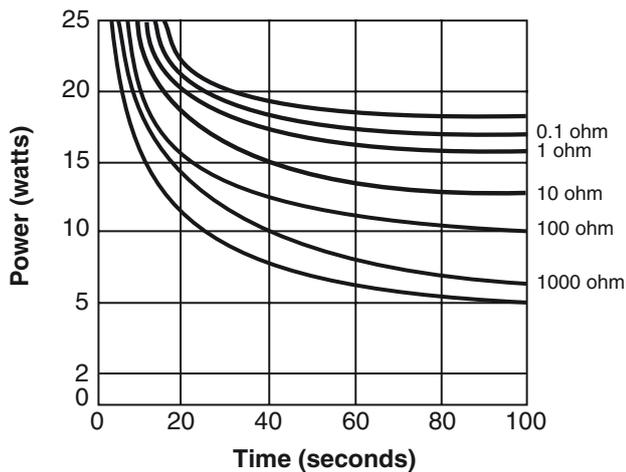
SPH Power Derating Curve



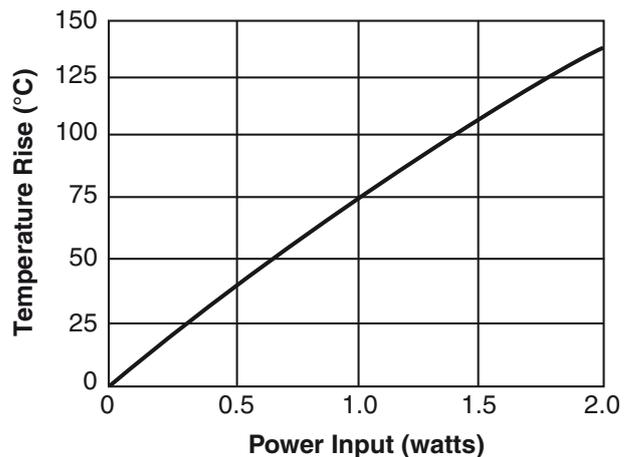
SPF Power Derating Curve



SPF Typical Fusing



SPH and SPF Temperature Rise Chart



Ordering Data

Sample Part No. **SPH** **1500** **J** **LF** **B4**

IRC Type

Resistance Range

Tolerance
J = 5%, K = 10%

Lead Free Construction

Packaging (B4 Standard Default)

Product	Packaging Code	Pitch: Dimension between parts	Inside tape to inside Tape dimension	Leads trimmed or untrimmed	Quantity / reel
SPH / SPF	B1	0.400" +/- 0.015"	2.062" +/- 0.062"	0.031" max	1250
	B2	0.400" +/- 0.015"	2.500" +/- 0.062"	0.031" max	1250
	B3	0.400" +/- 0.015"	2.875" +/- 0.062"	0.031" max	1250
	B4 (Std)	0.375" +/- 0.015"	2.875" +/- 0.062"	Un-trimmed	1250

General Note

TT electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT electronics' own data and is considered accurate at time of going to print.