# **Resistors**

# **Fibre Core Conformal Coated Wirewound Resistor**

#### **SPP Series**

- UL1412 recognised fusing \*
- Coated or uncoated units •
- Positive high TC's upon request .
- Color band standard identification
- Lower ranges available contact factory •
- Weldable and solderable magnetic leads •
- \* UL file number E234469



**Electronics** 

All Pb-free parts comply with EU Directive 2011/65/EU (RoHS2)

| l         | Electrical Data                                                  | SPP-1                                                | PP-1 SPP-2            |                                               |                       | SPP-3                                     |                       |  |
|-----------|------------------------------------------------------------------|------------------------------------------------------|-----------------------|-----------------------------------------------|-----------------------|-------------------------------------------|-----------------------|--|
|           | IRC Туре                                                         | SPP                                                  | -1                    | SPP                                           | -2                    | SP                                        | P-3                   |  |
| e - Std.  | Resistance - Std.                                                | 1Ω to 1200Ω<br>0.1Ω to 1200Ω                         |                       | 0.1Ω to 2400Ω<br>0.1Ω to 2400Ω                |                       | 0.1Ω to 2400Ω                             |                       |  |
| gnised F  | allagecognised Range                                             | Ω to 470 10 470 Ω                                    |                       | 11Ω® to 0470Ω                                 |                       |                                           |                       |  |
| - Std.    | Tolerance - Std.                                                 |                                                      |                       | ±5% (E24), ±10% (E12)<br>5% (E24), ±10% (E12) |                       |                                           |                       |  |
| - Stu.    |                                                                  | 1 watt @                                             |                       | 2 watt @                                      | 85°C                  | 3 watt (                                  | @ 85°C                |  |
| ting      | Power Rating 1                                                   | watt @485 <sup>tt</sup> @ 105°C<br>1/2 watt @ 125°C  |                       | <sup>1</sup> 2 <sup>watt</sup> @ 85°C         |                       | 2 watt @ 1453C<br>1 watt @ 190°C watt @ 8 |                       |  |
|           | 3/4                                                              | watterating 5% 160°C                                 |                       | 1 watt_@ 140°C                                |                       | 2 watt @ 14                               |                       |  |
|           |                                                                  | watt @ 125°C<br>watt @ 55°C ± 10%<br>ng to 0 @ 160°C |                       | 2 watt @ 85°C ± 10%                           |                       | 3 watt @ 85°C 1 watt @ 1                  |                       |  |
|           | Max. Continuous                                                  |                                                      |                       |                                               |                       |                                           |                       |  |
| Stability | Working Voltage 1 wa                                             | √PR<br>@ 85°C + 10%                                  |                       | √PR<br>2 watt @ 85°C + 109                    |                       | √PR<br>%3 watt_@_85°(                     |                       |  |
| Stability | Min. Insulation Dry                                              | 10,000 Meg                                           |                       | 10,000 Meg                                    |                       | 10,000 Meg                                |                       |  |
| inuous    | Resistance Wet                                                   | 100 N                                                | 100 Meg               |                                               | 100 Meg               |                                           | 100 Meg               |  |
| oltage    | Min. Dielectric<br>Withstanding Volts (RMS)                      | √PR<br>600V                                          |                       | √PR<br>600V                                   |                       | 600V √PR                                  |                       |  |
| ation     | Dry<br>Current Noise                                             | 0,000 Megligible                                     |                       | 10,000 Meg                                    |                       | Negligible 10,000 M                       |                       |  |
| e         | Wet                                                              | 100 Meg                                              |                       | 100 Meg                                       |                       | 100 Me                                    |                       |  |
| ctric     | Temperature Rise at<br>Rated Load, 25°C Ambient                  | Approx. 150°C<br>600V                                |                       | Approx. 200°C<br>600V                         |                       | Approx. 225°C<br>600V                     |                       |  |
| ling Volt | s (RMS)<br>Temperature Coefficient                               | ±600/°C<br>0.10Ω - 0.91Ω                             | ±300/°C<br>1Ω - 1200Ω | ±600/°C<br>0.10Ω - 0.91Ω                      | ±300/°C<br>1Ω - 2400Ω | ±600/°C<br>0.10Ω - 0.91Ω                  | ±300/°C<br>1Ω - 2400Ω |  |
| oise      | I<br>Notes:<br>Unless specified otherwise, standard test centers |                                                      |                       |                                               | ligible               | 0.001 0.0112                              | Negligib              |  |

General Note

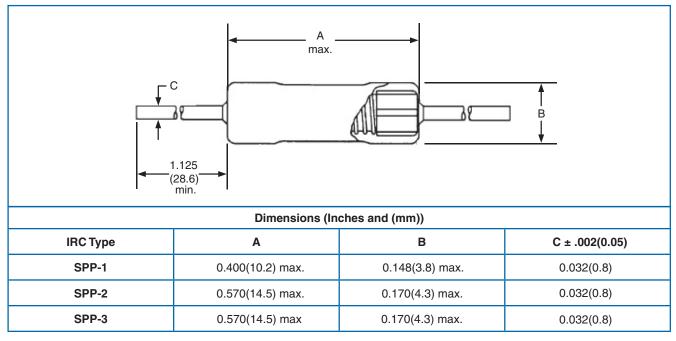
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### **Environmental Data**

| Characteristics                  | Maximum Limits                                     |
|----------------------------------|----------------------------------------------------|
|                                  | SPP-1 ±600/°C 0.10Ω - 0.91Ω   ±300/°C 1.0Ω - 1200Ω |
| Temperature Coefficient (ppm/°C) | SPP-2 ±600/°C 0.10Ω - 0.91Ω   ±300/°C 1.0Ω - 2400Ω |
|                                  | SPP-3 ±600/°C 0.10Ω - 0.91Ω   ±600/°C 1.0Ω - 2400Ω |
| Thermal Shock                    | ±5%                                                |
| Low Shock                        | ±5%                                                |
| Short Time Overload              | ±5%                                                |
| Commercial Short Time Overload   | ±5%                                                |
| Resistance to Solder Immersion   | ±3%                                                |
| Solderability                    | 95% minimum coverage                               |
| Moisture Resistance              | ±5%                                                |
| Life Test                        | ±5%                                                |
| Test Method                      | EIA Specification RS-344                           |

## Physical Data



#### General Note

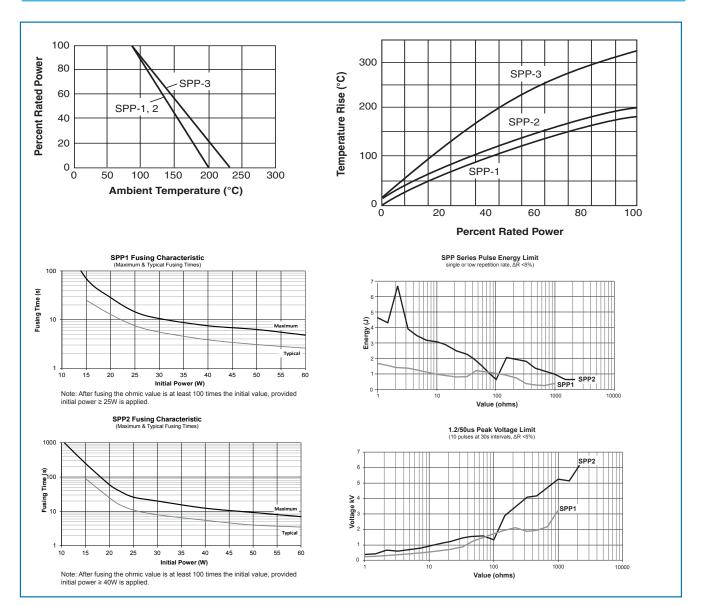
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### BI Technologies IRC Welwyn

### Fibre Core Conformal Wirewound Resistor



### **SPP Series**



## **Ordering Procedure**

Example: SPP1UL4700JLF (SPP1, UL recognised, 470 ohms ±5%, Pb-free)

| SPP1 | UL | 4 7 0 0 | J | LF |   |
|------|----|---------|---|----|---|
| 1    | 2  | 3       | 4 | 5  | 6 |

| 1    | 2                                           | 3                     | 4         | 5                                          | 6              |
|------|---------------------------------------------|-----------------------|-----------|--------------------------------------------|----------------|
| Туре | UL Status                                   | Value                 | Tolerance | Packing &<br>Termination Finish            | Custom<br>Code |
| SPP1 | UL = UL recognised                          | 3 digits + multiplier | J = ±5%   | Omit for SnPb                              | Optional       |
| SPP2 | (SPP1 & SPP2 only,                          | R = ohms for values   | K = ±10%  | LF = Pb-free                               |                |
|      | see Electrical Data for applicable values.) |                       |           | Standard packing is tape & reel, 4000/reel |                |

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