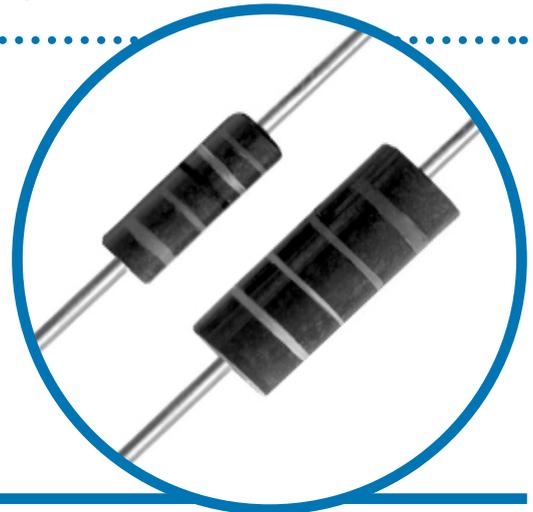


# General-Purpose Failsafe Moulded Wirewound Resistors

SP20/SP20F Series

- Drop-in replacement for BW20/BW20F
- Predictable fusing characteristics
- 1 watt rated with 1/2 watt dimensions
- 0.1 ohm to 1200 ohms
- Weldable and solderable magnetic leads



## Electrical Data

| Type                                  |       | SP20  | SP20F  |
|---------------------------------------|-------|---|--|
| EIA RS-344 Style                      |       | CRU 1   |  |
| MIL-R-11 Style                        |       | RC20/RC32   |  |
| Resistance Range                      | ohms  | 0R1 to 1k2  | 0R1 to 1k  |
| Tolerance                             | %     | ±5, ±10   |  |
| Power rating                          | watts | 1 at 50°C<br>0.75 at 70°C<br>0.5 at 100°C<br>Derating to 0 at 160°C | 1 at 50°C<br>0.75 at 70°C<br>-<br>Derating to 0 at 160°C |
| Maximum continuous working voltage    |       | $\sqrt{PR}$   |  |
| Minimum insulation resistance         | dry   | 10,000 Meg  |  |
|                                       | wet   | 100 Meg   |  |
| Minimum dielectric withstanding volts | ATM   | 700V  |  |
| Reduced pressure                      | RMS   | 450V  |  |
| Hotspot temperature rise              |       | 120°C at 1 watt   |  |
| Current noise                         |       | Negligible  |  |

## Physical Data

| Dimensions (mm) |           |           |            |          |
|-----------------|-----------|-----------|------------|----------|
| Type            | L         | D         | d          | f        |
| SP20            | 9.91±0.25 | 3.56±0.20 | 0.813±0.05 | 38.1±3.2 |
| SP20F           | 9.91±0.25 | 3.56±0.20 | 0.813±0.05 | 38.1±3.2 |

### Resistive Element

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

### Termination

The SP20 and SP20F 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.

### Encapsulation

The SP20 and SP20F are encapsulated utilizing a compression molded phenolic plastic material. The SP20F has a flame resistance coating applied over the resistive element to provide flammability protection when destructive overloads may occur.

### Marking

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

### General Note

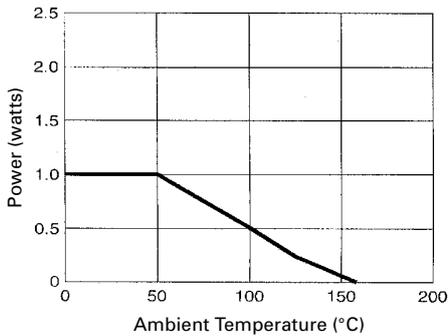
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## Performance Data

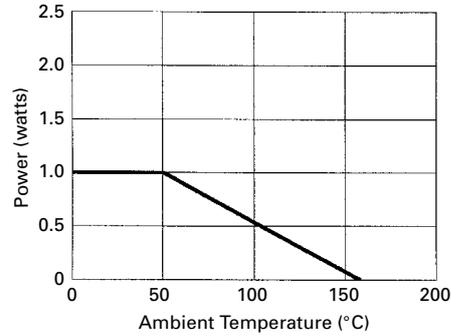
| Test                            |        | SP20                 | SP20F                 |
|---------------------------------|--------|----------------------|-----------------------|
| Temperature coefficient (ppm)   | ppm/°C | <1R ±800<br>≥1R ±150 | <1R ±800*<br>≥1R ±150 |
| Dielectric withstanding voltage | RMS    | 700V                 |                       |
| Momentary overload              | %      | 5                    |                       |
| Low temperature operation       | %      | 5                    |                       |
| Temperature cycle               | %      | 5                    |                       |
| Humidity                        | %      | 5                    |                       |
| Load life                       | %      | 5                    |                       |
| Terminal strength               | %      | 5                    |                       |
| Resistance to solder heat       | %      | 5                    |                       |

\*0.1 ohm SP20F <1000 ppm.

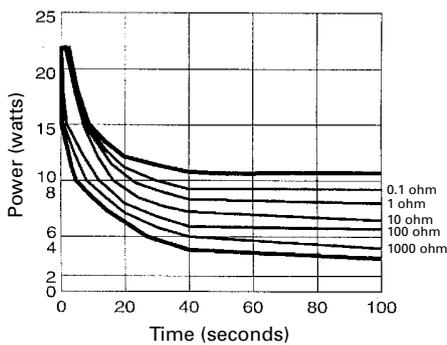
### SP20 Power Derating



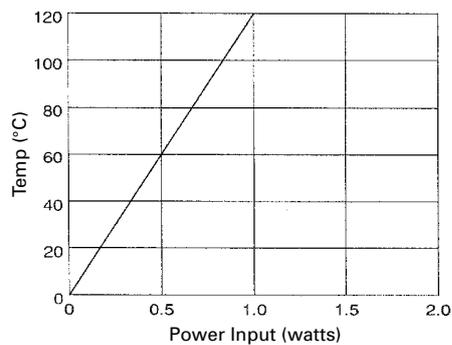
### SP20F Power Derating



### SP20F Typical Fusing



### SP20 and SP20F Temperature Rise



## Ordering Procedure

Example: SP20F at 470 ohms and 5% tolerance tape packed on a reel of 4000 pieces –

**SP20F – 470R J I**

Type \_\_\_\_\_

Value (use IEC62 code) \_\_\_\_\_

Tolerance (use IEC62 code) \_\_\_\_\_

Packing \_\_\_\_\_

|   |    |   |     |
|---|----|---|-----|
| J | 5% | K | 10% |
|---|----|---|-----|

|   |      |           |          |
|---|------|-----------|----------|
| I | Tape | 4000/reel | Standard |
|---|------|-----------|----------|

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