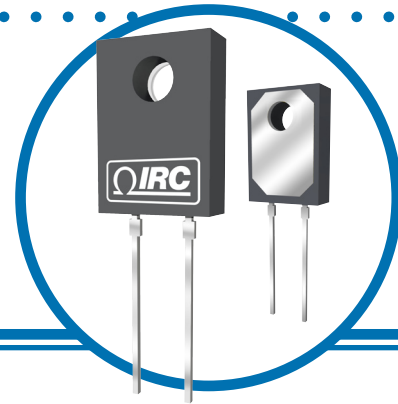


# MHP20S TO-126 Series Power Resistor



## MHP20S Series

- TO-126 housing
- Low inductance (<50nH)
- Power dissipation up to 20W
- High stability film resistance elements
- RoHS compliant



IRC's TO-126 power film resistors satisfy demanding applications for accurate and stable power resistors housed in the convenient TO-126 case.

The resistance element is isolated from the mounting tab by an alumina ceramic layer, providing high thermal conductivity and excellent insulation resistance between terminals and tab. The low inductance design makes these products especially useful in high frequency and high speed pulse applications.

## Specification Data

| TypePower | Power Rating <sup>1</sup> |                       | Voltage Rating <sup>4</sup> | Thermal Resistance | Resistance Range (Ω) | Tolerances | Preferred Values | Temperature Coefficient |
|-----------|---------------------------|-----------------------|-----------------------------|--------------------|----------------------|------------|------------------|-------------------------|
|           | Heatsink <sup>2</sup>     | Free Air <sup>3</sup> |                             |                    |                      |            |                  |                         |
| MHP20SLF  | 20W                       | 1W                    | 500                         | 5.9°C/W            | 0.01 - 0.09          | ±5%        | E6               | ±250ppm/°C              |
| MHP20SLF  | 20W                       | 1W                    |                             |                    | 0.1 - 51K            | ±1%, ±5%   | E24              | ±100ppm/°C              |

<sup>1</sup>Maximum current 25 amps

<sup>2</sup>Power rating based on 25°C case temperature

<sup>3</sup>Power rating based on 25°C ambient temperature

<sup>4</sup>Maximum voltage or  $\sqrt{P \times R}$

## Physical Data

|   |      |       |  |                 |  |  |
|---|------|-------|--|-----------------|--|--|
|   |      |       |  | Dimensions (mm) |  |  |
| A | 8.5  | ±0.2  |  |                 |  |  |
| B | 12.0 | ±0.2  |  |                 |  |  |
| C | 3.1  | ±0.2  |  |                 |  |  |
| D | 3.1  | ±0.1  |  |                 |  |  |
| E | 17.0 | ±1.0  |  |                 |  |  |
| F | 3.2  | ±0.5  |  |                 |  |  |
| G | 3.8  | ±0.2  |  |                 |  |  |
| H | 1.75 | ±0.1  |  |                 |  |  |
| J | 0.5  | ±0.05 |  |                 |  |  |
| K | 0.6  | ±0.05 |  |                 |  |  |
| L | 1.4  | ±0.05 |  |                 |  |  |
| M | 5.08 | ±0.1  |  |                 |  |  |

### General Note

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

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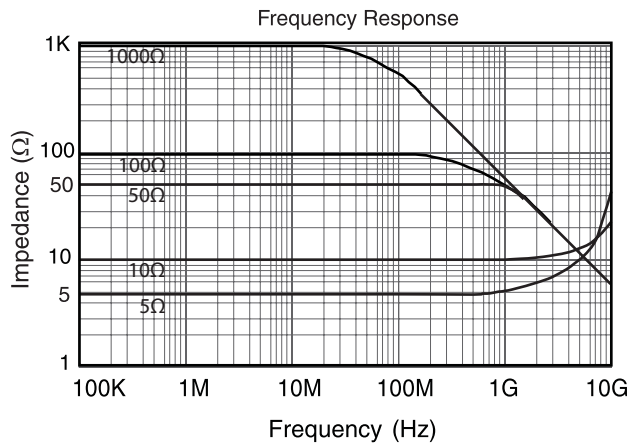
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# MHP20S Series TO-126

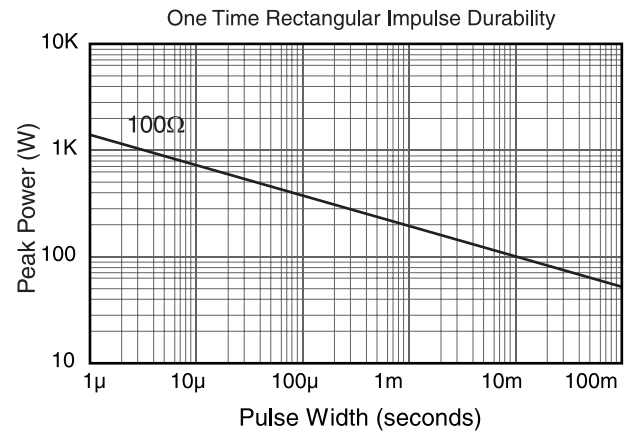
## Power Resistor



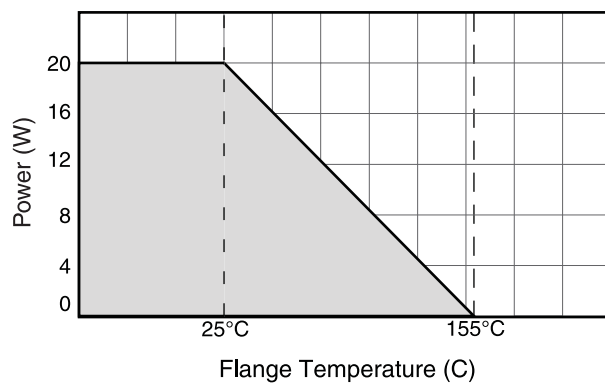
### Frequency Response Data



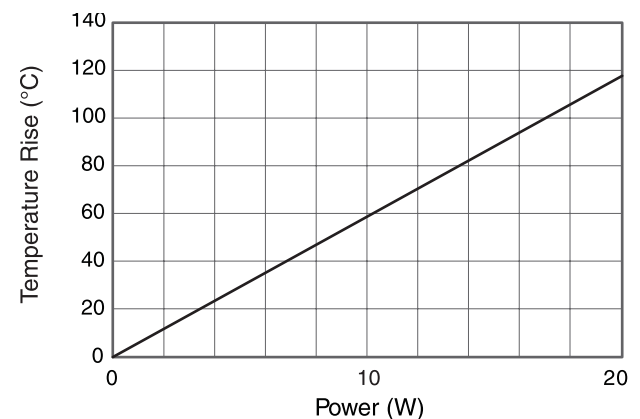
### Pulse Power Data



### Power Derating Data



### Temperature Rise Data



### Environmental Data

| Item                                   | Test Conditions                                                   | Specification - Performance       |
|----------------------------------------|-------------------------------------------------------------------|-----------------------------------|
| <b>Operating Temperature Range</b>     |                                                                   | -55°C to 155°C                    |
| <b>Dielectric Withstanding Voltage</b> | 60 seconds, between leads connected together and metal back plate | 2000VDC                           |
| <b>Load Life</b>                       | 25°C, 90 min. ON, 30 min. OFF, 1000 hours                         | $\Delta R \pm 1.0\% + 0.05\Omega$ |
| <b>Moisture Resistance</b>             | 40°C, 90-95% RH, DC 0.1W, 1000 hours                              | $\Delta R \pm 1.0\% + 0.05\Omega$ |
| <b>Solderability*</b>                  | 230 $\pm$ 5°C, 3 sec.                                             | >75% coverage                     |
| <b>Insulation Resistance</b>           | Between leads and metal back plate                                | > 1000MΩ                          |
| <b>Vibration</b>                       | IEC60068-2-6                                                      | $\Delta R \pm 0.25\%$             |

\* During soldering, the soldering temperature profile must not cause the metal back plate of this device to exceed 220°C

# MHP20S Series TO-126 Power Resistor



## Ordering Data

Prefix ..... **TFP** - **MHP20SLF** - **1R50** - **J**

Style .....

Resistance Code .....

4-digit resistance code.  
Ex: 10R0 = 10Ω, 1K00 = 1KΩ

Tolerance Code .....

J = ±5%; F = ±1%

### Packaging

Standard packaging is RoHS PS/PE tube packaging (60 pieces per tube).

### Application Notes:

1. Insulating material is unnecessary between the heat sink and the tab as the resistor film is insulated by the internal alumina substrate.
2. When mounting with a fastener, thermal grease is recommended.
3. Thermal design should satisfy the following equation: Case Temperature (T<sub>C</sub>) + [Thermal Resistance (R<sub>θJC</sub>) x Power applied (Watts)] ≤ 155°C over the full operating temperature range of the application.
4. Leads are lead free. Internal connections contain Pb that are exempted under RoHS directive 2002/95/EC, exemption 7.