# Resistors

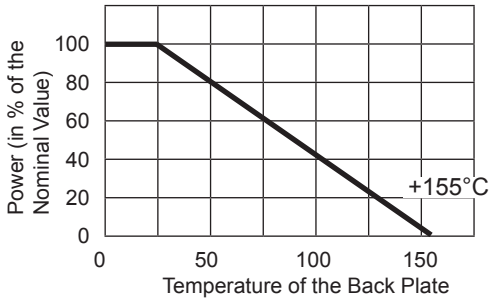
## Power Resistor — M126 - series

- Power Rating up to 20 Watt (with Heat-Sink)
- Any Resistance from 0,01Ω - 51kΩ
- Standard Tolerance ±1%
- Standard TCR to 50ppm
- Low Inductance
- Induktionsarm

| Specification | M126 |
|---|---|
| Resistance Range | 0,01Ω - 51kΩ |
| Power (1 Watt without Heat-Sink) | 20W |
| Thermal Resistance | 5,9 K/W |
| Standard Tolerance (other on request) | 1% bei R ≥ 0,1Ω / 5% |
| Temperature Coefficient | ±50ppm/K (R ≥ 10Ω)<br>±100ppm/K (0,1Ω ≥ R < 10Ω)<br>±250ppm/K (R < 0,1Ω) |
| Operating Temperature Range | -55 °C - 155 °C |
| Operating Voltage (max.) | 500 V |
| Withstanding Voltage | 2000 VAC |
| Insulation Resistance | ≥ 1GOhm |
| Inductance | 8,22 nH (at Stand Off) |

| Mechanical Data | |
|---|---|
| Housing | Epoxy - Moulded |
| Resistance Element | NiCr or RuO |
| Substrate | Alumina |
| Leads | Copper, Tin Plated |
| Back Plate | Copper, Ni Plated |

Power Derating Curve




| Parameter | Test | ΔR |
|---|---|---|
| Load Life | 90 min ON, 30 min OFF, 1000h at 25°C | ±1% |
| Humidity | 90 - 95% RH, 0,1W, 1000h at 40°C | ±1% |
| Temperature Cycle | -55°C 30 min, +155°C 30min. 1000h | ±0,25% |
| Vibration | IEC60068-2-6 | ±0,25% |
| Soldering Heat Resistance | 350°C ±5°C, 3 Seconds | ±0,1% |
| Solderability | 230°C ±5°C 3 Seconds | >95% Covered |

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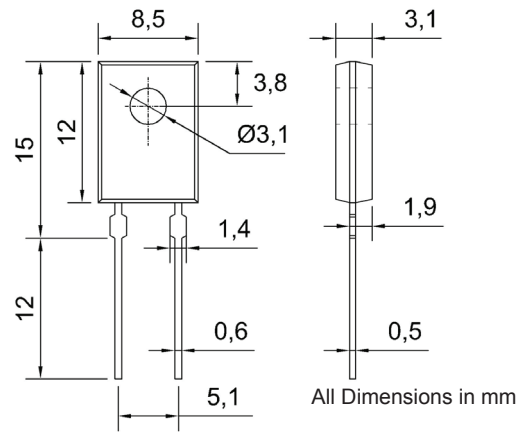
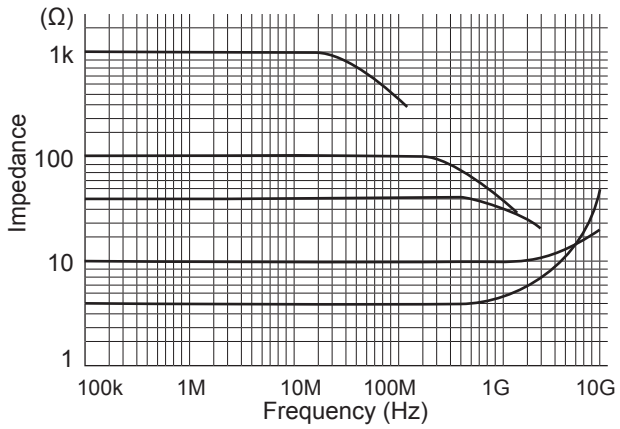
### Technical Drawing




### Frequency Characteristics




Power Rating Notes:

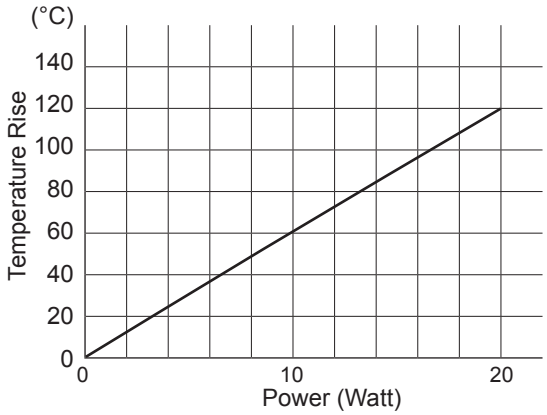
The M126 series resistors have to be combined with a correctly dimensioned heat-sink. The internal temperature of the resistor should not exceed 155°C.

Formula for the calculation of an appropriate heat-sink:

$$R_{\Theta H} = \frac{T_{max} - (P \times R_{\Theta R}) - T_U}{P}$$

| | |
|---|---|
| $R_{\Theta H}$ | Thermal Resistance of the Heat-Sink (K/W) |
| $R_{\Theta R}$ | Thermal Resistance of the Resistor (K/W) |
| $T_{max}$ | Maximum Temperature ot the Resistor |
| $T_U$ | Ambient Temperature of the Heat-Sink (°C) |
| $P$ | Power applied to the Resistor (W) |

### Temperature of the Back Plate




**Mounting Notes:**

For the mounting of the resistor a special thermal grease has to be used. We recommend a washer to press the resistor against the heat-sink.
The back plate has to be isolated from both pins and metal cases of the device.

### Ordering Information

| M126 | W1% | TK50 | 10k000 |
|---|---|---|---|
| **Type** | **Resistance Tolerance** | **Temperature Coefficient** | **Resistance Range** |
| | 1% | 50 ppm (10Ω - 51kΩ) | (0,02Ω - 51kΩ) |
| | 5% | 100 ppm (0,1Ω - 9,9Ω) | |
| | | 250ppm (0,02Ω - 0,099Ω) | |



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