



THE DATASHEET OF OHD5R-110B



Overview

The OHD™ Thermal Guard is developed for thermal problem countermeasures and safety standard conformity, which are becoming increasingly important for electronic devices in recent years.

Applications

Typical applications include atmospheric temperature detection and overheating monitoring of power transistors, power modules, room heaters, hot gas heaters, PPCs, amplifiers, motors, HDDs, FDDs and other general appliances.

Benefits

- Extremely simple circuit design
- High reliability for on/off operations
- Compatibility with extremely low (0.1 mW or lower) signals to high power (6 W) levels
- Compact, light and easy to handle
- Dust, explosion and corrosion-proof
- High-speed response
- Wide range of operating temperatures available in 5°C increments from +30°C to +120°C

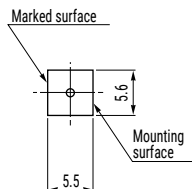
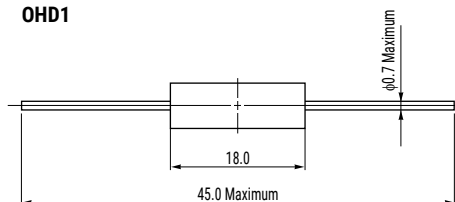


Ordering Information

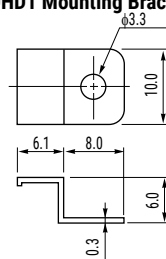
| OHD | 1- | 40 | | | B |
|--------|--------------|----------------------------|----|-----|--|
| Series | Model Number | Operating Temperature (°C) | | | Contact Type |
| OHD | 1 | 30 | 65 | 95 | B = Break M = Make (OHD1 and OHD3 Series only) |
| | 3 | 35 | 70 | 100 | |
| | 5R | 40 | 75 | 105 | |
| | | 45 | 80 | 110 | |
| | | 50 | 85 | 115 | |
| | | 55 | 90 | 120 | |
| | | 60 | | | |

Dimensions in mm

OHD1

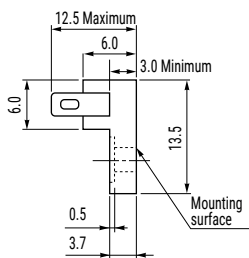
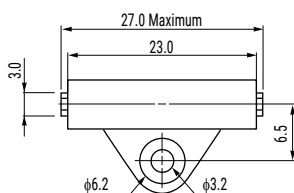


OHD1 Mounting Bracket

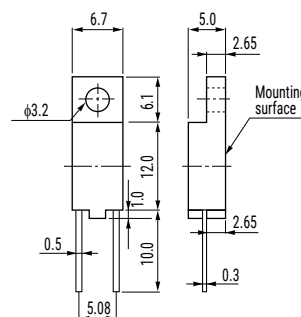


*Mounting brackets exclusively for the OHD1 type are provided optionally (at separate cost).

OHD3



OHD5R



Environmental Compliance

All OHD sensors are RoHS compliant.

Insulation & Temperature Characteristics

| Series | Insulation Withstand Voltage ¹ | Minimum Insulation Resistance ¹ | Operating Temperature Range (°C) | Differential Temperature (°C) ² |
|--------|--|--|----------------------------------|--|
| OHD1 | 2,500 VAC/1 minute or 3,000 VAC/1 second | 500 VDC to 100 MΩ | 30 – 120 | 10 Maximum |
| OHD3 | | | | |
| OHD5R | 1,500 VAC /1 minute or 1,800 VAC /1 second | | 60 – 120 | |

¹ Between terminals and mounting resin surface.

² The differential temperature is also referred to as the hysteresis temperature on thermal sensors.

Table 1 – Ratings & Part Number Reference

| Part Number | Operating Temperature (°C) | Contact Type | Maximum Opening/Closing Voltage (V) | Maximum Opening/Closing Current (A) | Maximum Opening/Closing Power (W) | Minimum Opening/Closing Current | Maximum Contact Resistance (mΩ) |
|-------------|----------------------------|--------------|-------------------------------------|-------------------------------------|-----------------------------------|---------------------------------|---------------------------------|
| OHD1-40M | 40 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-45M | 45 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-50M | 50 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-55M | 55 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-60M | 60 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-65M | 65 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-70M | 70 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-75M | 75 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-80M | 80 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-85M | 85 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-90M | 90 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-95M | 95 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-100M | 100 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-105M | 105 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-110M | 110 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-115M | 115 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-120M | 120 | Make | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-30B | 30 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-35B | 35 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-40B | 40 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-45B | 45 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-50B | 50 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-55B | 55 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-60B | 60 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-65B | 65 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-70B | 70 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-75B | 75 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-80B | 80 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-85B | 85 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-90B | 90 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-95B | 95 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-100B | 100 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-105B | 105 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-110B | 110 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-115B | 115 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD1-120B | 120 | Break | 110 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-40M | 40 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-45M | 45 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-50M | 50 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-55M | 55 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-60M | 60 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-65M | 65 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-70M | 70 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-75M | 75 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-80M | 80 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-85M | 85 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-90M | 90 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-95M | 95 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-100M | 100 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-105M | 105 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-110M | 110 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-115M | 115 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-120M | 120 | Make | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-30B | 30 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-35B | 35 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-40B | 40 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-45B | 45 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-50B | 50 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| Part Number | Operating Temperature (°C) | Contact Type | Maximum Opening/Closing Voltage (V) | Maximum Opening/Closing Current (A) | Maximum Opening/Closing Power (W) | Minimum Opening/Closing Current | Maximum Contact Resistance (mΩ) |

Table 1 – Ratings & Part Number Reference cont'd

| Part Number | Operating Temperature (°C) | Contact Type | Maximum Opening/Closing Voltage (V) | Maximum Opening/Closing Current (A) | Maximum Opening/Closing Power (W) | Minimum Opening/Closing Current | Maximum Contact Resistance (mΩ) |
|-------------|----------------------------|--------------|-------------------------------------|-------------------------------------|-----------------------------------|---------------------------------|---------------------------------|
| OHD3-55B | 55 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-60B | 60 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-65B | 65 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-70B | 70 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-75B | 75 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-80B | 80 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-85B | 85 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-90B | 90 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-95B | 95 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-100B | 100 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-105B | 105 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-110B | 110 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-115B | 115 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD3-120B | 120 | Break | 100 AC/DC | 0.3 AC/DC | 6 AC/DC | 0.1 mA/1 VDC | 150 |
| OHD5R-60B | 60 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-65B | 65 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-70B | 70 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-75B | 75 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-80B | 80 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-85B | 85 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-90B | 90 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-95B | 95 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-100B | 100 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-105B | 105 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-110B | 110 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-115B | 115 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| OHD5R-120B | 120 | Break | 30 DC | 0.1 DC | 1 DC | 0.1 mA/1 VDC | 300 |
| Part Number | Operating Temperature (°C) | Contact Type | Maximum Opening/Closing Voltage (V) | Maximum Opening/Closing Current (A) | Maximum Opening/Closing Power (W) | Minimum Opening/Closing Current | Maximum Contact Resistance (mΩ) |

Precautions

Before Using Thermal Guard

- Please read specifications and check the content thoroughly before the actual use.
- Do NOT use product under mechanical weight load.
- Do NOT use with a greater load than specified.
- Do NOT use in close proximity to strong magnetic parts and avoid exposure to a magnetic field.
- Do NOT use if dropped or severely shocked.
- The OHD1 and OHD5R are designed for printed circuit board insertion. The OHD3 is a reed wire soldered type.

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Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

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