

## Overview

The OHD™ Series 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

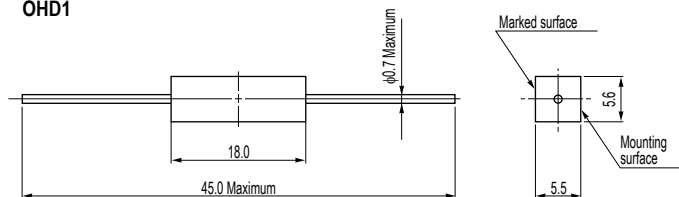


## Ordering Information

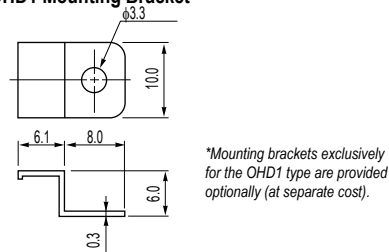
OHD	1-	40			B
Series	Model Number	Operating Temperature (°C)			Contact Type
OHD	1	30	65	95	B = Break M = Make (OHD1 and OHD3 Series only)
	3	35	70	100	
	5R	40	75	105	
		45	80	110	
		50	85	115	
		55	90	120	
		60			

## Dimensions in mm

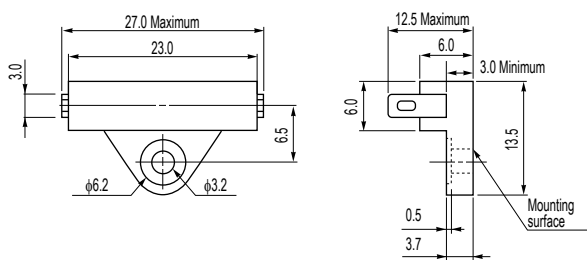
**OHD1**



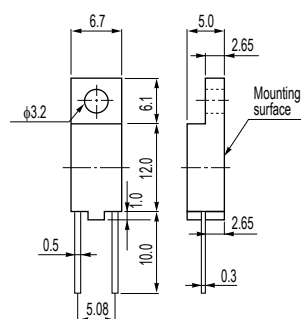
**OHD1 Mounting Bracket**



**OHD3**



**OHD5R**



## Environmental Compliance

All OHD sensors are RoHS compliant.

## Insulation and Temperature Characteristics

Series	Insulation Withstand Voltage <sup>1</sup>	Minimum Insulation Resistance <sup>1</sup>	Operating Temperature Range (°C)	Differential Temperature (°C) <sup>2</sup>
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	

<sup>1</sup> Between terminals and mounting resin surface.

<sup>2</sup> The differential temperature is also referred to as the hysteresis temperature on thermal sensors.

Table 1 – Ratings &amp; Part Number Reference

Part Number	Operating Temp. (°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
OHD3-55B	55	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 &amp; Part Number Reference cont'd

Part Number	Operating Temp. (°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)
OHD3-60B	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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