

## 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.

Its unique proprietary design features a magnet and a temperature-sensing soft ferromagnetic substance called Thermorite®. The material's magnetic flux density decreases as the temperature increases turning it into a paramagnetic substance at the Curie temperature.

## 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

- High reliability for on/off operations
- High-speed response
- Long operational life
- Excellent environmental durability
- Compatibility with extremely low (0.1 mW or lower) signals to high power (6 W) levels
- Extremely simple circuit design
- Compact, light and easy to handle
- Dust, explosion and corrosion-proof
- Wide range of operating temperatures available in 5°C increments from +30°C to +130°C
- UL, CSA and TÜV approved
- RoHS/REACH compliant

**OHD1****OHD3****OHD5R**

## Ordering Information

| OHD    | 1-                                | 50  |   |   | B   |
|--------|-----------------------------------|---|---|---|---|
| Series | Maximum Opening/Closing Power (W) | Operating Temperature (°C)  |   |   | Contact Type                                  |
| OHD    | 1 = 6W<br>3 = 6W<br>5R = 1W       | 30 = 30°C<br>35 = 35°C<br>40 = 40°C<br>45 = 45°C<br>50 = 50°C<br>55 = 55°C<br>60 = 60°C | 65 = 65°C<br>70 = 70°C<br>75 = 75°C<br>80 = 80°C<br>85 = 85°C<br>90 = 90°C<br>95 = 95°C | 100 = 100°C<br>105 = 105°C<br>110 = 110°C<br>115 = 115°C<br>120 = 120°C<br>125 = 125°C<br>130 = 130°C | B = Break<br>M = Make<br>(OHD1 and OHD3 only) |

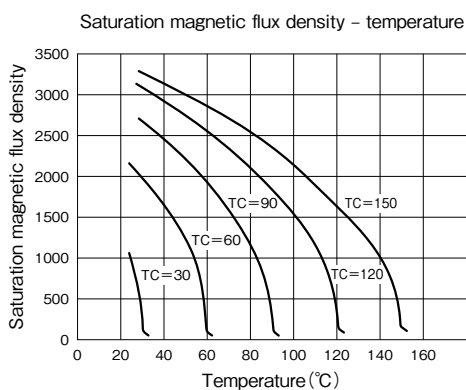
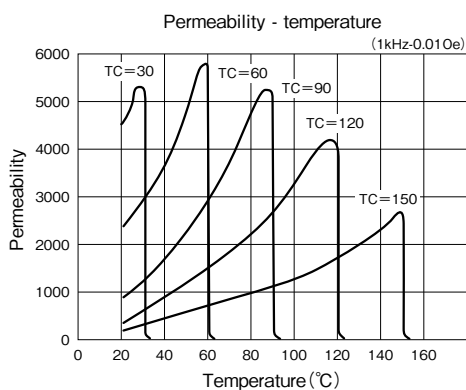
## Structures and Principles of Operation

Thermal Guard (OHD) are temperature-sensing switches composed of a magnet and a temperature-sensing soft ferromagnetic substance called Thermorite. This material's saturation magnetic flux density decreases as the temperature increases, and it turns into a paramagnetic substance at its Curie temperature.

### Thermorite properties

- Thermorite changes its magnetic property rapidly at its Curie temperature, providing quick response times.
- The Curie temperature of Thermorite does not vary with time, as it is based on a compounding ratio.
- Thermorite is stable against moisture and hazardous gas.

Thermal property of Thermorite

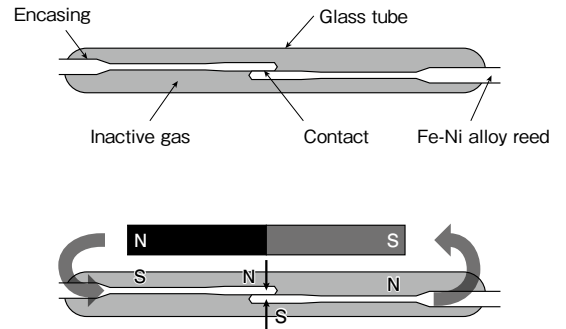


TC=Curie temperature

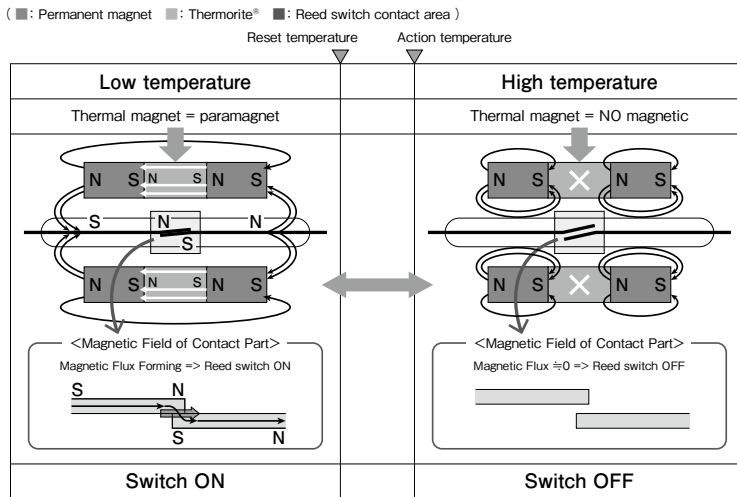
## Structures and Principles of Operation cont.

### Reed switch structure

- The reed switch is a contact switch comprised of a pair of Fe-Ni alloy reeds encased in a glass tube with inactive gas. The reeds are switched on or off by the magnetic field of a permanent magnet or magnet coil.
- The reeds in the glass tube become magnetized from the magnetic field, allowing the two reeds to make contact and connect (switch on). When the magnetic field disappears, the reeds separate and disconnect (switch off).
- The glass encasement of the reeds ensures high environmental resistance and a long operational life.



### OHD principle: Break (B) type

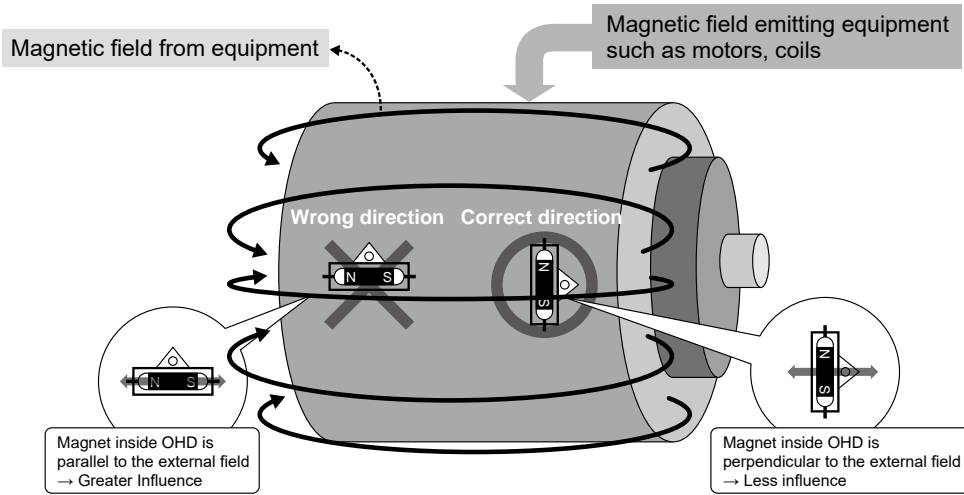


### OHD principle: Make (M) type

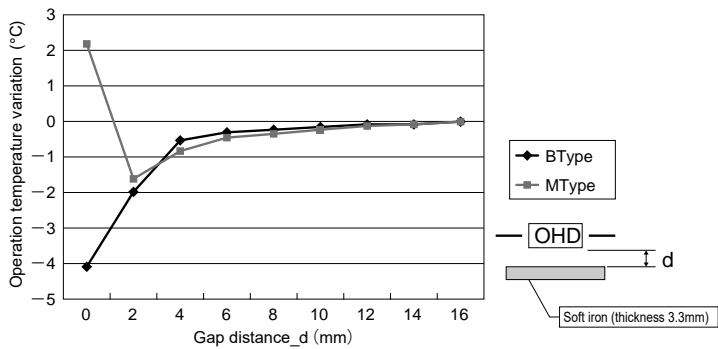


## External Magnetic Field

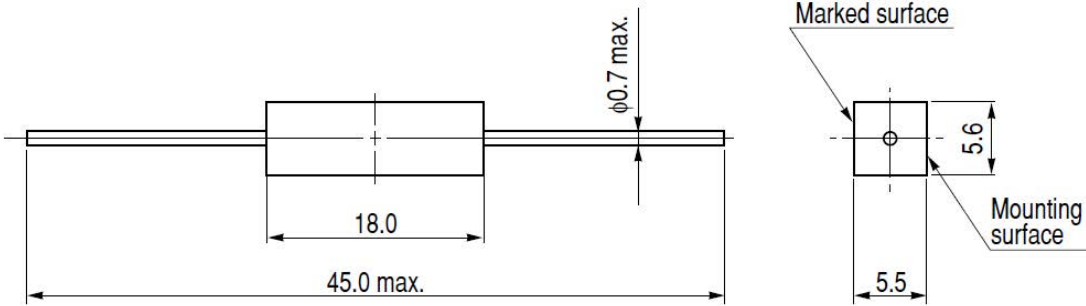
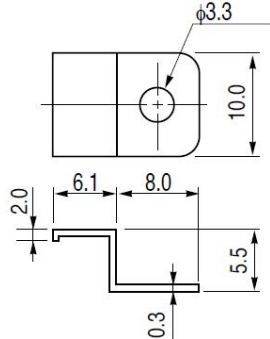
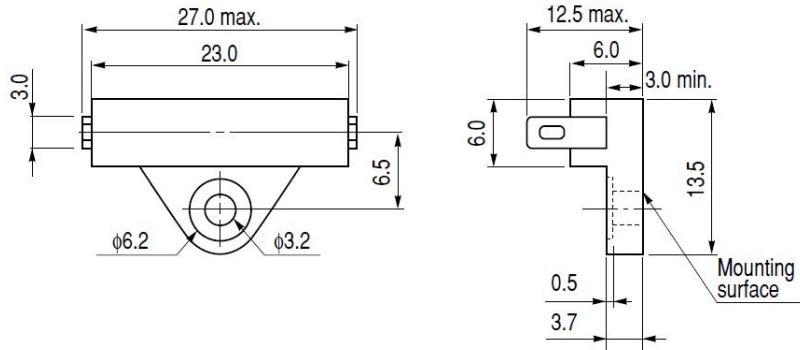
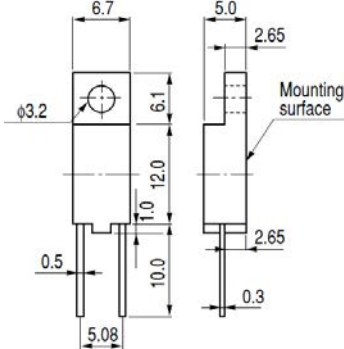
### OHD installation in external magnetic field



### Ferromagnetic material influence



## Dimensions – Millimeters

| Part Number           | Dimensions - Millimeters   |   |
|-----------------------|--|---|
| OHD1                  |    |   |
| OHD1 mounting bracket |    | <p>Mounting brackets designed specifically for OHD1 type are provided optionally, at separate cost.<br/>Part number is OHD1BRACKET.</p> |
| OHD3                  |  |   |
| OHD5R                 |   |   |

## Environmental Compliance

All KEMET Thermal Sensors are RoHS compliant.



## Approvals

| Certification Body | File Number | Part Type            |
|--------------------|-------------|----------------------|
| UL                 | E67648      | OHD1, OHD3 and OHD5R |
| CSA                | LR50414     | OHD1, OHD3 and OHD5R |
| TÜV                | R9750955    | OHD1 and OHD3        |
|                    | R9750944    | OHD5R                |

## Performance Characteristics

| Item                        | Performance Characteristics |   |
|-----------------------------|-----------------------------|---|
| Operations                  | All types                   | 100,000 times   |
| Condition                   | OHD1 and OHD3 types         | 100 VAC – 1.67 k $\Omega$ (purely resistive load)             |
|                             | OHD5R type                  | 30 VDC – 0.9 k $\Omega$ (purely resistive load)               |
| Judgement                   | All types                   | 1) No stick<br>2) Contact resistance be within 500 m $\Omega$ |
| Screw Torque Recommendation | OHD3 type                   | 0.5 N•m maximum (5 kgf•cm maximum)<br>M3 screw (non-magnetic) |
|                             | OHD5R type                  | 0.4 N•m maximum (4 kgf•cm maximum)<br>M3 screw (non-magnetic) |
| Dip Washing                 | All types                   | Using isopropyl alcohol AT normal temperature for 90 seconds  |
| Molded Resin                | All types                   | Alkyd Resin (UL V-0)  |

## Insulation & Temperature Characteristics

| Shape Type | Insulation Withstand Voltage <sup>1</sup>      | Minimum Insulation Resistance <sup>1</sup> | Operating Temperature Range | Switching Temperature Range | Switching Temperature Precision <sup>2</sup> | Differential Temperature <sup>3</sup> |
|------------|--|--|-----------------------------|-----------------------------|--|---------------------------------------|
| OHD1       | 2,500 VAC/1 minute<br>or<br>3,000 VAC/1 second | 500 VDC<br>to 100 MΩ                       | -20°C<br>to +150°C          | +30°C<br>to +130°C          | ±5°C   | 10°C<br>Maximum                       |
| OHD3       | 1,500 VAC/1 minute<br>or<br>1,800 VAC/1 second |  |                             |                             |  |                                       |
| OHD5R      |  |  |                             |                             |  |                                       |

<sup>1</sup> Between wire harness and mounting resin surface.

<sup>2</sup> Switching temperature precision does not include measurement error.

<sup>3</sup> The differential temperature is also referred to as the hysteresis temperature on thermal sensors.

## Table 1 – Ratings & Part Number Reference

| Part Number | Switching Temperature (°C) | Maximum Differential 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) | Weight (g) | Approval       |
|-------------|----------------------------|---------------------------------------|--------------|-------------------------------------|-------------------------------------|-----------------------------------|---------------------------------|---------------------------------|------------|----------------|
| OHD1-30M    | 30°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-35M    | 35°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-40M    | 40°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-45M    | 45°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-50M    | 50°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-55M    | 55°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-60M    | 60°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-65M    | 65°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-70M    | 70°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-75M    | 75°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-80M    | 80°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-85M    | 85°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-90M    | 90°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-95M    | 95°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-100M   | 100°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-105M   | 105°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-110M   | 110°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-115M   | 115°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-120M   | 120°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-125M   | 125°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-130M   | 130°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.8        | UL & CSA & TÜV |
| OHD1-30B    | 30°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-35B    | 35°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-40B    | 40°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-45B    | 45°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-50B    | 50°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-55B    | 55°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |

**Table 1 – Ratings & Part Number Reference cont.**

| Part Number | Switching Temperature (°C) | Maximum Differential 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) | Weight (g) | Approval       |
|-------------|----------------------------|---------------------------------------|--------------|-------------------------------------|-------------------------------------|-----------------------------------|---------------------------------|---------------------------------|------------|----------------|
| OHD1-60B    | 60°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-65B    | 65°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-70B    | 70°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-75B    | 75°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-80B    | 80°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-85B    | 85°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-90B    | 90°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-95B    | 95°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-100B   | 100°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-105B   | 105°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-110B   | 110°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-115B   | 115°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-120B   | 120°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-125B   | 125°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD1-130B   | 130°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 1.4        | UL & CSA & TÜV |
| OHD3-30M    | 30°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-35M    | 35°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-40M    | 40°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-45M    | 45°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-50M    | 50°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-55M    | 55°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-60M    | 60°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-65M    | 65°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-70M    | 70°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-75M    | 75°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-80M    | 80°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-85M    | 85°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-90M    | 90°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-95M    | 95°C ±5°C                  | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-100M   | 100°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-105M   | 105°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-110M   | 110°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-115M   | 115°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-120M   | 120°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-125M   | 125°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-130M   | 130°C ±5°C                 | 10°C                                  | Make         | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.8        | UL & CSA & TÜV |
| OHD3-30B    | 30°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-35B    | 35°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-40B    | 40°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-45B    | 45°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-50B    | 50°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-55B    | 55°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |



**Table 1 – Ratings & Part Number Reference cont.**

| Part Number | Switching Temperature (°C) | Maximum Differential 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) | Weight (g) | Approval       |
|-------------|----------------------------|---------------------------------------|--------------|-------------------------------------|-------------------------------------|-----------------------------------|---------------------------------|---------------------------------|------------|----------------|
| OHD3-60B    | 60°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-65B    | 65°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-70B    | 70°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-75B    | 75°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-80B    | 80°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-85B    | 85°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-90B    | 90°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-95B    | 95°C ±5°C                  | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-100B   | 100°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-105B   | 105°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-110B   | 110°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-115B   | 115°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-120B   | 120°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-125B   | 125°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD3-130B   | 130°C ±5°C                 | 10°C                                  | Break        | 110 AC/DC                           | 0.3 AC/DC                           | 6 AC/DC                           | 0.1 mA/1 VDC                    | 150                             | 2.4        | UL & CSA & TÜV |
| OHD5R-30B   | 30°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-35B   | 35°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-40B   | 40°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-45B   | 45°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-50B   | 50°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-55B   | 55°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-60B   | 60°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-65B   | 65°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-70B   | 70°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-75B   | 75°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-80B   | 80°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-85B   | 85°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-90B   | 90°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-95B   | 95°C ±5°C                  | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-100B  | 100°C ±5°C                 | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-105B  | 105°C ±5°C                 | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-110B  | 110°C ±5°C                 | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-115B  | 115°C ±5°C                 | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-120B  | 120°C ±5°C                 | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-125B  | 125°C ±5°C                 | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |
| OHD5R-130B  | 130°C ±5°C                 | 10°C                                  | Break        | 30 DC                               | 0.1 DC                              | 1 DC                              | 0.1 mA/1 VDC                    | 300                             | 1.1        | UL & CSA & TÜV |

**Table 2 – Ratings & Part Number Reference**

| Part Number | Weight (g) |
|-------------|------------|
| OHD1BRACKET | 0.45       |

## Soldering

### OHD1 and OHD5R

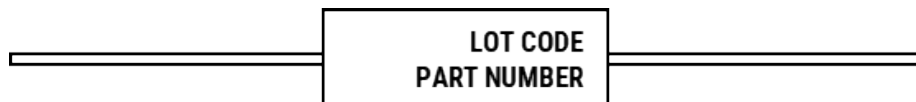
|                       |                        |                   |
|-----------------------|------------------------|-------------------|
| <b>Flow Soldering</b> | Preheating Temperature | 100 – 150°C       |
|                       | Preheating Time        | Within 60 seconds |
|                       | Heating Temperature    | 260°C             |
|                       | Heating Time           | 10 ±1 seconds     |
| <b>Iron Soldering</b> | Temperature of Tip     | 350°C or lower    |
|                       | Worktime               | Within 5 seconds  |

### OHD3

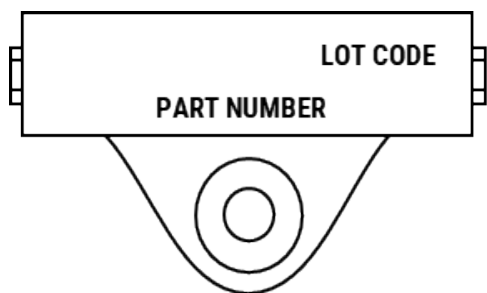
|                       |                    |                  |
|-----------------------|--------------------|------------------|
| <b>Iron Soldering</b> | Temperature of Tip | 350°C or lower   |
|                       | Worktime           | Within 5 seconds |

## Marking

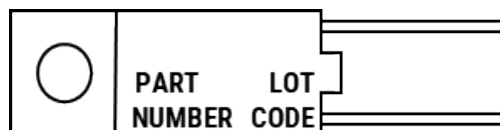
### OHD1



### OHD3



### OHD5R



### Lot Code 122

|                           |              |   |
|---------------------------|--------------|---|
| Month of the Year         | (1) 1 digit  | 1 = January<br>9 = September<br>X = October<br>Y = November<br>Z = December |
| 2 Last Digits of the Year | (2) 2 digits | 10 = xx10<br>11 = xx11<br>19 = xx19   |

## Packaging

| Part Type   | Packaging Type | Pieces per Tray | Pieces per Box |
|-------------|----------------|-----------------|----------------|
| OHD1        | Tray           | 120             | 1,200          |
| OHD3        |                | 100             | 1,000          |
| OHD5R       |                |                 | 700            |
| OHD1BRACKET | Plastic Bag    | 1,000           | 1,000          |

## Handling Precautions

### Precautions to be taken when using Thermal Reed Switches (Please read these precautions before using our products)

- Do NOT use in close proximity to strong magnetic parts.
- Do NOT use product under mechanical weight load.
- Do NOT use if dropped or severely shocked.
- Do NOT use with a greater load than specified.
- Avoid stress (especially torsion) in case of additional processing.
- Thermal guards have a specific resonance frequency. Please contact a KEMET representative if an oscillation is added.
- OHD1 and OHD5R are designed for printed circuit board insertion. OHD3 is reed wire soldered type.