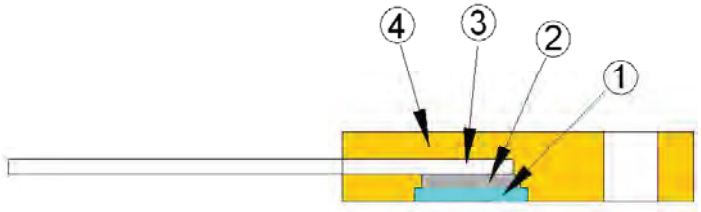


# TO-220 Power Resistor – TR50-H



## Construction



|                     |           |
|---------------------|-----------|
| ① Alumina Substrate | ③ Lead    |
| ② Resistor Layer    | ④ Molding |

## Features

- 50 watts at  $\leq 25^{\circ}\text{C}$  case temperature heat sink mounted
- TO-220 style power package
- Fixed with a M3 screw on system heat sink.
- Improve the heat dissipation by ceramic exposure design with external fix jig to mount the chip on heat sink

## Applications

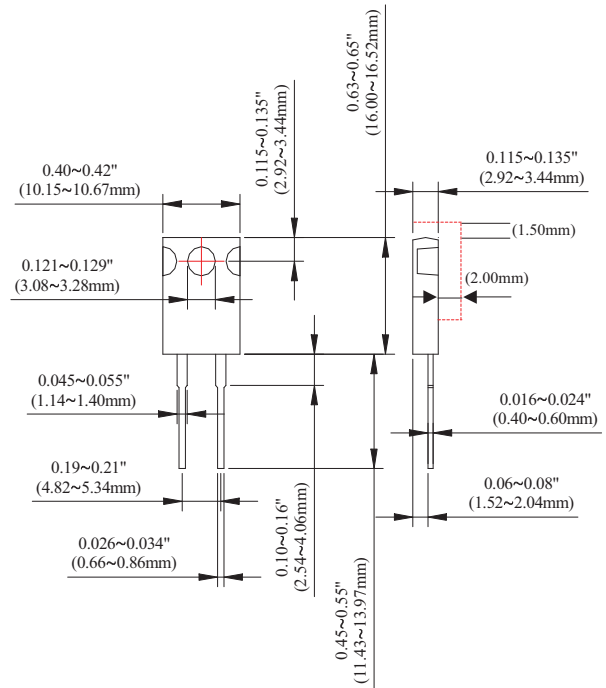
- Power Supplies
- Non-inductive Design for High Frequency
- Pulsing Applications

## Dimensions

Unit: mm

| Type   | Weight (g)<br>(1000pcs) |
|--------|-------------------------|
| TR50-H | 2770                    |

Unit: mm

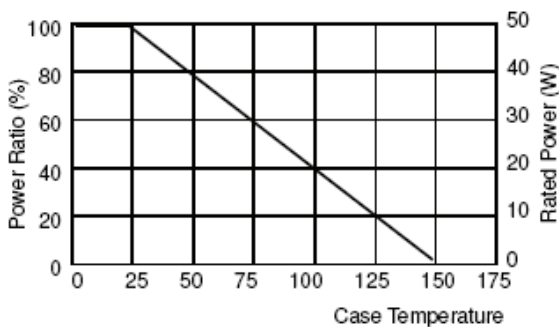


## Electrical Characteristics Specifications

| Resistance Range            | TCR (PPM/ $^{\circ}\text{C}$ )     |                                    |                                    |                                    |
|-----------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                             | $\pm 0.5\%$                        | $\pm 1\%$                          | $\pm 5\%$                          | $\pm 10\%$                         |
| 0.1 $\Omega$ - 1 $\Omega$   |                                    |                                    | —                                  | —                                  |
| >1 $\Omega$ - 3 $\Omega$    |                                    | $\pm 300$                          | $\pm 300$                          | $\pm 300$                          |
| >3 $\Omega$ - 10 $\Omega$   |                                    | $\pm 100$<br>$\pm 200$             | $\pm 100$<br>$\pm 200$             | $\pm 100$<br>$\pm 200$             |
| >10 $\Omega$ - 10K $\Omega$ | $\pm 50$<br>$\pm 100$<br>$\pm 200$ | $\pm 50$<br>$\pm 100$<br>$\pm 200$ | $\pm 50$<br>$\pm 100$<br>$\pm 200$ | $\pm 50$<br>$\pm 100$<br>$\pm 200$ |

- Operating Voltage: 420V Max.
- Dielectric Strength: 1800VAC
- Insulation Resistance: 10G $\Omega$  min.

## Derating Curve



## Part Numbering

|              |              |   |                |   |  |         |
|--------------|--------------|---|----------------|---|--|---------|
| TR           | 50           | J                                       | B              | D   | 1001   | -H      |
| Product Type | Power        | Resistance Tolerance                    | Packaging Code | TCR (PPM/°C)  | Resistance   | Code    |
|              | 50: 50 Watts | D: ±0.5%<br>F: ±1%<br>J: ±5%<br>K: ±10% | B: Bulk        | D: ±50<br>E: ±100<br>F: ±200<br>G: ±300<br>-:No Specified | R100: 0.1Ω<br>0100: 10Ω<br>4700: 470Ω<br>1001: 1000Ω<br>1002: 10000Ω | H: Hole |

## Environmental Characteristics

| Item   | Requirement       | Test Method   |
|--|-------------------|---|
| Temperature Coefficient of Resistance (T.C.R.) | As Spec.          | Referenced to 25°C, ΔR taken at +105°C  |
| Short Time Overload                            | ΔR±0.3%           | 2 times rated power with applied voltage not to exceed 1.5 times maximum continuous operating voltage for 5 seconds |
| Load Life                                      | ΔR±1.0%           | 2,000 hours at rated power  |
| Damp Heat with Load                            | ΔR±0.5%           | 40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"                           |
| Solderability                                  | 90% min. coverage | 245±5°C for 3 seconds   |
| Thermal Shock                                  | ΔR±0.3%           | -65°C ~150°C, 100 cycles  |
| Terminal Strength                              | ΔR±0.2%           | (Pull Test) 2.4N  |
| Vibration, High Frequency                      | ΔR±0.2%           | 20g peak  |

- Lead Material: Tinned Copper
- Maximum Torque: 0.9 N-m
- Without a Heat Sink, When in Free Air at 25°C, the TR50-H is Rated for 2.25W.
- The Case Temperature is to be used for the Definition of the Applied Power Limit.
- The Case Temperature Measurement must be made with a Thermocouple Contacting the Center of the Component mounted on the Designed Heat Sink.
- Thermal Grease should be Applied Properly.