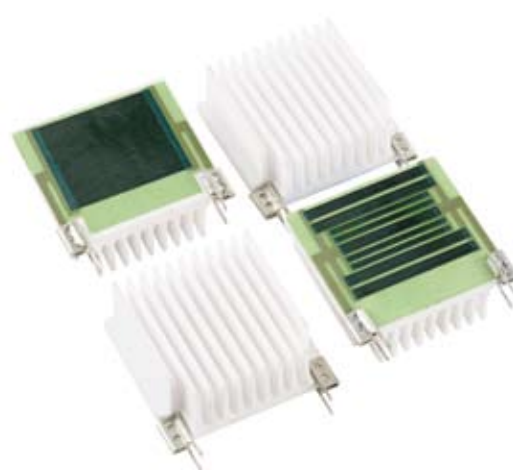


# TRH Series

## Thick Film



The Ohmite TRH combines two products in one. Ohmite uses advanced thick film printing processes to place a resistor onto an ceramic heatsink. The TRH series replaces common thick film heatsinkable products and the heatsink and hardware associated with them. The resistor and heatsink are one unit and work together with great thermal efficiency. The TRH series is designed to be board mounted and comes in three different application designs. Special resistance patterns have been designed for Continuous Power, High Voltage and Surge applications.

### SPECIFICATIONS

| Series | Type             | Resistance Range |
|--------|------------------|------------------|
| TRHP   | Continuous Power | 100Ω to 10KΩ     |
| TRHE   | Impulse Energy   | 5Ω to 1KΩ        |
| TRHV   | High Voltage     | 100KΩ to 10MΩ    |

### FEATURES

- High-Temp Terminal Construction
- Wide Resistance Range
- Low Inductance (50nH-100nH)
- Easy to install. PC-mountable
- Meets Mil-Std-202
- Meets IEC 61000-4-5

### CHARACTERISTICS

|                                |                                    |
|--------------------------------|------------------------------------|
| <b>Resistance Range</b>        | 5Ω to 10 MegΩ, based on type       |
| <b>Tolerance</b>               | 1%, 5%, 10%                        |
| <b>Power Rating*</b>           | 30W based on 25°C free air         |
| <b>Maximum Operating Volts</b> | 15 KV, not to exceed power rating  |
| <b>Temp Coeff. Resistance*</b> | ≤5Ω: ±400ppm<br>>5Ω-100MΩ: ±100ppm |
| <b>TCR Temperature Range</b>   | -55°C to +125°C                    |
| <b>Derating</b>                | 100% @25°C to 0% @180°C ambient    |
| <b>Substrate</b>               | 95% Alumina                        |
| <b>Resistor</b>                | Thick Film Composition             |
| <b>Terminals</b>               | Solder Plated Phosphor Bronze      |
| <b>Operating Temp. Range</b>   | -55°C to +180°C                    |
| <b>Coating</b>                 | Glass or Silicone                  |
| <b>Solder</b>                  | Sn95.5Ag3.0Cu0.5 (SAC305)          |

\*Consult factory for optional power ratings and TCR ranges

### PERFORMANCE

|                                          |                                                                                          |                                               |
|------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------|
| <b>Humidity</b>                          | Mil-Std-202, Method 103B, Condition B                                                    | ΔR ±0.25%+0.05Ω                               |
| <b>Insulation Resistance</b>             | Mil-Std-202, Method 302, Condition B                                                     | >10,000M or greater Dry                       |
| <b>Thermal Shock</b>                     | Mil-Std-202, Method 107G, Condition B                                                    | ΔR ±0.20%+0.05Ω                               |
| <b>Load Life</b>                         | Mil-Std-202, Method 108A, Condition D, 70°C; rated power 90min ON, 30 min Off, 1000 hrs  | ΔR ±1%+0.05Ω                                  |
| <b>Terminal Strength</b>                 | Mil-Std-202, Method 211A, Condition A                                                    | ΔR ±0.25%+0.05Ω                               |
| <b>Shock (Specified Pulse)</b>           | Mil-Std-202, Method 213B, Condition I                                                    | 100Ω: ΔR ±0.5%+ 0.05Ω<br><100Ω: ΔR ±1%+ 0.05Ω |
| <b>Vibration, High Frequency</b>         | Mil-Std-202, Method 204D, Condition D                                                    | 100Ω ΔR ±0.5%+ 0.05Ω<br><100Ω ΔR ±1%+ 0.05Ω   |
| <b>Solderability</b>                     | Mil-Std-202, Method 208F                                                                 | >95% Coverage                                 |
| <b>Short Term Overload</b>               | 2.5x rated power, 5 sec, not exceeding max voltage                                       | ΔR ±0.25%+0.05Ω                               |
| <b>Soldering to Heat</b>                 | 350°C solderpot, 3 sec                                                                   | ΔR ±0.25%+0.05Ω                               |
| <b>Dielectric Withstanding Voltage</b>   | Mil-Std-202, Method 301, 5KVDC thru back side                                            | ΔR ± 0.25%+ 0.05Ω                             |
| <b>Insulation Resistance</b>             | Mil-Std-202, Method302, Condition B                                                      | >10,000M or greater Dry                       |
| <b>Resistance to Solvents</b>            | Mil-Std-202, Method 215G                                                                 | No Degradation of Coating or Marking          |
| <b>Surge Immunity (energy type only)</b> | IEC61000-4-5 waveform<br>1.2μsec/50μsec, 10 pulses applied. up to 4.5KVd, 100 ohm and up | ΔR less than 1% from initial value            |

(continued)

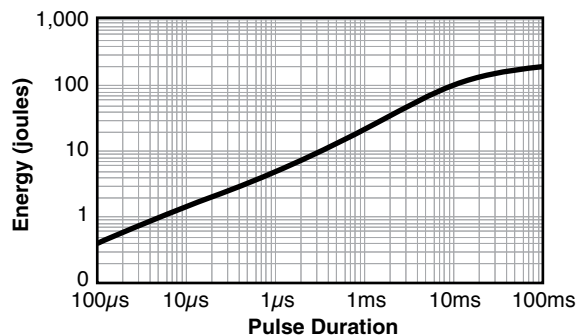
# TRH Series

## Thick Film

### PERFORMANCE

#### Capacitor Discharged Impulse Test

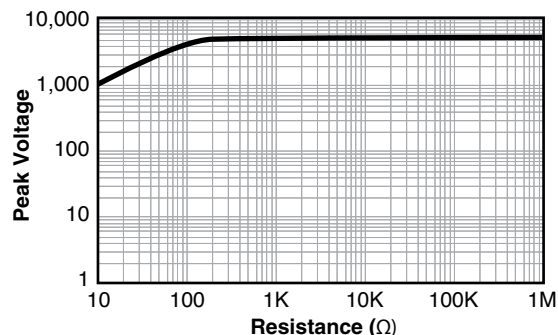
(energy type only)



Limit of acceptance is a shift in resistance of less than 1% from the initial value. 100 joule Energy rating is for 10 mSec pulse width; for shorter pulses energy rating has to be derated according to above rating chart

#### Surge Immunity Test

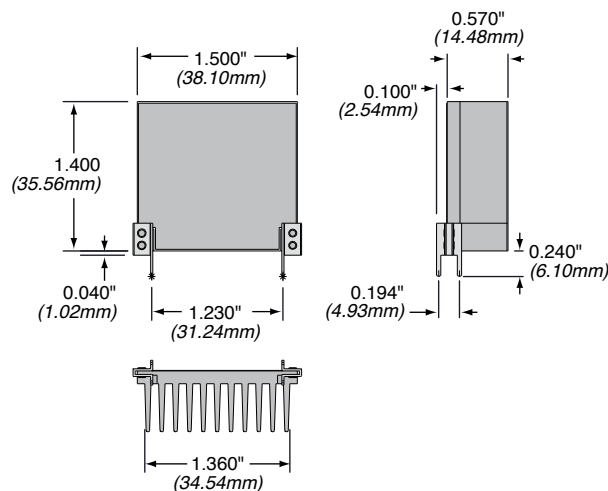
(energy type only)



TRHE1 are tested in accordance with IEC61000-4-5, waveform 1.2/50ms, 10 pulses applied. Limit of acceptance is a shift in resistance of less than 1% from the initial value.

### DIMENSIONS

(in./mm)



### ORDERING INFORMATION

| Thick Film Resistor Series | Type                                   | Temp. Sensor                   | Resistance                                                                                                                                           | Tolerance                   | Coating                            | Size            | RoHS compliant |
|----------------------------|----------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------|-----------------|----------------|
|                            |                                        |                                |                                                                                                                                                      |                             |                                    |                 |                |
| TRHP01A1501J2E             | P = power<br>E = Energy<br>H = Voltage | A = None<br>B = NTC<br>C = PTC | <1000Ω: R = decimal<br>≥1000Ω: first 3 digits are significant, 4th digit is multiplier<br>examples:<br>50 = 50R0<br>1,000 = 1001<br>1,500,000 = 1504 | F = 1%<br>J = 5%<br>K = 10% | 2 = Blue Silicone<br>3 = Overglaze | 01 = 1.5 x 1.4" |                |

#### Standard Part Numbers

| Power           | Energy          | Voltage        |
|-----------------|-----------------|----------------|
| TRHP01A1R00F2E  | TRHE01A10R0J2E  | TRHV01A1003J2E |
| TRHP01A1R00J2E  | TRHE01A47R0J2E  | TRHV01A1004F2E |
| TRHP01A2R00F2E  | TRHE01A100R0J2E | TRHV01A5004F2E |
| TRHP01A4R70J2E  | TRHE01A270R0J2E | TRHV01A1005J2E |
| TRHP01A5R00F2E  | TRHE01A560R0J2E | TRHV01A5005J2E |
| TRHP01A8R00F2E  | TRHE01A1001J2E  | TRHV01A1006J2E |
| TRHP01A10R0J2E  |                 |                |
| TRHP01A12R0F2E  |                 |                |
| TRHP01A15R0F2E  |                 |                |
| TRHP01A20R0F2E  |                 |                |
| TRHP01A25R0F2E  |                 |                |
| TRHP01A40R0F2E  |                 |                |
| TRHP01A50R0F2E  |                 |                |
| TRHP01A75R0F2E  |                 |                |
| TRHP01A100R0F2E |                 |                |
| TRHP01A100R0J2E |                 |                |
| TRHP01A200R0F2E |                 |                |
| TRHP01A1001F2E  |                 |                |
| TRHP01A5001F2E  |                 |                |