

# TEH100 Series

100 Watt Thick Film Power Resistors for High Frequency and Pulse Loading Applications



## FEATURES

- 100 Watt power rating at 25°C case temperature
- Non-inductive performance
- Low thermal resistance
- RoHS compliant design
- TO-247 package configuration
- Single screw mounting simplifies attach-ment to the heat sink
- A totally molded housing for enviromental protection
- Non-Inductive design
- Resistor package totally insulated from heat sink



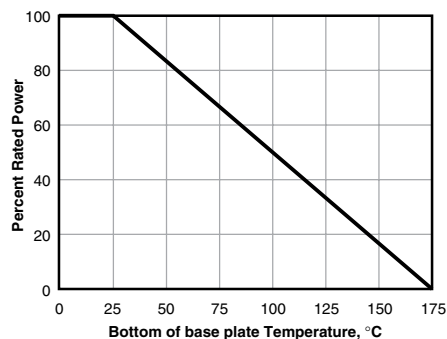
Ohmite offers the totally encapsulated and insulated TO-247 package for low ohmic value and non-inductive design for high-frequency and pulsing applications. Ideal use is for power supplies. This series is rated at 100 Watts mounted to a heat sink.

## CHARACTERISTICS

|                                  |                                                                                                                           |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Resistor</b>                  | thick film on alumina                                                                                                     |
| <b>Case</b>                      | high temperature plastic                                                                                                  |
| <b>Lead Material</b>             | Tinned Copper                                                                                                             |
| <b>Installation, max. Torque</b> | 0.9 Nm using an M3 screw and a compression washer                                                                         |
| <b>Derating</b>                  | linear, 100% at 25°C to 0% at 175°C                                                                                       |
| <b>Resistance range</b>          | 0.05Ω to 1MΩ, other values on request                                                                                     |
| <b>Resistance tol.</b>           | ±1%, ±2%, ±5%, ±10%                                                                                                       |
| <b>Max. working voltage</b>      | 350V                                                                                                                      |
| <b>Temperature Coefficient</b>   | 3R to 10R: 100ppm/°C<br>1R to 2R99: 250ppm/°C<br>Below 1R: 500-1000+ppm/°C<br>(Contact factory for exact values below 1R) |
| <b>Insulation Resistance</b>     | 10GΩ min.                                                                                                                 |
| <b>Dielectric Strength</b>       | 1,800 VAC                                                                                                                 |

| Test                            | Conditions Of Test                                              | Performance                                 |
|---------------------------------|-----------------------------------------------------------------|---------------------------------------------|
| <b>Load life</b>                | MIL-R-39009D 4.8.13 , 2,000 hours at rated power                | $\Delta R \leq \pm(1.0\% + 0.0005\Omega)$   |
| <b>Moisture resistance</b>      | -10°C - +65°C, RH>90%, cycle 240 h                              | $\Delta R \leq \pm(0.50\% + 0.0005\Omega)$  |
| <b>Short time overload</b>      | 1.5 times rated power and V(DC) $\leq 1.5V_{max}$ for 5 seconds | $\Delta R \leq \pm (0.50\% + 0.0005\Omega)$ |
| <b>Thermal shock</b>            | GJB360A-96 method 107, Cond. F                                  | $\Delta R \leq \pm(0.50\% + 0.0005\Omega)$  |
| <b>Dielectric strength</b>      | GJB360A-96 method 301, (1,800V AC, 60s)                         | $\Delta R \leq \pm (0.15\% + 0.0005\Omega)$ |
| <b>Terminal strength</b>        | GJB360A-96 method 211, Cond. A (Pull Test) 2.4N                 | $\Delta R \leq \pm(0.20\% + 0.0005\Omega)$  |
| <b>High frequency vibration</b> | GJB360A-96 method 204, Cond. D                                  | $\Delta R \leq \pm(0.40\% + 0.0005\Omega)$  |

## Derating



### THIS PRODUCT IS DESIGNED FOR USE WITH PROPER HEATSINKING.

Maximum base plate temperature of the resistor must be monitored and kept within specified limits to establish the power rating. Best technique is to attach a thermocouple to the side of the base plate of the resistor. Temperature of plastic housing or heat sink cannot be used to establish rating of the resistor.

Derating (thermal resistance): 0.666W/°K (1.5K/W). Without a heatsink, when in free air at 25°C, the TEH100 is rated for 3.5W. Derating for temp. above 25°C is 0.0234W/°K.

Graphed value is only valid when using a thermal conduction to the heatsink  $R_{th-cs} < 0.025^\circ\text{K/W}$ . This value can be reached by using thermal transfer compound with a heat conductivity of 1W/mK. The flatness of the cooling plate must be better than 0.05mm overall. The roughness of the surface should not exceed 6.4μm. 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

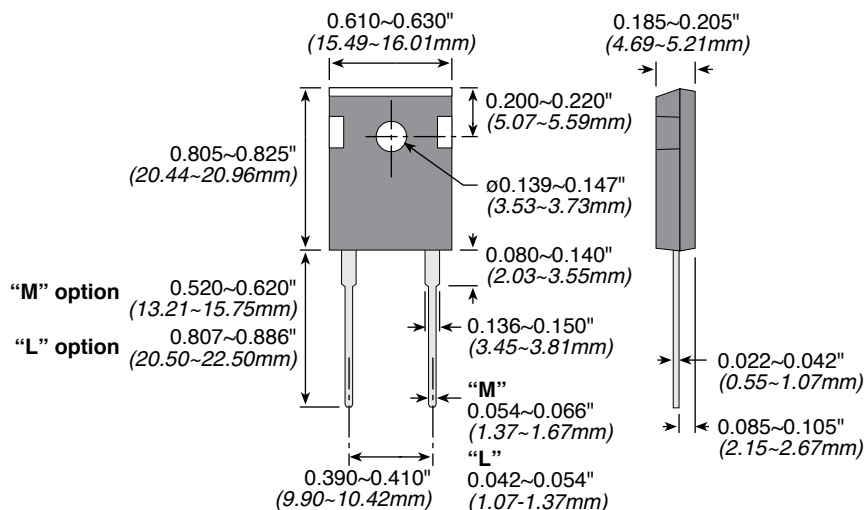
(continued)

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## DIMENSIONS

(in./mm)



## ORDERING INFORMATION

**Package Code**  
M = standard  
L = long terminals

**RoHS Compliant**  
Non-compliant  
version unavailable

**TEH100M10R0JE**

**Series**  
TEH100

**Ohms**  
R = Decimal  
Example:  
2R50 = 2.50Ω  
25R0 = 25Ω  
100R = 100Ω  
1K00 = 1000Ω

**Tolerance**  
F = 1%  
J = 5%

### Standard part numbers

| Ohms  | 5% tolerance  | 1% tolerance  |
|-------|---------------|---------------|
| 0.05  | TEH100MR050JE |               |
| 0.075 | TEH100MR075JE |               |
| 0.1   | TEH100MR100JE |               |
| 0.2   | TEH100MR200JE |               |
| 0.5   | TEH100MR500JE |               |
| 1     | TEH100M1R00JE | TEH100M1R00FE |
| 2     | TEH100M2R00JE | TEH100M2R00FE |
| 2.5   | TEH100M2R50JE | TEH100M2R50FE |
| 3     | TEH100M3R00JE | TEH100M3R00FE |
| 5     | TEH100M5R00JE | TEH100M5R00FE |
| 7.5   | TEH100M7R50JE | TEH100M7R50FE |
| 10    | TEH100M10R0JE | TEH100M10R0FE |
| 15    | TEH100M15R0JE | TEH100M15R0FE |
| 20    | TEH100M20R0JE | TEH100M20R0FE |
| 25    | TEH100M25R0JE | TEH100M25R0FE |
| 50    | TEH100M50R0JE | TEH100M50R0FE |
| 100   | TEH100M100RJE | TEH100M100RFE |
| 270   | TEH100M270RJE |               |
| 470   | TEH100M470RJE |               |
| 750   | TEH100M750RJE |               |
| 1K    | TEH100M1K00JE |               |
| 5K    | TEH100M5K00JE |               |
| 7.5K  | TEH100M7K50JE |               |