

# TDH Series

## 35 Watt D2PAK Package Thick Film Power Surface Mount



Ohmite's TDH resistor is an economical solution to intermediate power application design requirements. TDH's reliable thick film on alumina substrate construction can be easily heat sunked for higher power performance. TDH resistors are ideal for pulse-loading, pre-charge, bleeder, and snubber applications.



### FEATURES

- 35 Watt power rating at 25°C
- SMD - D2PAK package configuration
- Heat resistance to cooling plate:  $R_{th} < 4.28^{\circ}\text{C/W}$
- A molded case for environmental protection.
- Resistor element is electrically insulated from the metal sink tab.

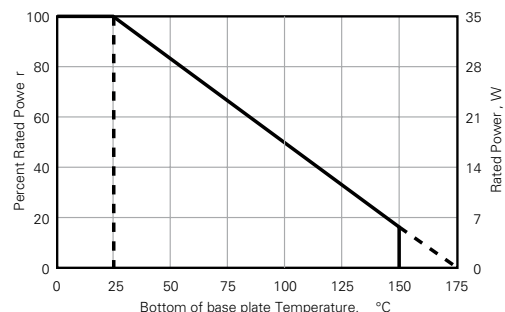
### CHARACTERISTICS

|                                    |   |
|------------------------------------|---|
| <b>Terminal</b>                    | Copper  |
| <b>Terminal Plating</b>            | Terminals- SnAg,<br>Thermal Header- German Silver/Nickel Silver   |
| <b>Resistance Range</b>            | 0.05Ω to 10KΩ other values on request   |
| <b>Tolerance</b>                   | ±1% to ±10% (0.5% on request)   |
| <b>Max. Operating Voltage</b>      | 350V  |
| <b>Insulation Resistance</b>       | 10GΩ min.   |
| <b>Power Rating</b>                | Depends upon case temperature. See derating curve.<br>D2PAK style power package for surface mounting applications; 35W power rating at 25°C case temperature.                   |
| <b>Working Temperature Range</b>   | -55°C to +175°C   |
| <b>Solder Process</b>              | The TDH35P cannot exceed 215°C (260°C for the TDH35H)   |
| <b>Derating</b>                    | 100% @ 25°C to 0% @ 150°C curve referenced to case temperature  |
| <b>Dielectric Strength</b>         | 1,800VAC  |
| <b>Operating Temperature Range</b> | -55°C to +150°C   |
| <b>Temperature Coefficient</b>     | Referenced to 25°C, ΔR taken at +105°C<br>10Ω and above: ±50 ppm/°C<br>For under 10Ω:<br>3R to 9R9: 100ppm<br>1R to 2R9: 300ppm<br>0R1 to 0R99: 700ppm<br>0R05 to 0R09: 1000ppm |
| <b>Inductance</b>                  | less than 20 nanohenries  |
| <b>Flatness</b>                    | less than 0.1mm tolerance   |

**Soldering note:** During surface mount soldering the soldering temperature profile must not cause the metal tab of this device to exceed 215°C (260°C for the TDH35H)!

| Test                             | Condition   | Result                 |
|----------------------------------|---|------------------------|
| <b>Load Life</b>                 | MIL-R-39009, 2,000 hours  | ΔR ±(1.0% +0.01Ω)      |
| <b>Moisture Resistance</b>       | MIL-Std-202, Method 106   | ΔR =(0.5% +0.01Ω) max. |
| <b>Short Time Overload</b>       | 2 times rated power with applied voltage not to exceed 1.5 times maximum continuous operating voltage for 5 seconds | ΔR ±(0.3% +0.01Ω) max. |
| <b>Thermal Shock</b>             | MIL-Std-202, Method 107, Cond. F  | ΔR =(0.3% +0.01Ω) max. |
| <b>Terminal Strength</b>         | MIL-Std-202, Method 211, Cond. A (Pull Test) 2.4N   | ΔR =(0.2% +0.01Ω) max. |
| <b>Vibration, High Frequency</b> | MIL-Std-202, Method 204, Cond. D  | ΔR =(0.2% +0.01Ω) max. |

### Derating



Derating (thermal resistance): 0.23W/°C (4.28°C/W). The case temperature is to be used for purposes of establishing 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.

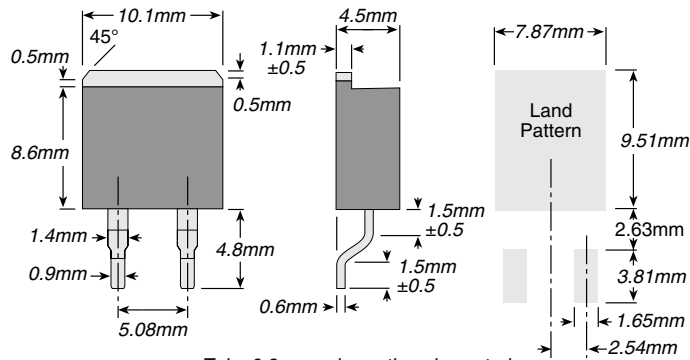
(continued)

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Thick Film Power Surface Mount

## DIMENSIONS

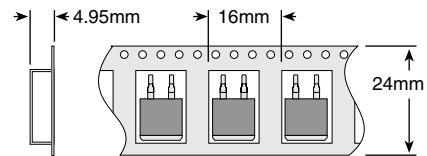
(mm)



Tol.  $\pm 0.2\text{mm}$  unless otherwise noted

## Tape Dimensions

750 pc./reel



## ORDERING INFORMATION

**TDH35PR100JE-TR**

Style: TDH35PR100JE-TR  
Package: P = low temp. H = high temp.  
Ohms: R = Decimal Example: R100 = 0.10 1R00 = 1.0 10K0 = 10,000  
Tolerance: F = 1% J = 5% K = 10%  
RoHS Compliant: Non-compliant version unavailable  
Tape and reel (optional) 750 per reel

## Standard Part Numbers

| Ohms | Part Number<br>5% Tolerance | Ohms | Part Number<br>5% Tolerance |
|------|-----------------------------|------|-----------------------------|
| 0.10 | TDH35PR100JE                | 25   | TDH35P25R0JE                |
| 0.15 | TDH35PR150JE                | 33   | TDH35P33R0JE                |
| 0.20 | TDH35PR200JE                | 39   | TDH35P39R0JE                |
| 0.25 | TDH35PR250JE                | 47   | TDH35P47R0JE                |
| 0.30 | TDH35PR300JE                | 68   | TDH35P68R0JE                |
| 0.36 | TDH35PR360JE                | 75   | TDH35P75R0JE                |
| 0.47 | TDH35PR470JE                | 100  | TDH35P100RJE                |
| 0.50 | TDH35PR500JE                | 150  | TDH35P150RJE                |
| 0.75 | TDH35PR750JE                | 200  | TDH35P200RJE                |
| 1.0  | TDH35P1R00JE                | 250  | TDH35P250RJE                |
| 2.0  | TDH35P2R00JE                | 300  | TDH35P300RJE                |
| 3.0  | TDH35P3R00JE                | 500  | TDH35P500RJE                |
| 5.0  | TDH35P5R00JE                | 750  | TDH35P750RJE                |
| 7.5  | TDH35P7R50JE                | 1000 | TDH35P1K00JE                |
| 10   | TDH35P10R0JE                | 1500 | TDH35P1K50JE                |
| 15   | TDH35P15R0JE                | 2500 | TDH35P2K50JE                |
| 20   | TDH35P20R0JE                | 3000 | TDH35P3K00JE                |
|      |                             | 5000 | TDH35P5K00JE                |

**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.