

# Thermal Pads

## Thermal Interface Material for Heatsinkable devices



Ohmite thermal interface materials (TIMs) are designed for use in applications requiring reliable performance, low contact resistance, long life, low maintenance and high thermal conductivity. The flexible graphite materials are die-cut to ensure exact fit and reduce module-to-module variation during assembly. The compressibility of the material improves surface contact, reducing thermal impedance. The material compression can compensate for flatness variations of up to 125µm. The high in-plane thermal conductivity of this material reduces hot spots.

Ohmite's high performance TIMs are designed for long life applications with extreme heat cycles and are made of flexible graphite specifically engineered for demanding power electronics applications.



### FEATURES

- Consistent, reliable thermal performance enabling zero maintenance applications
- Will not low or pump out under any thermal extremes, thermal cycles, power again and power cycling or part orientation
- No degradation in performance from initial install and over the life of the application, reducing PM and improving MTTF
- Assembly-ready foil form factor eliminates dispensing and cleaning processes
- Easy installation removes the need for Burn-in or re-torque, enabling a single step install
- Minimal outgassing prevents fouling of optics in lighting applications

### APPLICATIONS

Power modules such as IGBT, RF devices used in:

- UPS and inverters
- Motor drives
- Base stations / Telecommunication
- Thermo Electric Devices
- Power supply modules, rectifiers and chargers
- High performance computers and servers
- EV / HEV / PHEV modules

### SPECIFICATIONS

Ohmite Part	Device type	Ohmite series	Typical thickness	Min. Clamping Force	Operating Temperature
TGH-TP1	SOT-227	ALL TGHxxx	200UM ±20	100kPA (15PSI)	-40° TO +400°C (-40° TO +752°F)

# Thermal Pads

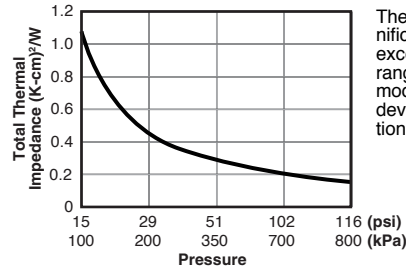
## Thermal Interface Material for Heatsinkable devices

### CHARACTERISTICS

At room temperature. Properties listed are typical and cannot be used as accept/reject specifications.

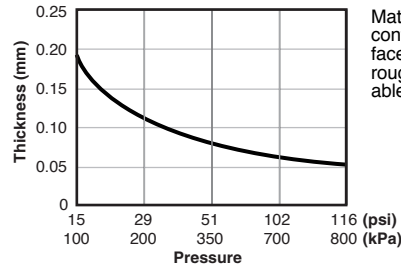
<b>Max. Clamping Force</b>	100 kPa (15 PSI)
<b>Surface Compensation</b>	@ 700 KPA (100 PSI); Up to 0.030 mm roughness; Up to 0.1 mm flatness compensation
<b>Material Compression</b>	@ 700 KPA (100 PSI); 70% of starting thickness
<b>Outgassing Losses TML</b>	<0.1%; E595 total mass loss (TML) test results of bare TIMs
<b>Thickness Range</b>	From 0.127 to 0.51mm (varies depending on grade)
<b>Certifications</b>	Meets RoHS certifications; Flammability Rating; UL94V-0
<b>Thermal Impedance</b>	0.49 K-cm <sup>2</sup> /W @ 200 kPa (29 psi); 0.18 K-cm <sup>2</sup> /W @ 700 kPa (101 psi)
<b>Typical Thermal Conductivity</b>	7 • 800 W/m-K @ 700 kPa / Through-Plane • In-Plane. In-Plane conductivity at ambient temperature determined using Angstrom's Method. Thru-thickness conductivity determined using ASTM D5470 Modified Method.
<b>Typical Starting Thickness</b>	200µm ±20 (0.008" ±0.001)
<b>Coefficient of Thermal Expansion</b>	27 • -0.4 ppm/°C / Through-Thickness • In-Plane
<b>Electrical Conductivity</b>	5 • 19,000 S/cm / Through-Thickness • In-Plane
<b>Flammability Rating</b>	UL 94V-0 Compliant
<b>Operating Temperature</b>	-40 to +400°C
<b>Specific Heat</b>	0.80J/g-°C @ 25°C
<b>Halogen Free</b>	Yes

### Thermal Impedance vs. Interface Pressure



Thermal impedance reduces significantly with pressure, ensuring excellent performance in pressure ranges common for most standard modules and power electronic devices per manufacturer's application guide.

### Thickness Under Compression



Material compressibility improves contact between the mating surfaces, adjusting for flatness and roughness variations, ensuring reliable performance.

### Material Performance

When determining which grade and thickness of TIMs will work for your application, the effective thermal impedance is the critical factor. The thermal impedance is the combination of the thermal resistance at the contact surfaces and the bulk resistance of the TIM.

### ORDERING INFORMATION

**TGH - TP 1**

Product Type: TGH = SOT-227  
 Thermal Pad  
 Material Type