Honeywell
THE POWER OF CONNECTED

Thermal Interface Materials

# PTM6000

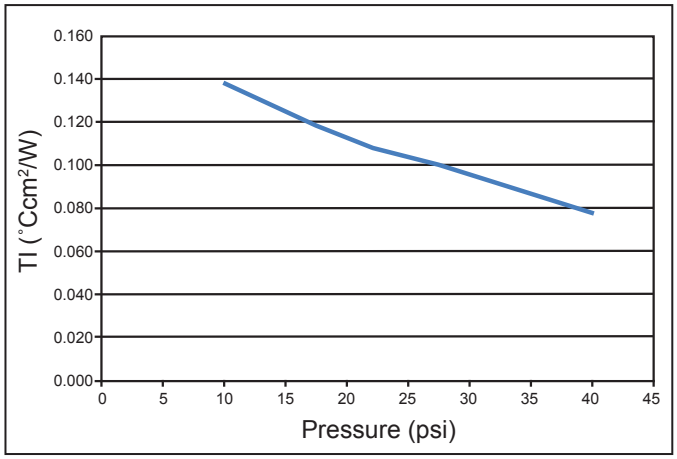
## High Thermal Conductivity Phase Change Material

Honeywell's PTM6000, a highly thermally conductive Phase Change Material (PCM) in both pad and paste formats, is designed to minimize thermal resistance at interfaces and maintain extremely stable performance through reliability testing required for long product life applications.

Based on a robust polymer PCM structure, this material exhibits excellent wetting properties during typical operating temperature ranges, resulting in very low surface contact resistance.

The proprietary material provides superior reliability (pass 150˚C baking 3000 hours, temperature cyling 4000 cycles, and HAST 192 hours) and maintains low thermal impedance (<0.16˚Ccm2/W @ 2mil), making the PTM6000 Series desirable for high-performance integrated circuit devices.

### PTM6000 Thermal Impedance (TI) vs. Pressure




*PTM6000 is suggested for products with long life cycles.*

### Honeywell TIMs Serve Multiple Applications

Automotive & Power

IT/Enterprise

Telecomm

Consumer Electronics

High-Brightness LED

## FEATURES & BENEFITS

- High performance filler and polymer technology
- Phase change at 45°C
- Highly conductive filler loading to optimize performance
- Superior handling and reworkability
- Superior reliable thermal performance
- Available in both pad and paste formats

# **PTM6000** Technical Information

| Physical Properties | Unit | Test Method | PTM6000 | PTM6000-SP |
|---|---|---|---|---|
| Thermal Conductivity | W/m·K | ASTM D5470 | 4.4 | 4.4 |
| Thermal Impedance @ no shim | °Ccm2/W | ASTM D5470 Modified | 0.07 | 0.07 |
| Specific Gravity | g/cm3 | ASTM D374 | 2.3 | 2.0 |
| Viscosity | Pa·s @2 1/s, 25°C | RehometerHON | NA | 222 |
| Volume Resistivity | Ω·cm | ASTM D257-700 | $2.1x10^{14}$ | $2.1x10^{14}$ |
| Thickness Range | mm | | 0.20-1.00 | NA |

**STORAGE CONDITION**

Refer to product label.

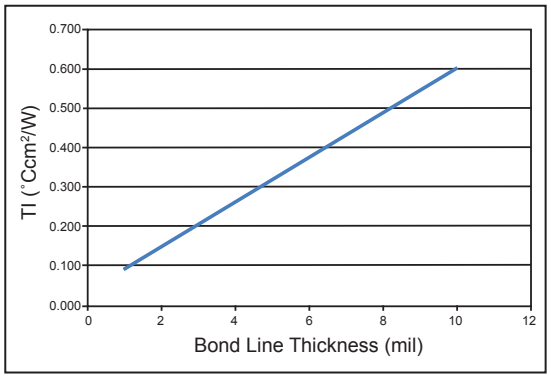
**THERMAL IMPEDANCE POST RELIABILITY (ASTM E1461)**

| | |
|---|---|
| End of Line | 0.10°C-cm2/W |
| Bake 150°C, 3000 h | 0.08°C-cm2/W |
| HAST, 192h | 0.07°C-cm2/W |
| Temperature Cycling "B" (-55°C to +125°C, 4000 cycles) | 0.07°C-cm2/W |

*PTM6000 is available in both pad and paste/ printable formats*

## Product Use

Clamping pressure and temperature are suggested to achieve a minimum bond line thickness of the thermal interface material, typically less than 1.5 mil (0.038mm) for best performance. The material must go through the phase change temperature to exhibit entitlement performance.




*PTM6000 Thermal Impedance vs. Bond Line Thickness*

## More Honeywell TIMs

PTM6000 is part of Honeywell's TIM Solutions family of phase change materials. Whatever the thermal challenge, we offer a TIM product that provides just the right characteristics for your application. Find out more about:

| | |
|---|---|
| PTM7000 Series | PTM6000 Series |
| PTM5000 Series | PCM45F Series |
| HT Series | LTM Series |

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