GBA

PHASE CHANGE MATERIAL

Descriptions: TIM Phase Change Material is a cutting-edge material that improves heat transfer between surfaces. Unlike regular thermal pads or pastes, it changes from solid to liquid at a certain temperature (40-60°C), filling gaps between components and heat sinks for better heat dissipation. When the device heats up, the material softens and flows to ensure good contact between the heat source and cooling part. As the temperature drops, it solidifies, creating a lasting bond for efficient heat transfer.

Specifications Table

Parameter	Units of Measure	PCF3050	PCF5055	PCF8000	PCF8500	TEST METHOD
Colour	–	Gray	Gray	Gray	Gray	
Thickness	mm	0.10~0.30	0.13~0.30	0.13~0.30	0.13~0.30	
Thermal Conductivity	W/m·K	3	5	8	8.5	ASTM D5470
Thermal Resistance	°C·in²/W	0.021(0.1mm@10psi)	0.019(0.13mm@10psi)	0.010(0.13mm@10psi)	0.009(0.13mm@10psi)	ASTM D5470
		0.016(0.1mm@20psi)	0.013(0.13mm@20psi)	NA		
		0.013(0.1mm@50psi)	0.012(0.13mm@50psi)	0.007(0.13mm@40psi)	0.006(0.13mm@40psi)	
Volume Resistivity	Ω·cm	≥3.0×10¹²	≥1.0×10¹⁰	≥1.0×10¹⁴	≥1.0×10¹⁴	ASTM D257-700
Phase Change Temperature	℃	50	55	45	45	
Density	g/cm³	2.87	2.95	2.8	2.8	ASTM D374
Operating Temperature	℃	-40~+125	-40~+125	-40~+125	-40~+125	
RoHS	–	Yes	Yes	Yes	Yes	

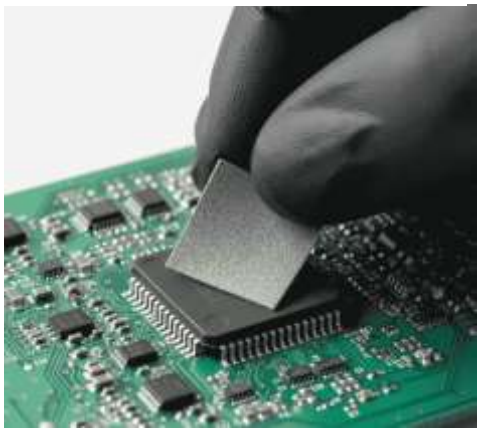
Features:

- **Superior Thermal Conductivity**
  TIM Phase Change Material offers **high thermal conductivity**, ensuring efficient heat transfer, even in high-performance applications.
- **Self-Healing Technology**
  The material adapts to small surface irregularities, automatically filling in gaps as it changes phase, which results in a **self-healing effect** that ensures consistent thermal performance over time.
- **Reliable and Durable**
  Once it solidifies, the material stays in place, providing **long-lasting thermal efficiency** with minimal maintenance.
- **Enhanced Device Longevity**
  By preventing overheating, TIM Phase Change Material helps protect sensitive components, extending the life of your devices.

Material available in cut to size sheet / pad and semi-solid paste in jar.

Material placement methods:

Manual placement of pad



Manual placement of paste

Machine dispense of paste

Applications

TIM Phase Change Material is suitable for a wide range of industries, including:

- **Consumer Electronics**
  Laptops, smartphones, and gaming consoles benefit from enhanced cooling and reduced risk of thermal throttling.
- **Automotive**
  Keep automotive electronics like ECUs and power modules running efficiently even in harsh environments.
- **Telecommunications**
  Ensure data centers and network devices operate reliably with improved heat dissipation.
- **LED Lighting**
  Timely cooling of high-intensity LED lights prolongs lifespan and maintains performance.
- **Renewable Energy**
  Solar power systems and inverters depend on thermal management for consistent operation in varying climates.