

Product Description

DM-TIM-15203 is a screen/stencil printed high thermal conductivity PCM (Phase Change Material) paste. It is designed to provide superior heat transfer between a heat generating component eg power device and heat sink, heat spreader or other cooling device eg fans, heat pipes. The paste incorporates a PCM additive that softens at ~55 deg. C to fill interface voids and cavities providing low thermal interface resistance by elimination of air gaps and improving heat transfer at the interface.

Product Benefits

- Non-silicone (no migration, leach-out or contamination)
- Use of PCM additives provides excellent thermal transfer at interface by removal of air filled voids.
- Electrically insulative
- Excellent thermal conductivity (1.75 W/m.K)
- Excellent durability (150°C, bake test)
- Stencil/screen printed enabling reduced bond-line thickness (<50 µm) due to small particle filler size, reworkable. Syringe packaging also available

Applications

Interface for semiconductors requiring low pressure or spring clamp mounting. Consumer electronics, Set-top boxes, IP routers, ECUs Memory and Power modules. CPU to Heat sink, Transistors, Diodes, IGBTs, Rectifiers, LED. TEC modules, Telecommunication hardware and as a gap filler for battery systems.

Physical Properties

| Test | Properties |
|---|----------------------|
| Viscosity before Phase Change (Pa.s) (Lamy Cone & Plate, 50s ⁻¹ , 25°C) | 5-10 (stencil) |
| Density (ASTM D792) | 2.1g/cm ³ |
| Colour | Grey |
| PCM Softening Temperature | ~55°C |

Deposition Properties

| Screen/Stencil | Properties |
|------------------------------------|--|
| Paste Preparation | Gently stir before use |
| Print method | Flood-print |
| Print Speed | 200 mm/s |
| Print Gap | 2 mm |
| Squeegee Pressure | 7-9 Kg |
| Squeegee | 70A Shore Hardness |
| Screen | Aperture:224µm Wire:100µm Mesh:31T/cm Emulsion:5µm |
| Recommended Drying Conditions | 125°C (10 mins), 80°C (150 mins), 22°C (24 hrs) |
| Typical Minimum Bondline thickness | <50 µm |
| Print Resolution | <250 µm (Line/Space) |

Thermal/Electrical Properties

| Parameter | Properties |
|---|---|
| Thermal Conductivity (ASTM D5470) | 1.75 W/m.K |
| Thermal Contact Resistance (ASTM D5470) | $8.1 \times 10^{-5} \text{ m}^2\text{.K/W}$ |
| Volume Resistivity (ASTM D257) | $>1 \times 10^{11} \text{ } \Omega\text{.cm}$ |
| Dielectric Constant (1 KHz) (ASTM D149) | 11 |
| Dielectric Strength (ASTM D149 MOD) | 4.85 kV/mm |

Durability Performance

| Parameter | Properties |
|--------------------------------------|------------|
| Thermal Stability (150°C, bake test) | 1000 hours |
| Operating Temperature Range | 150°C |

The product is RoSH compliant.

Storage and shelf-life

The paste shelf-life is 24 months from date of shipment. Dycotec Materials cannot assume responsibility for a paste that has not been stored in appropriate conditions or where the pastes have been contaminated following use.

Safety and Handling

For safe use of this product, please review relevant material and safety datasheet (MSDS).

Packaging

DM-TIM-15203S is provided in a pot. Package sizes of 250g, 1 Kg and 5 Kg are available.

For more information, please contact:

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All information reported in the datasheet is for experimental work undertaken in our laboratories and illustrates typical values only. Processing conditions may vary depending on customers' experience and their application requirements and manufacturing process equipment set-up.

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