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Product Data Sheet

Indigo 2TM

Phase Change Metal Alloy (PCMA)
Thermal Interface Material (TIM)

Indigo2 is a second-level Thermal Interface Material (TIM2) system for use between an electronic component (lid, heat spreader, package case, etc.) and heat sink/heat exchanger. Supplied as a preform, Indigo2 is a self-contained structure that deploys a Phase Change Metallic Alloy (PCMA) which reflows and fills surface asperities, forming a low-defect interface with high thermal contact and bulk conductance.



BENEFITS

- High thermal performance at the lowest pressure
- No material migration regardless of orientation
- Compatible with copper, aluminum and most other materials
- Compliant joining of materials with different CTEs
- ROHS compliant
- Reworkable
- Peel-and-place installation

SPECIFICATIONS

Bulk Thermal Conductivity	~ 20 W/m-K
Continuous Use Temperature	Up to 120°C
Application Pressure	As low as 5 PSI
Melting Temperature	~ 60°C
Electrical Resistivity	Conductive
Bond Line Thickness	3.5 mil, minimum
Size	Application specific

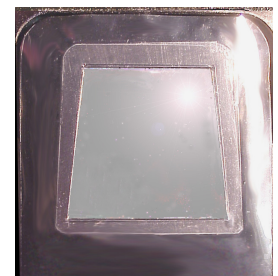
DEPLOYMENT

Simply peel and place Indigo2 on lid and reflow at 70°C

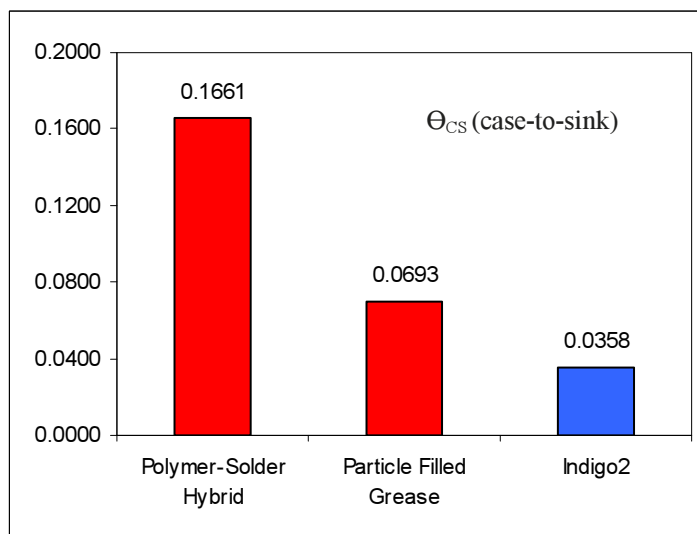
Indigo2 on IntelTM Duo Core processor before reflow:



After reflow:



COMPARATIVE PERFORMANCE



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Performance and Reliability

Testing Details: 50 mm square heat exchanger, 25 mm x 40 mm copper lid with 12.5 mm square 200W heat source. Grease (6 W/mK) and PSH (3 W/mK) tested with 3.5 mil shims at 50 PSI. Indigo2 BLT measured at 3.5 mil with 30 PSI. Performance values given in °C/W.

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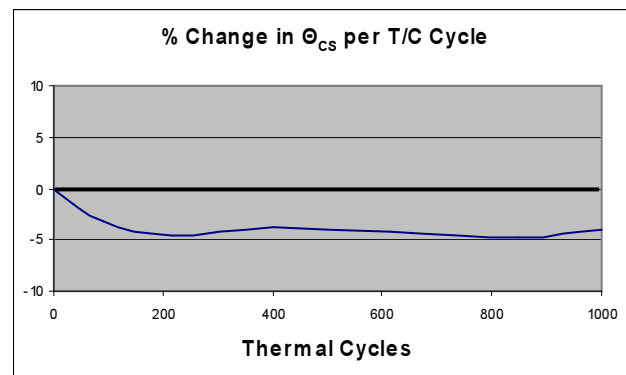
RELIABILITY

Indigo2 passes the following environmental test conditions with negligible performance change over end-of-line (EOL):

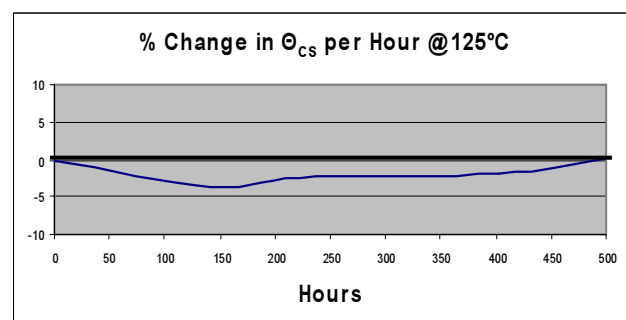
Qualification Test	Test Condition	Indigo2 Results (Θ_{CS} rise over EOL)
Temperature Cycling	0-100°C 1000 Cycles	No increase
Elevated Temp. Bake	125°C 500 hrs	<1% increase
Temperature and Humidity	85°C/85% RH 500 hrs	No increase
Cold Cycle	24°C to -30°C 3 cycles	No increase
Shock	Mil-Std-810F Method 516.5 Procedure I	No increase
Vibration	Mil-Std-810F Method 514.5 Procedure I	No increase

The following graphs illustrate an increase in thermal performance as Indigo2 reaches a Minimum Bondline Thickness (BLT):

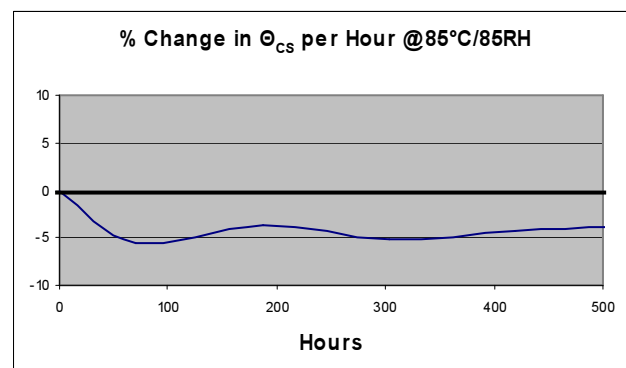
TEMPERATURE CYCLING



ELEVATED TEMPERATURE BAKE



TEMPERATURE AND HUMIDITY



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STORAGE AND PACKAGING

Indigo2 is packaged with removable liners for pick-and-place or manual installation.

Shelf life is six months at 22°C/72°F and 50% RH.

This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the product described which is sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices.

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