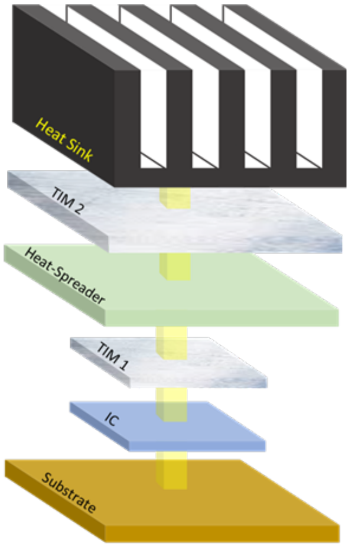
sTIM PREFORM

Solder Thermal Interface Material

DESCRIPTION

sTIM Preform offers non-adhesive, non-organic interconnect solutions designed to drive significant improvements in thermal dissipation. As junction resistance values steadily decrease, traditional organic-based TIMs are reaching their limits in high-performance power applications. Solder-based TIMs, with their superior thermal conductivity, are emerging as the next-generation solution for advanced TIM interconnects.



For efficient thermal dissipation at the die level (TIM1) or at the interface between the heat spreader/lid and the active or passive heat sink (TIM2), precision-engineered interconnect solutions are available. These solutions are designed to maximize thermal conductivity and reliability for next-generation semiconductor applications. In recognition of the commitment to delivering high-quality thermal interface materials, we were presented with the prestigious Supplier Continuous Quality Improvement (SCQI) award by Intel.

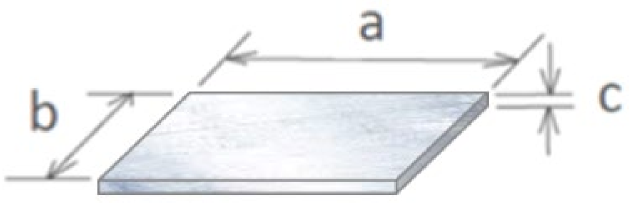
READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- **Non-Adhesive and Non-Organic:** Eliminates the need for adhesives, simplifying application. Non-adhesive properties streamline installation and reduce complexity.
- **Higher Thermal Conductivity:** Provides superior heat transfer capabilities for effective thermal management.
- **Solder-Based Composition:** Offers a reliable alternative to traditional organic TIMs. Addresses the limitations of traditional TIMs in high-performance scenarios for reduced junction resistance.
- **Versatile Applications:** Suitable for both TIM1, TIM2 as well as TIM1.5 interfaces.
- **Improved Thermal Dissipation:** Enhances heat management, supporting better device performance and reliability.

TECHNICAL SPECIFICATIONS

Alloys:	Pure In (99.99%), In97Ag3, In95Ag5, In93Ag7, In90Ag10
Shelf life:	12 months
Storage Condition:	15 to 25°C
Packaging Sizes:	=<27 X 27mm, recommended to use Tape & Reel packing >27 X 27mm, recommended to use Tray packing No size limitations for non-automated method



Dimensions	Minimum	Maximum
a (length)	4.0mm	70.0mm
b (width)	4.0mm	63.0mm
c (thickness)	0.05mm	0.50mm

For other packaging sizes and requirements, contact your local MacDermid Alpha Sales Office.

APPLICATION GUIDELINES

High performance computing:	CPUs, GPUs
Automotive Electronics:	EV power control units
Consumer electronics:	Mobile device

sTIM Preform is suitable for TIM1, TIM2 and TIM1.5 on Ball Grid Array and Pin Grid Array form factors.

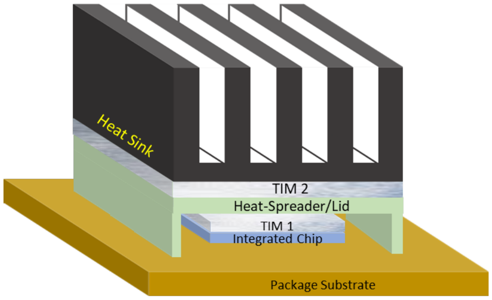


Figure 1:
TIM1 (Die to Heat-Spreader),
TIM2 (Heat-Spreader to Heat Sink)

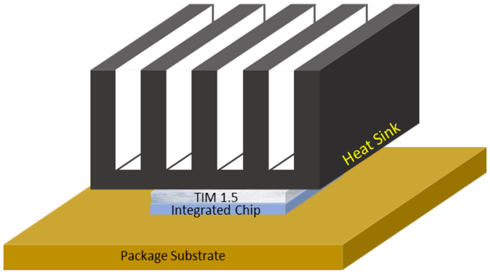


Figure 2:
TIM1.5 (Die to Heat Sink, No Heat-Spreader)

COMMON MATERIALS for TIM1 | TIM1.5 | TIM2

The table is a listing of the thermal conductivity of a variety of common materials used in the microelectronic and electronic assembly industries. Metal or solder-based interconnect materials are currently being utilized in the most demanding thermal interface applications.

Material	Thermal Conductivity
In	82
In90Ag10	67
Pb	35

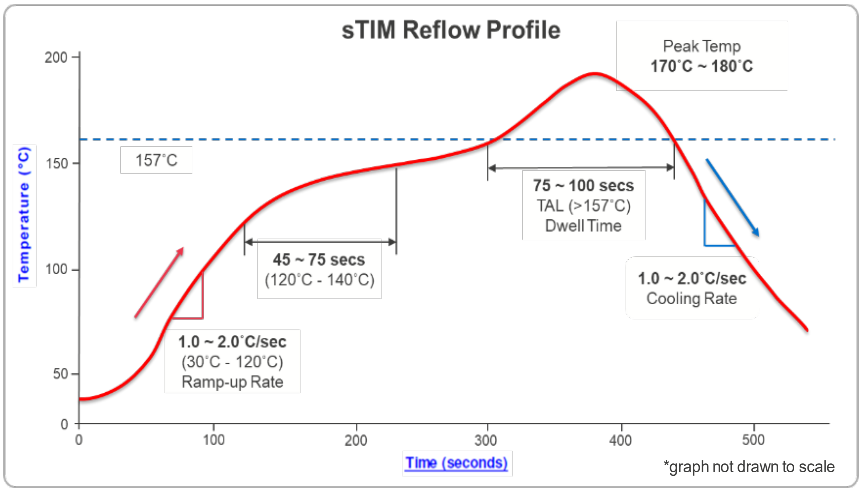
MELTING RANGE

Melting Range (°C)	Melting Range (°F)	Pb-Free
143	289	In97Ag3
144 to 165	291 to 329	In95Ag5
144 to 191	291 to 376	In93Ag7
141 to 237	285 to 458	In90Ag10
156	313	In99 → Pure In

MECHANICAL PROPERTIES

Items	Unit	Pure In	In93Ag7	In90Ag10
Density @ 20 °C	g/cm^3	7.31	7.38	7.63
Thermal Conductivity	W/mK	86	70 to 80	65 to 75
Tensile Strength	MPa	1.88	N/A	11.4
Enlongation	%	41	~28	~22
Young's Modulus	psi	1.57 x 10^6	~3.50 x 10^6	(3.60 to 4.40) ~4.00 x 10^6
Hardness	HB	0.9	~2.1	2.7

REFLOW GUIDELINE REFERENCE



Note: Reflow guidelines are recommendations and baseline parameters that may require customization based on component thermal profiles, device package design, flux characteristics, oven calibration, and environmental condition.

For other reflow profiles, contact your local MacDermid Alpha Sales Office.

SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available.**

CONTACT INFORMATION

www.macdermidalpha.com

North America	Europe	Asia
140 Centennial Avenue Piscataway, NJ 08854 1.800.367.5460	Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400	14 Joo Koon Crescent, Singapore 629014 65.6430.0700

Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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