

# Thermal Interface Material

## ILA-TIM-XXXX-YY Series

ILS have produced a range of High-performance, cost effective Thermal Interface Materials to match perfectly their standard products.

Just attaching our products to Heatsinks may look like it would work, but at a microscopic level there are plenty of cavities where air gaps form. Where these cavities occur, the two surfaces aren't making full contact with one another and therefore leave a pocket of air between them. As air is a poor conductor of heat, the effective contact area is reduced and these pockets of air are enough to prevent the Heatsink from working efficiently. TIM fills these tiny gaps to improve heat transfer.



## CONTENTS

Technical Drawings

[page 2](#)

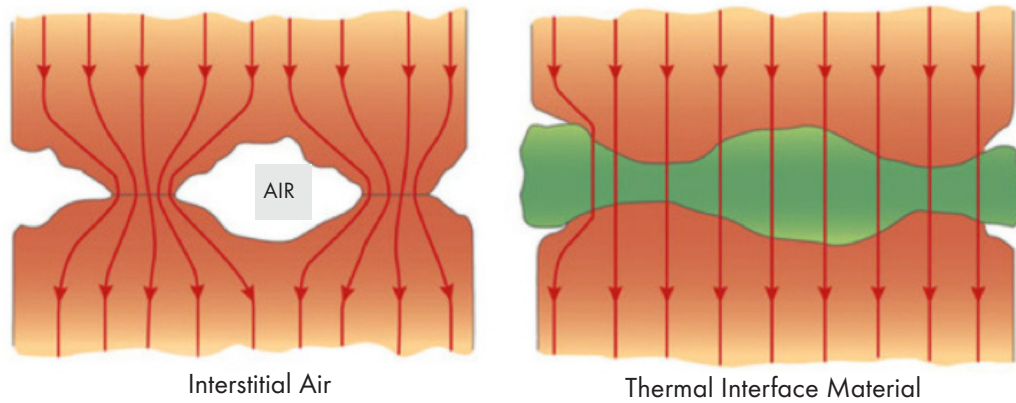
Further Information

[page 5](#)

Product Options

[page 2-4](#)

## TECHNICAL DRAWING



Our product fills the air pockets between the two surfaces, forming a continuous layer to conduct heat away from the LED to the Heatsink. As you'd imagine, this is why it's called thermal interface material (TIM).

ILS offer out TIM in three options – double sided adhesive, single sided adhesive and no adhesive.

## PRODUCT OPTIONS

Product	Non Adhesive	Thickness*	Single Sided Adhesive	Thickness*	Double Sided Adhesive	Thickness*
Eco1	N/A	N/A	N/A	N/A	N/A	N/A
Star	ILA-TIM-STAR-0A	OD	ILA-TIM-STAR-1A	OD	ILA-TIM-STAR-2A.	OF §
25x25mm Cluster	ILA-TIM-CLUSTER-25x25-0A	OD	ILA-TIM-CLUSTER-25x25-1A	OD	ILA-TIM-CLUSTER-25x25-2A.	OE
30x30mm Cluster	ILA-TIM-CLUSTER-30x30-0A	OD	ILA-TIM-CLUSTER-30x30-1A	OD	ILA-TIM-CLUSTER-30x30-2A.	OE
300x20mm Strip	ILA-TIM-STRIP-300x20-0A	OD	ILA-TIM-STRIP300x20-1A	OD	ILA-TIM-STRIP-300x20-2A.	OE
Anna Coin	ILA-TIM-ANNA-0A	OC	ILA-TIM-ANNA-1A	OC	ILA-TIM-ANNA-2A	OE
Petunia Grow Light	ILA-TIM-PETUNIA-0A	OC	ILA-TIM-PETUNIA-1A	OC	ILA-TIM-PETUNIA-2A	OE
Double Sided Reel	N/A	N/A	N/A	N/A	ILA-TIM-REEL-20MX20-2A	OE
1061x20 Strip	N/A	N/A	ILA-TIM-STRIP-1061x20-1A	N/A	ILA-TIM-STRIP-1061x20-2A	OE
480x20mm Strip	N/A	N/A	ILA-TIM-STRIP-480x20-1A	N/A	ILA-TIM-STRIP-480x20-2A	OE
300x20mm Strip	ILA-TIM-STRIP-300x20-0A	OD	ILA-TIM-STRIP-300x20-1A	OD	ILA-TIM-STRIP-300x20-2A	OE
25x15mm Strip	ILA-TIM-STRIP-25x15-0A	OD	ILA-TIM-STRIP-25x15-1A	OD	ILA-TIM-STRIP-25x15-2A.	OE
58x58mm Square	ILA-TIM-SQUARE-58X58-0A	OD	ILA-TIM-SQUARE-58X58-1A	OD	ILA-TIM-SQUARE-58X58-2A.	OE
Dragon 72 Flood	ILA-TIM-72FL-235X170-0A	OC	ILA-TIM-72FL-235X170-1A	OC	ILA-TIM-72FL-235X170-2A	OE
Oslo 72 Flood	ILA-TIM-72FL-235X170-0A	OC	ILA-TIM-72FL-235X170-1A	OC	ILA-TIM-72FL-235X170-2A	OE
Oslo 27 Flood	ILA-TIM-27FL-180X180-0A	OC	ILA-TIM-27FL-180X180-1A	OC	ILA-TIM-27FL-180X180-2A	OE
Stanley 3J/6J 27 Flood	ILA-TIM-27FL-180X180-0A	OC	ILA-TIM-27FL-180X180-1A	OC	ILA-TIM-27FL-180X180-2A	OE
Oslo 17 Flood	ILA-TIM-17FL-215X194-0A	OC	ILA-TIM-17FL-215X194-1A	OC	ILA-TIM-17FL-215X194-2A	OE

Product	Non Adhesive	Thickness*	Single Sided Adhesive	Thickness*	Double Sided Adhesive	Thickness*
SCOB LES 9	ILA-TIM-LES09-0A	OD	ILA-TIM-LES09-1A	OD	ILA-TIM-LES09-2A	OE
SCOB LES 13	ILA-TIM-LES13-0A	OD	ILA-TIM-LES13-1A	OD	ILA-TIM-LES13-2A	OE
SCOB LES 19	ILA-TIM-LES19-0A	OD	ILA-TIM-LES19-1A	OD	ILA-TIM-LES19-2A	OE
SCOB LES 23	ILA-TIM-LES23-0A	OD	ILA-TIM-LES23-1A	OD	ILA-TIM-LES23-2A	OE
SCPB LES 33	ILA-TIM-LES33-0A	OD	ILA-TIM-LES33-1A	OD	ILA-TIM-LES33-2A	OE
4 LED High Bay	ILA-TIM-HIGHBAY-65X50-0A	OD	ILA-TIM-HIGHBAY-65X50-1A	OD	ILA-TIM-HIGHBAY-65X50-2A	OE
12 LED High Bay	ILA-TIM-HB-172X87-0A	OD	ILA-TIM-HB-172X87-1A	OD	ILA-TIM-HB-172X87-2A	OE
LEDiL 70x70 Dev Board	ILA-TIM-LEDIL-70x70-0A	OD	ILA-TIM-LEDIL-70x70-1A	OC	ILA-TIM-LEDIL-70x70-2A	OE
LEDiL Dev Board	ILA-TIM-LEDIL-0A	OD	ILA-TIM-LEDIL-1A	OC	ILA-TIM-LEDIL-2A	OE
2 Die High Power Mixing	ILA-TIM-ILR-XM01-0A	OD	ILA-TIM-ILR-XM01-1A	OC	ILA-TIM-ILR-XM01-2A	OE
Florence	ILA-TIM-FLORENCE-280X55-0A	OD	ILA-TIM-FLORENCE-280X55-1A	OC	ILA-TIM-FLORENCE-280X55-2A	OE
Violet Strip			ILA-TIM-STRIP-275X20MM-1A			

\*Thickness:

OC - TGON 805 - Thickness 0.005" (0.13mm) - Thermal Resistance @ 100psi (0.07 °C-in<sup>2</sup>/W) - Thermal Resistance @ 681 KPa (0.42 °C-cm<sup>2</sup>/W)OD - TGON 810 - Thickness 0.010" (0.25mm) - Thermal Resistance @ 100psi (0.10 °C-in<sup>2</sup>/W) - Thermal resistance @ 681 KPa (0.66 °C-cm<sup>2</sup>/W)OE - TBOND 150 - Thickness 0.007" (0.16mm) - Thermal Resistance @ 100psi (0.45 °C-in<sup>2</sup>/W) - Thermal resistance @681 KPa (2.90 °C-cm<sup>2</sup>/W)OF - 3M8805 - Thickness 0.005" (0.125mm) - Thermal Impedance (3.2°C cm<sup>2</sup>/W)§ For further information on 3M8805 [Please consult the datasheet for the 3m8805 from 3M](#)

## SINGLE SIDED AND NON ADHESIVE PRODUCTS

Construction & Composition	Flexible Graphite	Test Method
Color	Pewter	Visual
Thickness Tolerance	± 0.001" (± 0.025mm)	
Density	2.20 g/cc	Helium Pycnometer
Hardness	85 Shore A	ASTM D2240
Tensile strength	650 psi	ASTM D412
Outgassing TML	0.15%	ASTM E595
Outgassing CVCM	0.09%	ASTM E595
UL Flammability rating	94 VO	
Temperature range	-240°C to 300°C	
Thermal conductivity - Z Axis	5 W/mK	ASTM D5470 (modified)
Thermal conductivity - XY Axis	240 W/mK	ASTM D5470 (modified)
Thermal resistance @ 100 psi	0.07 °C-in <sup>2</sup> /W	ASTM D5470 (modified)
Thermal resistance @ 681 Kpa	0.42 °C-cm <sup>2</sup> /W	ASTM D5470 (modified)
Volume resistivity (In-Plane)	11 x 10 <sup>-5</sup> ohm-cm	ASTM D257

## DOUBLE SIDED ADHESIVE

Construction & Composition	Flexible Graphite	Test Method
Colour	Cream	Visual
Thickness tolerance	0.001" ( +/- 0.02mm )	
Hardness	90+/-5	Shore A
Tensile Strength	22 Mpa	ASTM D412
Elongation	8%	ASTM D412
Temperature Range	-20°C to 155°C	
Thermal Resistance - 50 psi assembly pressure	1.1'c in/W : 7.1'c cm/W	
Tear Resistance	48 kN/m	ASTM D624
Adhesive Strength	5.5 N/cm	
Dielectric Constant @ 1000MHz	2.6	ASTM D150

## FURTHER INFORMATION

The values contained in this datasheet can change due to technical innovation. Any such changes will be made without separate notification.

If you require further assistance or have an specific or custom enquiries, please contact the ILS team via email or phone. Alternatively please visit our website for more product info and to see our full ranges.



Unit 2, Berkshire Business Centre,  
Berkshire Drive, Thatcham,  
Berkshire, RG19 4EW  
+44 (0)1635 294606  
info@i-led.co.uk  
[www.i-led.co.uk](http://www.i-led.co.uk)

## ABOUT ILS

ILS offers a high level of technical skill, professionalism and commercial understanding to companies requiring market leading optoelectronics solutions. Offering conceptual advice, electronics design and manufacturing capability, we use high quality production resources both in house and in Asia, providing project support from prototyping to mass production. We also understand the need to provide cost effective solutions and we do so using high quality components to ensure that the end product's reliability and quality is uncompromised. Apart from LEDs in the visible spectrum, we have a wide range of **Infrared**, **UV LEDs**, **UV tubes**, and Lasers.

ILS is a division of **Intelligent Group Solutions Ltd** (IGS) a well-established respected industry leading Optoelectronics solutions provider. Much of IGS' business comes from providing semi-custom or custom products both in component and sub-assembly form. This comes from providing design support and prototyping within the European market place. With the capability to deliver production displays to wherever in the world that the customer's manufacturing or assembly is being undertaken.

## INTELLIGENT GROUP SOLUTIONS DIVISIONS

