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Thermal Interface Materials

The dissipation of heat is the key to maintaining longevity and reliability of semiconductor and power devices. Indium Corporation is a leader in the development of both solder and metal-based thermal interface materials (TIM) for a wide variety of applications.

Technical Documents

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Thermal Interface Materials Features & Benefits

All of our thermal interface materials are metal-based, which means they have a very high conductivity as compared to polymer-based thermal interface materials. Indium metal, for example, has a conductivity of 86W/mK and is 4 times softer than lead. Its ductility and thermal conductivity make it ideal as a compressible thermal interface material.





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Interface Materials Product

> Heat-Spring®

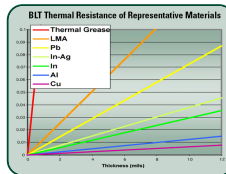
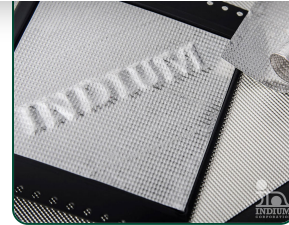
m2TIM™

Liquid Metal

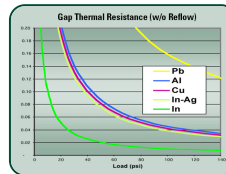
Solder TIM

Spring®

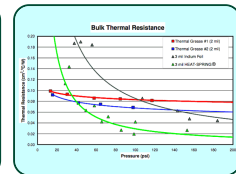
Many applications call for a TIM (thermal interface material) that can easily be placed on a chip, on a lid, or, perhaps, just against a heat source and a cooling solution contact plate. We developed a metal TIM which works as a compressible Interface Solution for such an application. Our pressure range is 35 psi to 100+ psi.



BLT Thermal Resistance of Representative Materials



Gap Thermal Resistance (w/o Reflow)



Bulk Thermal Resistance

An SMA-TIM (soft metal alloy) made of indium offers uniform thermal resistance at lower applied stresses in compressed interfaces. The malleability of indium minimizes surface resistance and increases heat flow (conductance). Our patented Heat-Spring® technology further reduces the thermal resistance and enhances cooling.

Indium's high-end thermal interface materials deliver superior performance over time. Because SMA-TIM products are made of metal, they cannot experience pump out problems - even under power cycling. Our Heat-Spring® material, which does not contain silicone, conforms to surface disparities, reducing thermal resistance





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In computing, immersion cooling is a technique that is used for thermal management. The components are “immersed” in a thermally conductive but dielectric liquid or coolant, and the heat is dissipated by circulating the coolant. In this kind of application, usual polymer TIMs will dissolve in cooling liquids such as these and can create reliability issues. Indium Corporation’s Heat-Spring®—a pure indium*, soft metal thermal interface material—is the perfect solution for this application because of its compressibility and high profile pattern.

*Indium is a sustainable element, and we provide an indium reclaim and recycle program. To learn more about indium, please visit:

<https://www.indium.com/indium49/>

We have proven process expertise and products to recommend for your specific applications. Customization is also available upon request.

BUY NOW

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