



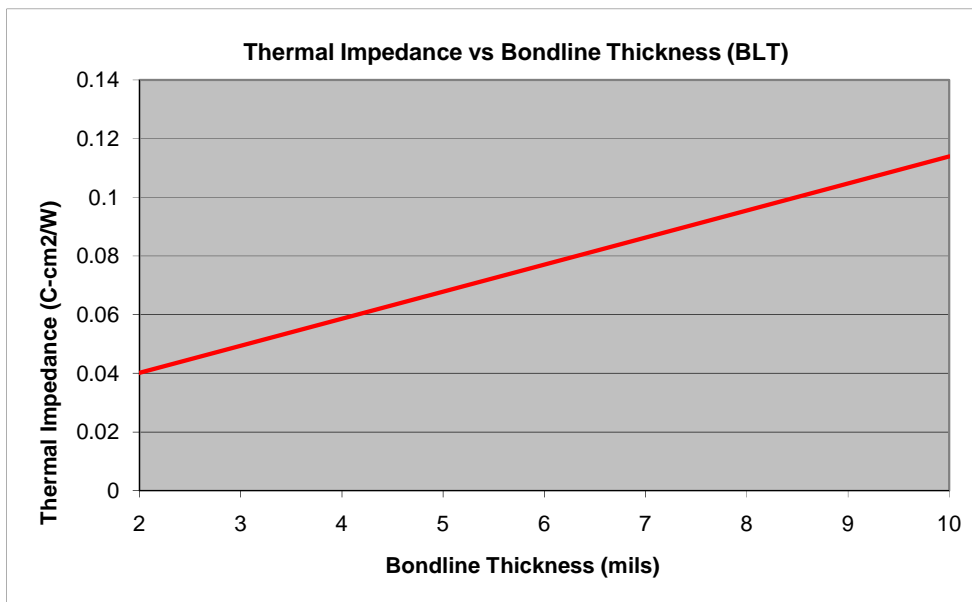
**Indigo2
Application
Note 0802**

Thermal Impedance of Indigo2™

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.

Indigo2 is an engineered composite structure that contains areas of differing thermal impedance. Specifically, an ultra-low impedance Phase Change Metal Alloy (PCMA) region is surrounded by a thin perimeter frame of higher thermal impedance (see Indigo2 Application Note 0801 for additional information).

The relationship between bondline thickness (BLT) and the PCMA region thermal impedance is illustrated in the following graph. The characterization utilized shims to control BLT.



The thermal impedance of Indigo2 remains relatively constant at varying clamping pressures due to the liquidus state of the PCMA during deployment. Additionally, interfacial temperature (throughout the operating temperature range) will have a negligible effect on thermal impedance, especially with thinner BLTs. However, Indigo2 will reach a minimum BLT following approximately 100 hours at operating/elevated temperature.

As overall thermal impedance will be a function of application pressure, bondline thickness, operating temperature, surface planarity and roughness, Enerdyne recommends testing Indigo2 “In-situ” with a test vehicle representing actual application conditions. Indigo2 Application Note 0801 describes how to correctly characterize thermal performance.