

# Thermal Pads for LumiBright<sup>®</sup> Light Engines



Innovations in Optics, Inc. (IOI) offers pads made from thermal interface materials (TIM) that are used to ensure thermal conductivity between the metallic core printed circuit board (MCPCB) and the mounting surface of a heat sink. The pads are precision die-cut to fit the LED circuit boards.

Two types of thermal pads are offered by IOI:

- 1) **Polymer enhanced graphite pads** provide superior thermal conductivity without electrical isolation.
  - a. Thermal Impedance (@30 PSI): 0.58 - 0.74 K-cm<sup>2</sup>/W
  - b. No electrical isolation, graphite is an electrical conductor.
  - c. Optimal thermal interface material when electrically viable.
  
- 2) **Fiberglass reinforced, ceramic-filled silicone pads** provide both high thermal performance and electrical isolation.
  - a. Thermal Impedance (@30 PSI): 2.10 K-cm<sup>2</sup>/W
  - b. Electrical insulating: Breakdown Voltage 5.50 kV AC
  - c. General-purpose thermal interface material solution

Both types of thermal pads typically include an adhesive on one side to mount to the underside of the LED<sup>®</sup> MCPCB. Adhesive backed thermal pads are factory installed.

IOI offers users an option to select graphite pads that are supplied without adhesive for even greater thermal conductivity. These pads are delivered separately with the LED boards. End-users are responsible for ensuring precise positioning of the graphite thermal pads between the LED board and its intended heat sink.

TIM Type	**Thermal Resistance °C/W	Pad Thickness (Inches)
Polymer enhanced graphite with adhesive	0.74	0.010
Polymer enhanced graphite NO adhesive	0.58	0.010
*Fiberglass reinforced, ceramic-filled silicone with adhesive	2.10	0.008

\*Provides electrical isolation

\*\*Assumes a 1 cm<sup>2</sup> effective size heat source (i.e. - LED array) and 30 PSI interface pressure