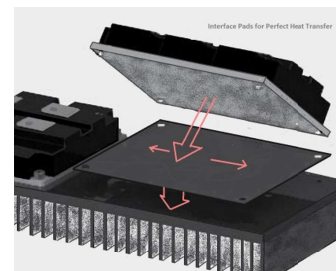


Alu Film + Phase Change Wax / IP50-F05/F13-AL2

phase change coating

IP50-F-AL2 is an aluminium film which is coated with a graphite filled, thermally conductive phase change compound (silicone and solvent free) on both sides thus optimising the thermal path e.g. between electronic packages and heat sinks. During warm-up the phase change coating starts filling up surface-specific roughnesses and expels any air from micropores and pockets across whole touch pad even at low pressure. The thickness of the soft material layer is minimal under the pressure. The thermal resistance is minimized and remains very low even at temperatures below the phase change point. The process is repeated at higher temperatures so that it is able to equalize thermal cycling of materials while maintaining a very low R_{th} . The aluminium carrier effects high mechanical stability and easy handling.



PROPERTIES

Perfect thermal and mechanical contact
Silicone-free, cleaning with isopropyl
Stable, no migrating, desiccation and evaporation. Coating thickness warranted process unity and long term reliability
Ideal alternative or replacement of thermal grease under insulated cases

AVAILABILITY

Stand. Sheets 300x600 / 400x600mm
Roll width 292 or 445 mm or on request
Standard length 7,5/15/30/76 and 152m
Die cut parts, Formats on request, Pads in standard base plates formats
Non tacky (tacky /adhesive on request)
All thickness 0,001" – 0,005", 0,010"

APPLICATION EXAMPLES

Heat transfer of MOSFET, IGBT, Diode, Thyristor, Hybrid modules in el. insulated discreate packages and modules.
Modules without Cu base plates - Ceramic bases, thermally demanding, high frequency
Traction drives inverters, power supplies, servo drive, battery units, UPS, etc.

| Property | Unit | IP50-F05-AL2 | IP50-F13-AL2 |
|--------------------------------|-------------------------|---|---|
| Material | | Aluminium carrier with graphite filled phase change wax coating on both sides | Aluminium carrier with graphite filled phase change wax coating on both sides |
| Colour | | Black | Black |
| Thickness : AL liner (0,051mm) | mm | 0,076 | 0,114 |
| Thermal | | | |
| Thermal Resistance @ 80 PSI | °C-inch ² /W | 0,008 | 0,010 |
| Thermal Resistance @ 40 PSI | °C-inch ² /W | 0,011 | 0,014 |
| Thermal Resistance @ 10 PSI | °C-inch ² /W | 0,022 | 0,028 |
| Phase Change Temperature | °C | cca 50 / softens from 40°C | cca 50 / softens from 40°C |
| Storage Temperature | °C | up 25 | up 25 |

Test Methods: 'ASTM D 5470. All data without warranty and subject to change. Please contact us for further data and information.

Thermal Conductivity of AL liner – 220 W/m*K

Operating Temperature: -60 to 150 °C

Viscosity @Phase Change – Thixotropic

Mechanical:

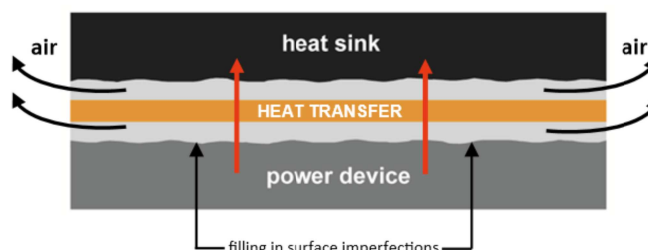
Phase Change coatings per side: 12.5 µm / 32 µm

Aluminium Liner thickness: 51 µm

Total Thicknesses / Liner + Coating: 76 µm / 114 µm

Thickness 114 µm is suitable for larger formats from cca 120x120mm or to compensate for micro-roughness of bearing surfaces and their possible thermal cycling

Available also thickness 85µm = IP50-F06-AL2



Note: during initial phase-change, it is recommended to re-check your torque settings if device utilizes a screw mounting system. Applying additional torque during initial phase change will thin the material bond line slightly leading to improved thermal performance.