

**THPADxx**
**THERMAL PADS**

**DESCRIPTION**

**THERMAPAD** double-sided adhesive tapes provide an effective thermal interface between electronic component and heat sinks.

The tape has high thermal conductivity and exceptional bonding properties – eliminating the need for thermal grease and mechanical fasteners.

**THERMAPAD** consists of high bond strength, pressure-sensitive acrylic adhesive, loaded with aluminum oxide particles and coated on 0.05mm aluminum foil carrier. The aluminum foil provides added thermal conductivity for applications where electrical isolation is not required.

**THERMAPAD** conductive tapes are embossed with a unique pattern for maximum conformability and minimal air pockets.

Extensive testing has shown that **THERMAPAD** system provides thermal and mechanical results superior to those of flat thermal tapes.

**THERMAPAD** tapes offer excellent thermal, mechanical, environmental and chemical properties.

Vibration testing at 10G shows no adverse effects. Unlike traditional acrylic pressure-sensitive tapes, after extended temperature/humidity aging and harsh conditions, **THERMAPAD** tapes meet or exceed initial properties for shear strength and thermal conductivity.

**APPLICATIONS**

**THERMAPAD** thermal tapes bond heat sinks to hot components. They attach components to vertical heat sinks or metal chassis walls in place of clips, screws or other mechanical fasteners, and require no additional thermal compound.

**THERMAPAD** tapes have many advantages over traditional adhesives such as hot melts or thermal epoxies. They can be consistently applied to meet design-level thermal and adhesive requirements. The tapes can be removed after application, reducing repair and rework costs in both the manufacturing plant and the field.

Unlike rigid adhesives, **THERMAPAD** thermal tapes are pliable and conformable, reducing concerns over CTE mismatch and the cracking or splitting of components or epoxy bond lines.

**THERMAPAD** tapes offer advantages over mechanical fasteners or liquid adhesives which may require a large capital investment.

**THERMAPAD** thermal conductive adhesive tape is an ideal matter to fix heat sinks on hot component surfaces like CPU's, power amplifiers, motor driver and Peltier coolers.



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TYPICAL PROPERTIES	APPLICATION INSTRUCTIONS
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Summaries of test procedures used for THPAD thermal tapes are described below. Thermal performance, die shear strength and visual inspection were used as pass/fail criteria.

For specific applications detailed tests should be made first.

Property	Test Method
Carrier	Aluminium
Thickness (mm)	0.152
Tensile Strength (MPa)	25
Braking Power (KN/m)	22,75
Elongation (%)	5
Therm. Impedance K / W * cm <sup>2</sup>	3,50
Therm. Conductivity K / W * in <sup>2</sup>	0,54
Coefficient of Expansion of Glue (-0...+150°C ppm/°C)	400
Flammability Rating	V-O
Lap Shear Adhesion (MPa)	0.931
Die Shear Adhesion (MPa) 8.9mm die diameter bonded on: Aluminium 25°C	0,862
50°C	0,448
100°C	0,276
Shear Power (KN/m)	0.35
Creep Adhesion (Days) (25°C 0.083MPa) (150°C 0.083 MPa)	>50 >10
Operating Temperature (°C)	-60 ... +150
Long-Term Storage @ 22°C (Years)	min. 3

Material needed:

- Clean cotton cloth or rag,
- Industrial solvent (Toluene, Acetone Isopropyl Alcohol)

Please follow safety instructions for solvent! Use rubber gloves.

Ensure that bonding surfaces are absolutely free from oil, dust etc. Wipe surfaces with a cloth dampened with industrial solvent.

Remove clear liner or remove pre-cut tape from roll. Apply to centre of heat sink bonding area and smooth over entire surface using moderate pressure.

Remove blue embossed liner from the tape. Centre heat sink component and apply using any one of the recommended temperature/pressure options shown below:

Pressure	Temperature	Time
70 KPa	22 °C	15 sec
200 KPa	22 °C	5 sec
70 KPa	50 – 65 °C	5 sec
200 KPa	50 – 65 °C	3 sec

Approximately 70% of the ultimate adhesive bond strength is achieved with initial application and 80-90% is reached within 15 minutes. Ultimate adhesive strength is achieved within 36 hours; however, the next manufacturing step can occur immediately following the initial application.

**IMPORTANT:** Only hold an active cooler at the outer edge and do not touch the impeller!

#### ORDER INFORMATION

THPAD35	Thermal conductive adhesive tape 35x35mm (for HYB35C..)	953500000
THPAD44	Thermal conductive adhesive tape 42x42mm (for HFB44B..) Other dimensions on request.	954400000