

Thermally Conductive Polyimide Substrat coated by Silicone Film / 15TCI Series

Polyimide substrate coated in high thermal conducting silicone with very high el. insulation and a perfect mechanical stability

The TC-15-TCI series is a polyimide film, coated on both sides with the thermally conductive silicone film substrate, is the ideal and user-friendly replacement for mica or ceramic plates in combination with thermal conductivity and very high electrical insulation.

TC-15-TCI has excellent dielectric and mechanical properties. Due to its very soft surface properties, the interface material adapts very well to the contact surfaces and thus minimizes the thermal contact resistance. The thermal conductivity of silicone is increased by the use of highly thermally conductive ceramics such as aluminum oxide, boron nitride and aluminum nitride or by mixtures in the polymer structure of the elastomer. Due to a certain surface softness, silicone covers the contact surfaces by applying pressure and thus expels the air inclusions, whereby the thermal contact resistance, i.e. the total thermal resistance, is minimized. The mechanical stability of the heat conducting foil is reinforced by the polyimide substrate.



PROPERTIES

15TCI - mix of extraordinary dielectric strength and perfect mechanical stability of Polyimide substrate 25 µm with the excellent thermal properties of heat-conducting silicone 62,5 µm coating on both sides. Easy handling, very long lifetime and reliability. Minimal outgassing. Optimal replac. of mica + paste or ceramic plates

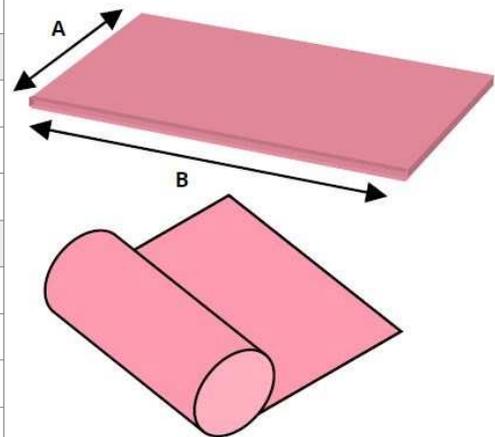
AVAILABILITY

Standard Sheets 300mm x 1 m. Possibility on Roll - 300mm x (full is 60m), other width belts on request, Standard TO-formats, die cut parts, various formats on request. Only non tacky version is available.

APPLICATION EXAMPLES

Heat Transfer of MOSFET, IGBT, Diode, Thyristor, Hybrid modules in all discrete semiconductors in TO packages where is requested high electrical insulation. All power electronic, power supplies, servo drive, controller and inverters, battery units, UPS, welding, inducting heating etc.

Properties	Unit	TC-15-TCI
Material - Polyimide Substrat		Silicon both sides coated
Colour		Salmon red
Thickness Total	mm	0,15 +/- 0,03
Thickness Substrate	mm	0,025
Thermal and Electrical		
Thermal resistance (TO-3) Shin-Etsu Methode	°C/W	0,64
Thermal resistance (Inch ²) JIS K6249	°C/W	0,36
Thermal conductivity (ASTM E1530)	W/m*K	1,05
Operating temperature	°C	-60 °C to 200 °C
Storage temperature	°C	0° C to 40°C
Breakdown voltage (Voltage ramp) JIS K 6249	kV(AC)	12,5 / voltage ramp 1000 V/s
Breakdown voltage (Braekdown step) JIS K 6249	kV(AC)	8,5 /volt. level up to power failure
UL flammability rating	UL 94	V-0
Mechanical		
Hardness (JIS K6249)	Shore A	95
Tear strength (JIS K6249)	N/mm	60
Tensile strength (JIS K6249)	MPa	46
Density at 23° C	g/cm ³	2,18
Outgassing (LMW Siloxane) sum D3-10	ppm	= < 10



Available sheet dimensions:
 TC-15-TCI-300 mm x 1000 mm
 TC-15-TCI-300 mm x 60 mtr. per Role

Advantages:

- Very good thermal conductivity
- Low overall thermal contact resistance
- Very high safe electrical insulation
- Very high dielectric strength
- No additional heat conducting paste necessary
- Clean, fast and process-reliable assembly
- Residue-free removal after application

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