POLYTHERM™-H

Your heat manager

TC-Lam 1.8-2.0

Product description

**The POLYTHERM-H product is an insulated metal substrate from MSC Polymer AG.
An Aluminium base plate and electrodeposited copper foil is bonded together with a special dielectric. This guarantees as well enhanced thermal conductivity as electrical insulation.
It is the ideal product for all applications, which require higher thermal conductivity, like LED circuitries or power converters. The dielectric is specially formulated and guarantees excellent thermal conductivity, high dielectric breakdown and high thermal stability. Processing and assembly can be done with well known processes. The Aluminium base plate is covered with a protective film made of PET. This film withstands temperatures up to 170 °C. The film usually protects the Aluminium side in wet processes. The PET film is usable during solder mask cure. However it has to me removed before running the HAL process.
POLYTHERM-H products fulfil the ROHS Directive 2002/95/EC.**

STANDARD BUILD UP

Thickness Aluminium in µm	500 … 2000	Aluminium alloy	5052 H34
Copper foil (ED) thickness in µm	18 - 35 - 70 - 105		
Thickness dielectric in µm	75, 100, 125, 150	Protective Film NT (PET-film)	≤ 170 °C

Material properties (1500 µm / 100 µm Dielectric / 35 µm Cu)*	Test method / Treating condition	Unit	Specification	Typical values
Thermal stress 288 °C, no delamination	TM 650-2.4.13.1	sec	≥ 120	180
Copper peel strength (35 µm Cu)	288 °C, 10 s	N/mm	≥ 1.05	1.8
Dielectric strength (100 µm dielectric)	TM 650-2.5.6.2	V	≥ 3000	> 3000
Dielectric constant (1 MHz)	TM 650-2.5.5.1	---	---	5.5
Thermal conductivity dielectric	ASTM-E1461	W/m*K	1.8-2.0	1.8-2.0
Thermal resistance dielectric	ASTM-E1461	$K*m^2/W$	< 0.50	0.41
Surface resistance	TM 650-2.5.17.1	MΩ	≥ 10^4	10^6
Volume resistance	TM 650-2.5.17.1	MΩ-cm	≥ 10^6	10^7
Flammability	UL-94	class	V-0	V-0
Comparative tracking index CTI	IEC60112	V	≥ 600	> 600
Water absorption	TM 650-2.6.2.1	%	≤ 1.5	0.5
Glass transition temperature Tg	DSC	ºC	≥ 110	120

*Remark: for Polytherm-H the first number defines the overall thickness. Al thickness is adjusted accordingly.

Availability and Tolerances

Standard size in mm	610 x 460, 610 x 500, 610 x 550, max. 1220 x 1100
Dimensions tolerance in mm	± 3
Dielectric thickness tolerance	in reference to IPC-4101C grade B/L
Max. bow and twist in %	1.0

The typical values are based on data from production and from sample measurements in the lab.
This data should be considered as general information.
It is the responsibility of the user to ensure that the product complies with his requirements.

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