POLYTHERM™

Your heat manager

TC-Lam-Cu 2.0

Product description

**The POLYTHERM product is an insulated metal substrate from MSC Polymer AG.
A copper 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 copper base plate is covered with the protective film HT. The film usually protects the copper base plate side in wet processes. Moreover the protective film HT (high temperature) is usable during solder mask cure and HAL process.
POLYTHERM products fulfil the ROHS Directive 2002/95/EC and are UL qualified.**

STANDARD BUILD UP

Thickn. Copper base plate in µm	600 - 1000 - 1500 - 2000 - 3000		
Copper foil (ED) thickness in µm	18 - 35 - 70 - 105 - 140 - 210		
Thickness dielectric in µm	75, 100, 125, 150, 200	Protective Film HT (high temperature)	≤ 280 °C

Material properties (1500 µm Cu / 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	≥ 20	60
Copper peel strength, 1 Oz copper	288 °C, 10 s	N/mm	≥ 1.05	1.8
Dielectric strength	TM 650-2.5.6.2	kV	≥ 5	≥ 5
Dielectric constant (1 MHz)	TM 650-2.5.5.1	---	---	6.5
Thermal conductivity dielectric	ASTM-D5470	W/m*K	≥ 2.0	2.0
Thermal resistance dielectric	internal	K/W	---	0.50
Thermal conductivity copper base plate	---	W/m*K	---	400
Surface resistance	TM 650-2.5.17.1	MΩ	≥ 10^4	10^7
Volume resistance	TM 650-2.5.17.1	MΩ-cm	≥ 10^4	10^7
Flammability	UL-94	class	V-0	V-0
Comparative tracking index CTI	UL746A	V	PLC 0	PLC 0
Water absorption	TM 650-2.6.2.1	%	≤ 0.5	0.03
Glass transition temperature Tg	DSC	°C	---	100

Availability and Tolerances

Standard size in mm	480 x 580, 480 x 600, 460 x 610, 530 x 630
Dimensions tolerance in mm	± 5
Dielectric thickness tolerance	IPC-4101C grade B/L
Max. bow and twist in %	0.5

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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