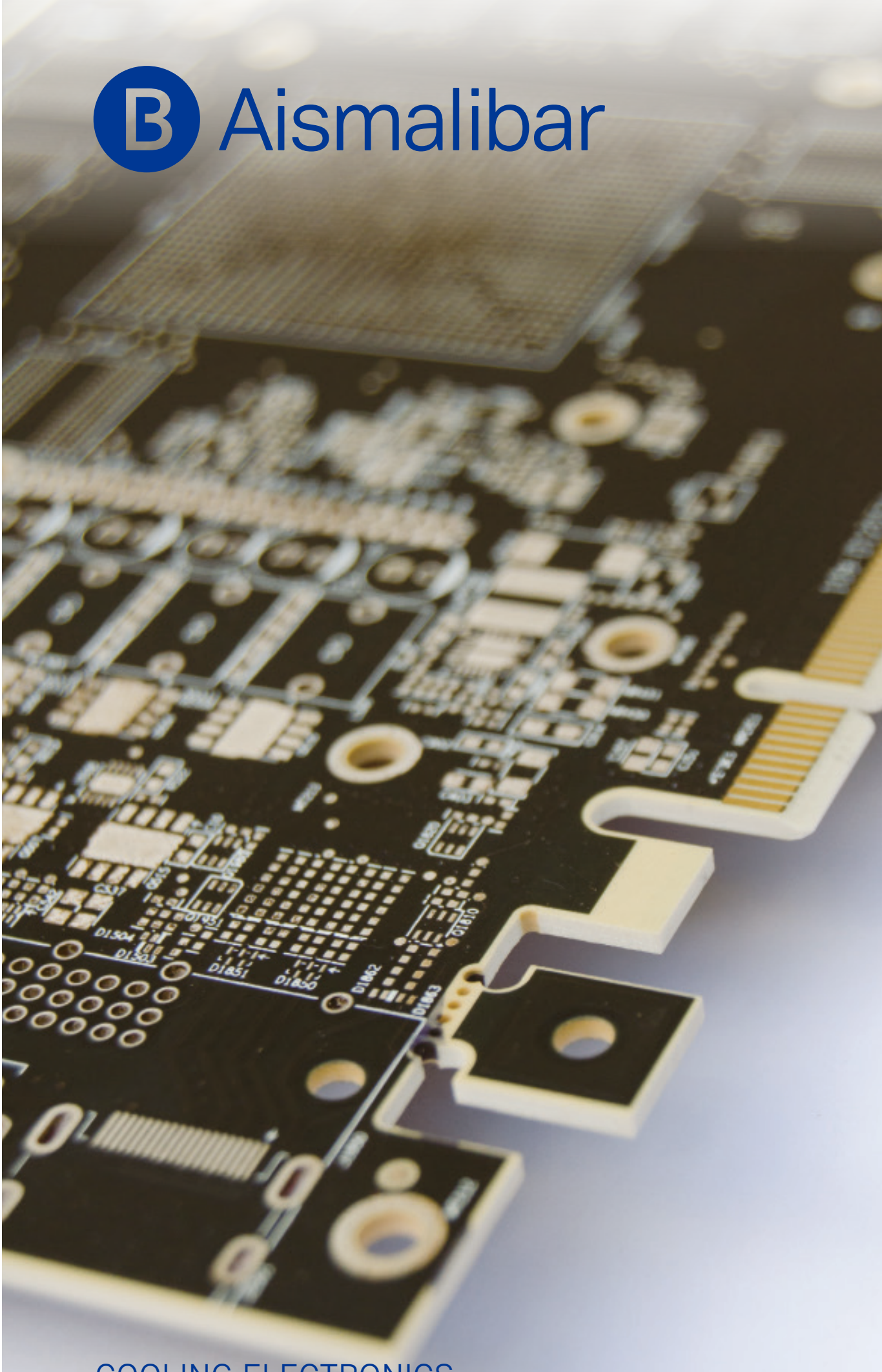
Aismalibar

THERMAL MULTI-LAYER



COOLING ELECTRONICS

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Multilayer PCBs are often requested in the case of complex boards with denser circuitry.

This combination of multiple layers allows better functions and connections, more components populated on the board tends to increase temperature on the electronic device.

AISMALIBAR as an expert in thermal management on electronics, offers a full range of substrates that can be combined to offer unique solutions tailored to your electronic designs.

OEMs can increase the thermal performance of PCB design without major changes by using Aismalibar Thin Lam & Pre Preg.

COOLING ELECTRONICS

THERMAL THIN LAM

High Tg 180°C (by TMA)
Td 420°C
Low CTE (z) <Tg 37 & >Tg 172
Z-Axis Expansion (50-250°C) 1,8 (77ppm)
Thermal conductivity 3,2 W/mK

UL Approved QMTS2
File: E47820 IPC-4101

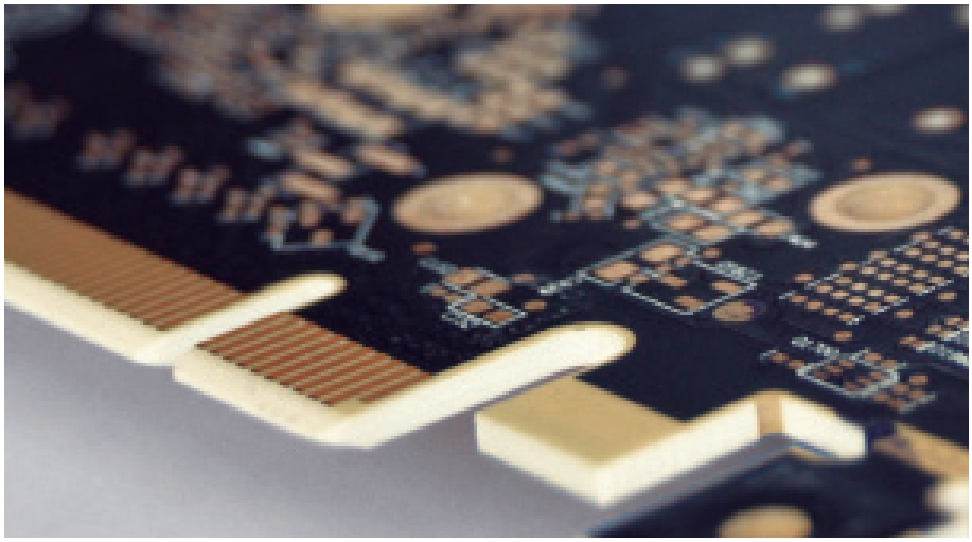
RoHS 3 / REACH
Last updated compliance directive

Anti CAF
Low moisture absorption
Reflow test: over 60 seconds at 288°C
Standard press cycle lamination
HDI Technology Compatible

AISMALIBAR's COBRITHERM THIN LAM is a thin copper laminate designed for thermal dissipation on PCBs. It can be used for any multilayer construction with standard multilayer process.

THIN LAM is a double side Cu-clad thin laminate built on the basis of thermal conductive polymeric-ceramic filed resin with glass reinforcement, the ideal replacement for standard FR4 when thermal release is required.

Mainly intended to produce multilayer and double side PCB. Excellent to be used for full constructions of multilayers or combined with traditional FR4. THIN LAM can be plated and then bonded to a copper or aluminium metal heat spreader by means of one sheet of B-stage. Excellent performance with laser drilling.



Why to use THIN LAM?

By using THIN LAM you can easily reduce the temperature of your board allowing you to increase the power or the processor clock speed to obtain better performance on the same electronic design.
FR4 PCBs with high density of thermal vias can be replaced by a standard double side PCBs constructed with COBRITHERM THIN LAM without the needs of thermal vias.

It achieves a better thermal release and reduces the high cost of FR4 with thermal vias. It can be delivered with different dielectric and copper thicknesses, depending on the PCB construction needs.

THIN LAM HTC 3,2W TG180°C Low CTE

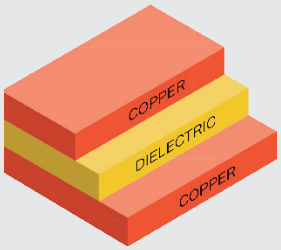
PROPERTIES WITH Cu 35/35 µm	TEST METHOD	GUARANTEED VALUES
Thermal impedance (dielectric layer) 75µm	ASTM-D 5470	0,25 Kcm²/W (0,038 Kin²/W)
Thermal impedance (dielectric layer) 100µm		0,33 Kcm²/W (0,051 Kin²/W)
Thermal impedance (dielectric layer) 127µm		0,42 Kcm²/W (0,065 Kin²/W)
Thermal impedance (dielectric layer) 150µm		0,50 Kcm²/W (0,77 Kin²/W)
Glass transition temperature of dielectric layer (by DSC)	IPC-TM 650-2.4.25C	>200° C
Glass transition temperature of dielectric layer (by TMA)	IPC-TM 650-2.4.24	>180° C
Z-axis Expansion (50-250°C)		1.8% (77ppm)

THIN LAM HTC 3,2W available constructions:

LAMINATE TYPE	Dielectric Thickness (mm)	Dielectric Thickness (in)	Dielectric Tolerance micron (in)	PREPREG TYPE		
				106	106	1078
				80%	90%	85%
Thin LAM 3,2W High Tg	0,0762	0,0030	+/- 17 (0.0007")	1		
Thin LAM 3,2W High Tg	0,1016	0,0040	+/- 17 (0.0007")			1
Thin LAM 3,2W High Tg	0,1524	0,0060	+/- 25 (0.001")	2		
Thin LAM 3,2W High Tg	0,2032	0,0080	+/- 38 (0.0015")			2
Thin LAM 3,2W High Tg	0,2540	0,0100	+/- 38 (0.0015")		3	0
Thin LAM 3,2W High Tg	0,3048	0,0120	+/- 50 (0.002")			3
Thin LAM 3,2W High Tg	0,3810	0,0150	+/- 50 (0.002")	1		3
Thin LAM 3,2W High Tg	0,4064	0,0160	+/- 50 (0.002")			4
Thin LAM 3,2W High Tg	0,4572	0,0180	+/- 50 (0.002")	2		3
Thin LAM 3,2W High Tg	0,5080	0,0200	+/- 63 (0.0025")			5
Thin LAM 3,2W High Tg	0,6096	0,0240	+/- 63 (0.0025")			6
Thin LAM 3,2W High Tg	0,7112	0,0280	+/- 63 (0.0025")		6	2
Thin LAM 3,2W High Tg	0,7620	0,0300	+/- 63 (0.0025")		9	
Thin LAM 3,2W High Tg	1,0160	0,0400	+/- 100 (0.004")			10
Thin LAM 3,2W High Tg	1,2700	0,0500	+/- 125 (0.005")		5	6
Thin LAM 3,2W High Tg	1,5240	0,0600	+/- 125 (0.005")			15

PRE PREG HTC 3,2W thickness:

PREPREG PART DESCRIPTION	Nominal Thickess (micron)	Glass Style	Resin Content, % (Typical)	Nominal Pressed Thickness (Inch Mils)
Prep Preg 3,2W High Tg	76	106	80	3
Prep Preg 3,2W High Tg	85	106	90	3,4
Prep Preg 3,2W High Tg	100	1078	85	4



ED copper thickness µm (in)
18(1/2oz) / 35(1oz) / 70(2oz) /105(3oz)/150(4oz)/210 (6oz)

Dielectric thickness µm (mills)
75(3) / 100(4) / 150(6) / 200(8) / 250(10) /300(12) / 380(15) / 400(16) / 450(18) / 500(20) / 600(24) / 710(28) / 760(30) / 1000(40) / 1270(50) / 1520 (60)

ED copper thickness µm (in)
18 (1/2oz) / 35 (1oz) / 70 (2oz) /105 (3oz)/150 (4oz)/210 (6oz)

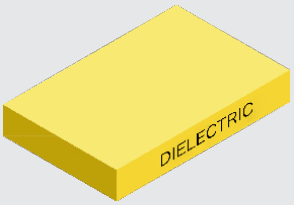
THIN LAM HTC 2,2W

PROPERTIES WITH Cu 35/35 µm	TEST METHOD	GUARANTEED VALUES
Thermal impedance (dielectric layer) 75µm	ASTM-D 5470	0,37 Kcm2/W (0,058 Kin2/W)
Thermal impedance (dielectric layer) 100µm		0,50 Kcm2/W (0,077 Kin2/W)
Thermal impedance (dielectric layer) 127µm		0,62 Kcm2/W (0,100 Kin2/W)
Thermal impedance (dielectric layer) 150µm		0,75 Kcm2/W (0,116 Kin2/W)
Glass transition temperature of dielectric layer (by DSC)	IPC-TM 650-2.4.24	120 °C
Z-axis Expansion (50-250°C)		4,9% (220ppm)

BOND SHEET

AISMALIBAR offers a range of high thermal BOND SHEET (Thermal Pre Preg) that can be used for different applications on multilayer PCB and MPCB industry. By using BOND SHEET, dielectric layers become thermally conductive and are ideal to release heat from the electronic components located on the functional copper sideways and to the heatsink.

BOND SHEET is used in standard multilayer lamination processes. Its high resistance to thermal shocks added to its high thermal conductivity, assures a reliable and effective heat dissipation in high temperature critical circuitry.



Insulation thickness µm (mils)
70 (2,8) 80 (3,1) 100 (3,9) 150 (5,8) 200 (7,8)
Dielectric thickness tolerance
+ 10µm (+/- 0,4 mils)

PRE PREG HTC 3,2W Tg180ºC Low CTE

PREPREG once applied	TEST METHOD	GUARANTEED VALUES
Thermal impedance (dielectric layer) HTC 70µm	ASTM-D 5470	0,23 Kcm²/W (0,036 Kin²/K)
Thermal impedance (dielectric layer) HTC 80µm		0,26 Kcm²/W (0,041 Kin²/K)
Thermal impedance (dielectric layer) HTC 100µm		0,33 Kcm²/W (0,052 Kin²/K)
Comparative tracking index (CTI)	IEC-61112	>600 V
Glass transition temperature of dielectric layer (by TMA)	IPC-TM 650-2.4.24	>180 °C
Z-axis Expansion (50-250ºC)		1.8% (77ppm)

PRE PREG HTC 2,2W

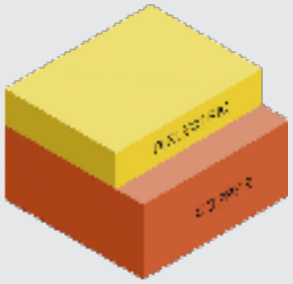
PREPREG once applied	TEST METHOD	GUARANTEED VALUES
Thermal impedance (dielectric layer) HTC 70µm	ASTM-D 5470	0,35 Kcm²/W (0,054 Kin²/K)
Thermal impedance (dielectric layer) HTC 80µm		0,40 Kcm²/W (0,062 Kin²/K)
Thermal impedance (dielectric layer) HTC 100µm		0,50 Kcm²/W (0,078 Kin²/K)
Comparative tracking index (CTI)	IEC-61112	>550 V
Glass transition temperature of dielectric layer (by TMA)	IPC-TM 650-2.4.24	120 °C

AL PRIMER CU PRIMER

AL & CU PRIMER are an aluminum or copper laminate coated with a thermal conductive polymeric-ceramic resin layer ideal to achieve an excellent bonding strength to double side or multilayer product with high thermal dissipation in the most suitable way
They can be coated in one or both sides in order to achieve ideal MPCB constructions. A combination of AL & CU PRIMER and THIN LAM together with BOND SHEETS is a perfect way to produce double side metal PCBS.

The use of AL & CU PRIMER guaranties an excellent bonding strength over thermal shocks and it is excellent on reliability test with high temperature over time. The polymeric ceramic resin layer coated over the aluminum or copper laminate, guaranties an excellent thermal conductivity and bonding. They can be delivered with two different coating layers and can be combined with BOND SHEET if high dielectric strength is requested.

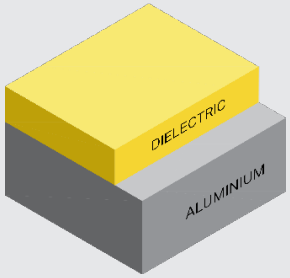
CU PRIMER



Insulation thickness µm (in)
30 (1.2mils) 60 (2.4 mils)
Dielectric thickness tolerance
+/- 10µm (+/- 0,4 mils)

Copper thickness µm (in)
1000 (0.039) / 1500 (0.059) / 2000(0.078) / 3000 (0.12)

AL PRIMER



Insulation thickness µm (in)
30 (1.2mils) 60 (2.4 mils)
Dielectric thickness tolerance
+/- 10µm (+/- 0,4 mils)

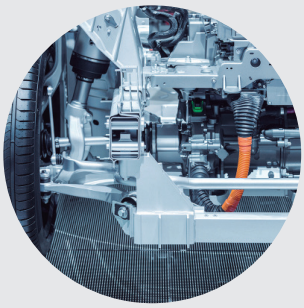
Aluminium thickness µm (in)
800 (0.031) / 1000 (0.039) / 1200 (0.047) / 1500 (0.059) / 2000(0.078) / 2500 (0,098) / 3000 (0.12)
Alloy/Treat 5052

Application Fields

Automotive Lighting

FRONT LIGHTS

REAR & INTERIOR LIGHTS



Automotive Power Train

ELECTRIC POWER STEERING

ON BOARD CHARGER

HVDC POWER TRANSMISSION

Solar & Wind

POWER CONVERTERS

Railway & Aerospace

ELECTRONICS

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