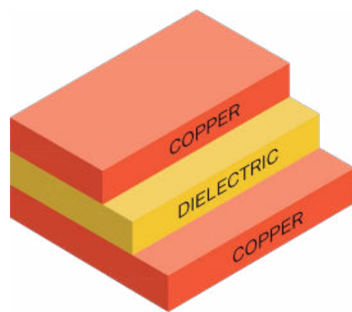
THIN LAM 3,2W HTg 180°C

STANDARD CONSTRUCTION



ED copper thickness µm (in)
35 (1oz) / 70 (2 oz)

Dielectric thickness µm (mils)
75 (3) / 100 (4)
127 (5) / 150 (6) / 210 (8)
Dielectric thickness tolerance
+ 10 µm (+/- 0,4 mils)

ED copper thickness µm (in)
35 (1 oz) / 70 (2 oz)

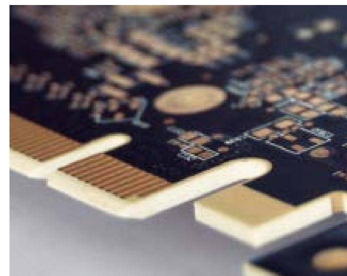
*Other constructions available upon request

DESCRIPTION

Double sided Cu-clad thin laminate composed of thermal conductive polymeric glass reinforced prepreg used to produce double sided and multilayer PCBs with all type of constructions.

Thin Lam can also bond to a metal heat sink using standard multilayer lamination processes with one piece of B-stage COBRITHERM Bond-sheet. Its high resistance to thermal shocks added to its high thermal conductivity assures reliable and effective heat dissipation in critical power circuitry.

Its high Tg and Low CTE is excellent to achieve reliable interconnects in between layers after thermal cycles.



UL Approved QMTS2
File: E47820
IPC-4101

RoHS 3 / REACH
Last updated compliance directive

PROPERTIES	TEST METHOD	UNITS	GUARANTEED VALUES	
Time to blister at 288°C, floating solder bath (50x50 mm)	IEC-61189	Sec	≥ 120	
Copper Peel strength, after heat shock 20 sec/288°C (Cu 70 µm)	IPC-TM 650-2.4.8	N/mm (Lb/in)	≥ 1,0 (≥ 5,7)	
Dielectric breakdown voltage, AC (1) (etched) 75 / 150 µm	IPC-TM 650-2.5.6.3	KV	75 µm	≥ 2
			100 µm	≥ 3
			125 µm	≥ 4
			150 µm	≥ 5
Thermal conductivity (dielectric layer)	ASTM-D 5470	W/m·K (W/in·K)	3,00 (0,076) *	
Thermal resistance (dielectric layer)	ASTM-D 5470	K/W (K/W)	75 µm	0,029 *
			100 µm	0,039 *
			125 µm	0,049 *
			150 µm	0,058 *
Surface resistance after damp heat and recovery	IPC-TM-650 2.5.17.1	MΩ	9,70E+06	
Volume resistivity after damp heat and recovery	IPC-TM-650 2.5.17.1	MΩm	8,57E+07	
Relative permittivity after damp heat and recovery, 10 kHz	IPC-TM-650 2.5.5.9	-	5,07	
Dissipation factor after damp heat and recovery, 10 kHz	IPC-TM-650 2.5.5.9	-	0,017	
Comparative tracking index (CTI)	IEC-61112	V	600	
Water absorption (2)	IPC-TM 650-2.6.2.1	%	0,58	
Flammability, according UL-94, class	UL-94	Class	V-0	
Glass transition temperature of dielectric layer (by DSC)	IPC-TM-650 2.4.25	°C	> 180	
Decomposition Temperature (Td) Initial	IPC-TM 650-2.4.24.6	°C	340	
Decomposition Temperature (Td) 5% loss	IPC-TM-650 2.3.40	°C	420	
Thermal delamination (Td) T 260	IPC-TM 650-2.4.24.1	min	> 80	
Thermal delamination (Td) T 288	IPC-TM 650-2.4.24.1	min	> 80	
Thermal delamination (Td) T 300	IPC-TM 650-2.4.24.1	min	> 80	
CTE (x,y)	IPC-TM 650-2.4.41	ppm/°C	14-15	
CTE (z) < Tg	IPC-TM 650-2.4.24	ppm/°C	37	
CTE (z) > Tg	IPC-TM 650-2.4.24	ppm/°C	127	
Z-axis Expansion (50-250°C)	IPC-TM 650-2.4.24	%	1,8 (77 ppm)	
Young's modulus	IPC-TM 650-2.4.24.2	GPa	14,96	

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(*) Thermal conductivity and resistance values may deviate by up to +/- 15%.

(1) The Dielectric Breakdown test is conducted in a laboratory setting according to IPC-TM-650 part 2.5.6.3. It involves applying AC voltage until electrical failure occurs on a relatively small area of the dielectric layer using metal electrodes. These values serve as material references and should not be construed as guaranteed.

(2) Referred only to the dielectric layer.

The data is based on typical values from standard production and is provided for general informational purposes. Our company reserves the right to make future changes. The user is responsible for ensuring that the product meets their requirements.

AVAILABILITY	
Standard Sheet Sizes mm (in)	1025x1225 (40,35x48,23), 925x1225 (36,40x48,23). Also available in cut-to-size panels.
Tolerance mm (in)	+5/-0 mm (0,2 in)
Squareness mm (in)	3 mm (0,12 in) max., as differential between diagonal measurements.
Standard size tolerance in panels mm (in)	+- 0,3 mm (0,0118 in)

PROCESS RECOMMENDATIONS (ML processing)

PRESS CYCLE
(by means of prepreg sheet of B-stage **COBRITHERM Bond-sheet**) Resin properties on prepregs have been designed for low flow performance. Suitable for heating rates around 6 to 10°C/min and specific pressures between 14 and 20 bars. Vacuum applied during press cycle is mandatory for optimal performance. Use of synthetic thermal resistance press pads are the best choice. Curing temperature cycle is 1hour of material temperature over 160°C.

METAL SURFACE PREPARATION
If plain aluminium is used, surface preparation like sanding plus cleaning is recommended. Upon request, we can deliver aluminium sheets with special primer in one side, given guarantee of reliable adherence in the ML process.

AVAILABLE CONFIGURATIONS	Dielectric Thickness (mm)	Dielectric Thickness (in)	Dielectric Tolerance micron (in)	PREPREG TYPE		
				106	106	1080
				80%	90%	85%
Thin LAMCOB 3,2W High Tg	0,0762	0,0030	+/- 17 (0,0007")	1		
Thin LAMCOB 3,2W High Tg	0,1016	0,0040	+/- 17 (0,0007")			1
Thin LAMCOB 3,2W High Tg	0,1524	0,0060	+/- 25 (0,001")	2		
Thin LAMCOB 3,2W High Tg	0,2032	0,0080	+/- 38 (0,0015")			2
Thin LAMCOB 3,2W High Tg	0,2540	0,0100	+/- 38 (0,0015")		3	0
Thin LAMCOB 3,2W High Tg	0,3048	0,0120	+/- 50 (0,002")			3
Thin LAMCOB 3,2W High Tg	0,3810	0,0150	+/- 50 (0,002")	1		3
Thin LAMCOB 3,2W High Tg	0,4064	0,0160	+/- 50 (0,002")			4
Thin LAMCOB 3,2W High Tg	0,4572	0,0180	+/- 50 (0,002")	2		3
Thin LAMCOB 3,2W High Tg	0,5080	0,0200	+/- 63 (0,0025")			5
Thin LAMCOB 3,2W High Tg	0,6096	0,0240	+/- 63 (0,0025")			6
Thin LAMCOB 3,2W High Tg	0,7112	0,0280	+/- 63 (0,0025")		6	2
Thin LAMCOB 3,2W High Tg	0,7620	0,0300	+/- 63 (0,0025")		9	
Thin LAMCOB 3,2W High Tg	1,0160	0,0400	+/- 100 (0,004")			10
Thin LAMCOB 3,2W High Tg	1,2700	0,0500	+/- 125 (0,005")		5	6
Thin LAMCOB 3,2W High Tg	1,5240	0,0600	+/- 125 (0,005")			15