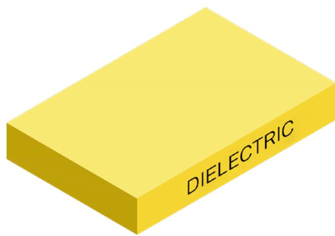
BOND SHEET HTC 3,2W Tg 180°C Low CTE

Data Sheet DS_42 1/2

STANDARD CONSTRUCTION



Isolation thickness µm (mils)
70 (2,8) 80 (3,1) 100 (3,9)
Dielectric thickness tolerance
+ 10µm (+/- 0,4 mils)

*Other constructions available upon request

DESCRIPTION

High Tg - B-stage dielectric prepreg glass reinforced with high thermal conductivity. It is based on epoxy ceramic chemistry, and intended for effective bonding between multilayer circuits (PCB) and metal heat spreaders. Its high dielectric strength and resistance to thermal shocks added to its high thermal conductivity assures effective heat dissipation in critical power circuitry. Its low CTE value is ideal to achieve excellent interconnect reliability over thermal cycles.

UL Approved QMTS2
File: E47820
IPC-4101

RoHS 3 / REACH
Last updated compliance directive

PROPERTIES	UNITS	TOLERANCE	GUARANTEED VALUES		
			A	B	C
Nominal thickness (pressed)	µm (mils)	+/- 10µm (0,4mils)	70 (2,8)	80 (3,15)	100 (4,0)
Area weight	g/m² (Lb/mils²)	+/- 10g/m² (14 Lb/mils²)	145 (203)	185 (259)	225 (315)
Glass fabric 106	g/m² (Lb/mils²)	+/- 1,0g/m² (1,4 Lb/mils²)	24,4 (34,8)	24,4 (34,8)	-
Glass fabric 1078	g/m² (Lb/mils²)	+/- 2,0g/m² (2,8 Lb/mils²)	-	-	46,8 (66,4)
Prepreg shelf life (see storage recommendations)	months	-	3	3	3

PREPREG once applied (1)	UNITS	TYPICAL VALUES	GUARANTEED VALUES
Time to blister at 288ºC, floating solder bath	IEC-61189	sec	60
Copper Peel strength Cu70 µm (2oz)	IPC-TM 650-2.4.8	N/mm (Lb/in	>1,0 (>5,7)
Thermal conductivity (resin)	ASTM D5470	W/mK (W/inK	3,00 (0,076)
Comparative tracking index (CTI)	IEC-61112	V	≥600
Thermal impedance (dielectric layer) HTC 70µm	ASTM D5470	Kcm²/W (Kin²/K)	0,23 (0,036)**
Thermal impedance (dielectric layer) HTC 80µm	ASTM D5470	Kcm²/W (Kin²/K)	0,26 (0,041)**
Thermal impedance (dielectric layer) HTC 100µm	ASTM D5470	Kcm²/W (Kin²/K)	0,33 (0,052)**
Dielectric breakdown voltage, (AC)	IPC TM 650 2.5.6.3	kV/100µm dielectric layer	≥5
Flammability, according UL-94, class	UL-94	class	V-0
Glass transition temperature of dielectric layer (byTMA)	IPC-TM 650-2.4.24	°C	>180
Decomposition Temperature (Td) Initial	IPC-TM 650-2.4.24.6	°C	340
Decomposition Temperature (Td) 5% loss	IPC-TM 650-2.4.24.6	°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	172
Z-axis Expansion (50-250°C)	IPC-TM 650-2.4.24	%	1.8 (77ppm)

(1) Pressed under vacuum, temperature and pressure (see cycle below), between thick aluminium sheet (alloy 5052), and ED copper foil 70µm
(**) Thermal Conductivity and Impedance values may have a +/- 15% deviation.

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DELIVERY FORM

In cut to size sheets upon request.

PROCESS RECOMMENDATIONS

PREPREG STORAGE
Store preferably in the original unopened package or sealed by tape. Keep storage climate conditions below 24°C and 55% relative humidity. In the event of storing under very low warehouse temperatures give some time for the packed prepreg to stabilize to room temperature before opening. Keeping the above mentioned storage conditions and avoiding prepreg damage by humidity uptake will give a useful life of 3 months after production date.

PRESS CYCLE
Resin and prepreg parameters have been adjusted for low flow performance. This means they are suitable for heating rates around 3 to 7°C/min, and specific pressures between 18-22 bars. Vacuum applied during press cycle is mandatory for optimal performance. Use of synthetic thermal resistance pads should be test choice. Curing temperature cycle is 1 hour of material temperature over 190°C.

METAL SURFACE PREPARATION
Aluminium is supplied with mechanical treatment and special primer in order to guarantee the correct adherence in the ML process.

The data is based on typical values of standard production and should be considered as general information. Our company reserves the right to future changes.
It is the responsibility of the user to ensure that the product complies with his requirements.

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