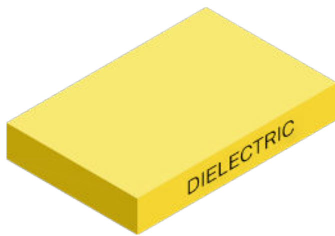
BOND SHEET HTG 3,2W Tg 180°C Low CTE

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

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

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)
Dielectric breakdown voltage, (AC)	IPC TM 650 2.5.6.3	kV/100µm dielectric layer	≥ 5
Thermal conductivity (Resin)	ASTM D5470	W/mK (W/inK)	3,00 (0,076) *
Thermal resistance (dielectric layer) HTC 70µm	ASTM D5470	Kcm²/W (Kin²/W)	0,027 *
Thermal resistance (dielectric layer) HTC 80µm	ASTM D5470	Kcm²/W (Kin²/W)	0,031 *
Thermal resistance (dielectric layer) HTC 100µm	ASTM D5470	Kcm²/W (Kin²/W)	0,035 *
Surface resistivity after moisture	IPC-TM 650-2.5.17.1	MΩ	9,70E+06
Volume resistivity after moisture	IPC-TM 650-2.5.17.1	MΩcm	8,57E+07
Dk @1/2.5/5/10/20 GHz	IPC-TM 650-2.5.5.5.1	-	5,2/5,15/5,11/5,07/5,03
Df @1/2.5/5/10/20 GHz	IPC-TM 650-2.5.5.5.1	-	0,016/0,017/0,017/ 0,017/0,017
Water absobtion	ISO 62:2008	%	0,5
Comparative tracking index (CTI)	IEC-61112	V	≥ 600
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

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Thermal delamination (Td) T 300	>80	min	IPC-TM 650-2.4.24.1
CTE (x,y)	14-15	ppm/°C	IPC-TM 650-2.4.41
CTE (z) <Tg	37	ppm/°C	IPC-TM 650-2.4.24
CTE (z) >Tg	172	ppm/°C	IPC-TM 650-2.4.24
Z-axis Expansion (50-250°C)	1.8 (77ppm)	%	IPC-TM 650-2.4.24
Young's modulus	14,96	GPa	IPC-TM 650-2.4.24.2

In cut to size sheets upon request.

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.

(*) Thermal conductivity and impedance 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.

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. It is the responsibility of the user to ensure that the product meets their requirements.

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