SI643HU

(UL ANSI: No ANSI) High Performance Material For PKG Substrate

FEATURES

- Tg≥230℃ (DMA), Td>395℃ (5% loss, TGA)
- T288>30min, Excellent Thermal Resistance
- Lower X, Y / Z-axis CTE
- High Flexural Modulus
- Good punching & Drilling ability

APPLICATIONS

CoB (TF card, SIM card, etc.)
Dual CM

GENERAL PROPERTIES

Test Items	Test Condition	Units	SI643HU	SI643U
Tg	DMA	℃	245	230
Td	5% wt. loss	℃	409	400
CTE	x/y-axis(α1)	ppm/℃	~10	12-13
	(40-260℃), z-axis(α1/α2)1)	ppm/℃	25/143	27 / 150
Dielectric Constant (1GHz)	-	-	4.5	4.4
Dissipation Factor (1GHz)	-	-	0.007	0.007
Solder Dipping	288 ℃	min	>30	>30
Peel Strength 1)	1/3 Oz, VLP Copper Foil	N/mm	0.73	0.8
Young's modulus	50℃	GPa	25	22
	200℃	GPa	22	15
Flexural modulus1)	50℃	GPa	28	26
	200℃	GPa	18	16
Water Absorption1)	A	%	0.17	0.2
	85℃/85%Rh,168Hr	%	0.54	0.63
Flammability	UL-94	Rating	V-0	V-0
Thermal Conductivity	-	W/(m • K)	0.61	0.58

*Specimen thickness: 0.10mm. Test method is according to IPC-TM-650.

*1): specimen thickness: 0.80mm.

All the typical values listed above are for your reference only and not intended for specification. Please contact Shengyi Technology Co., Ltd. for detailed information. All rights from this data sheet are reserved by Shengyi Technology Co., Ltd.

Explanation: C=Humidity conditioning, D=Immersion conditioning in distilled water, E=Temperature conditioning

The first digit following the letter indicates the duration of preconditioning in hours, the second digit the preconditioning temperature in ℃ and the third digit the relative humidity.

PURCHASING INFORMATION

Laminate SI643HU

Thickness (mm)	Thickness Tolerance (mm)	Glass Fabric Construction	Thickness (mm)	Thickness Tolerance (mm)	Glass Fabric Construction
0.03	0.033±0.010	1X1027 1X1024	0.08	0.085±0.010	2X1067
0.04	0.043±0.010	2X1015	0.10	0.104±0.010	2X1078
	0.043±0.010	1X1067	0.13	0.13±0.010	3X1067
0.05	0.055±0.010	2X1027 2X1024	0.15	0.156±0.010	3X1078
	0.052±0.010	1X1078	0.18	0.18±0.010	3X1078
0.06	0.066±0.010	2X1037 2X1030	0.20	0.21±0.010	2X2116
	0.06±0.010	1X1078	0.20	0.208±0.010	4X1078

*Normal size are 40"X48", other sheet size and thickness could be available upon request.

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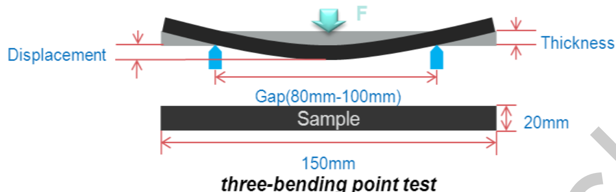
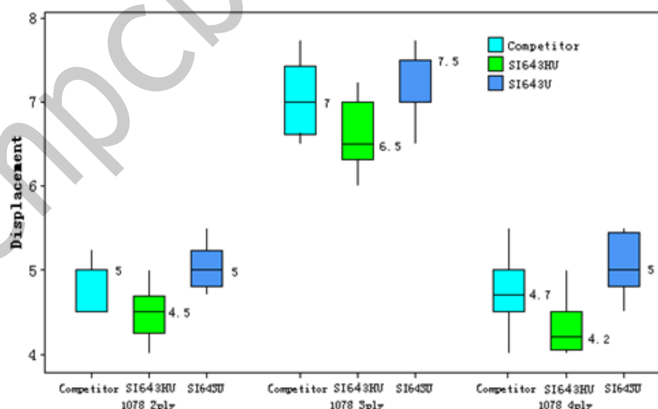
Prepreg SI643HB

Material	Glass Cloth IPC No.	Nominal Thickness (mm) （inner Cu 100%）	RC (%)
SI643HB	1027	0.03	64
	1027	0.04	72
	1037	0.04	67
	1037	0.05	74
	1067	0.05	66
	1067	0.06	71
	1078	0.06	58
	1078	0.07	63

Comparison of Stiffness





Sample: Laminate without copper foil
Sample Thickness: 0.10mm/0.15mm/0.20mm
1078 2ply: Thickness: 0.10mm F: 0.02N Gap: 80mm
1078 3ply: Thickness: 0.15mm F: 0.08N Gap: 80mm
1078 4ply: Thickness: 0.20mm F: 0.08N Gap: 100mm

Recommended Process Conditions

Laminate Pre-treatment: Bake laminate in the shelf for 2hours at about 190℃ before using to get rid of the internal stress and moisture.

Inner-layers Pre-treatment: Bake inner-layers for 60 minutes at about 105℃ before lamination to get rid of the moisture.

Pressure			Temperature		
Rise min.	Kg/cm2	Keep min.	Rise min.	℃	Keep min.
1	7	15	10	130	15
1	16	25	5	160	20
1	25	167	10	230	145
10	16	0	15	80	0
5	7	0	5	50	0
Total time			225min		

*Vacuum: 40torr or less at the beginning to the end.
*Heat ramp: ~3℃/min., between 80℃ and 140℃ material temperature.
*Cure time: ≥210℃, no less than 120min.

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