



# SI10U(S)

Advanced Higher Modulus Material For PKG Substrate

## FEATURES

- $T_g \geq 270^\circ\text{C}$  (DMA),  $T_d > 400^\circ\text{C}$  (5% loss, TGA)
- Higher Flexural Modulus
- Lower X, Y / Z-axis CTE
- Halogen-free compatible with lead-free processing

## APPLICATIONS

eMMC, DRAM  
 AP, PA  
 Dual CM  
 Fingerprint, RF Module, etc.

## GENERAL PROPERTIES

Property	Test Condition	Metric Units	SI10U(S)
Dielectric Constant <sup>1)</sup>	@1GHz	-	4.4
Dissipation Factor <sup>1)</sup>	@1GHz	-	0.007
$T_g$	DMA	$^\circ\text{C}$	$\geq 270$
$T_d$	Wt 5% loss	$^\circ\text{C}$	$> 400$
Solder Dipping	@288 $^\circ\text{C}$	min	$> 30$
CTE(40-260 $^\circ\text{C}$ )	x/y-axis( $\alpha 1$ )	ppm/ $^\circ\text{C}$	10
	z-axis( $\alpha 1/\alpha 2/1$ )	ppm/ $^\circ\text{C}$	25/135
Peel Strength to Copper <sup>1)</sup>	1/3 OZ, VLP Cu	N/mm	0.80
Young's modulus	50 $^\circ\text{C}$	GPa	26
	200 $^\circ\text{C}$	GPa	23
Flexural modulus <sup>1)</sup>	50 $^\circ\text{C}$	GPa	32
	200 $^\circ\text{C}$	GPa	27
Water Absorption <sup>1)</sup>	A	%	0.14
	85 $^\circ\text{C}/85\%\text{Rh}, 168\text{Hr}$	%	0.35
Flammability	UL 94	-	V-0
Thermal Conductivity	-	W/(m·K)	0.61
color	-	-	black

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

\*1): specimen thickness: 0.80mm.

All the typical value listed above is for your reference only, please turn to Shengyi Technology Co.,Ltd. for detailed information, and all rights from this data sheet are reserved by Shengyi Technology Co.,Ltd.

## PURCHASING INFORMATION

### Laminate SI10U(S)

Type	Thickness (mm)	Actual Thickness (mm)	Glass Fabric Construction
Standard	0.08	0.086	2X1067
	0.10	0.104	2X1078
	0.15	0.156	3X1078
	0.20	0.210	2X2116
M	0.04	0.043	2X1017
	0.05	0.052	2X1027
	0.06	0.060	2X1037
HD	0.03	0.033	1X1024
	0.04	0.043	2X1015
	0.05	0.052	2X1024
	0.06	0.066	2X1030

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

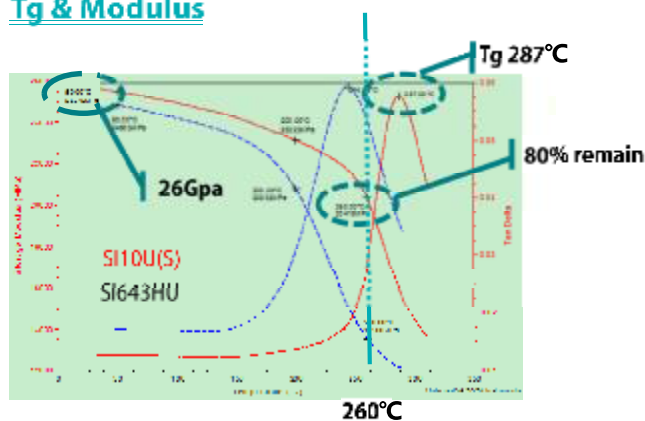
### Prepreg SI10NB(S)

Type	Glass Cloth IPC No.	Nominal Thickness (mm) (inner Cu 100%)	RC (%)
Standard	1017	0.025	72
	1017	0.030	76
	1027	0.03	65
	1027	0.04	73
	1037	0.04	69
	1037	0.05	75
	1067	0.05	67
	1067	0.06	72
	1078	0.06	59
	1078	0.07	64

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## Tg & Modulus



## Mechanical Drilling

Drilling parameter

CCL: 0.15mmT/T, 6stacks

Drill bit: USF  $\Phi$ 0.11mm, 1.6mm(jinzhou)

Enter sheet: LE-900 coated aluminum sheet

Back board: Bakelite board

Revolution: 195krpm

Feed rate: 1.80m/min

Program: 3000hits

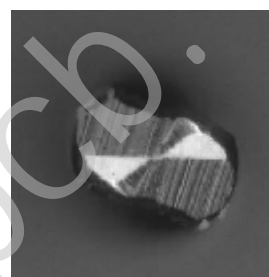
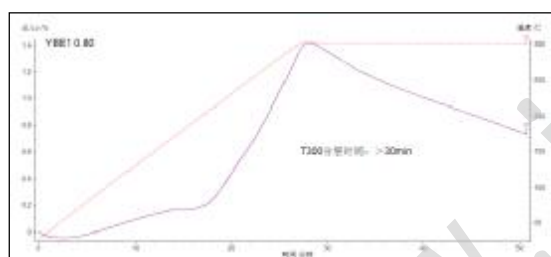
Wearing of drill bit After 3000hits



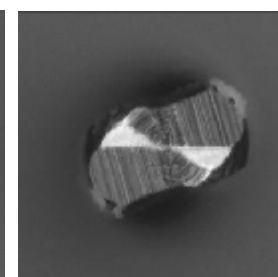
## T300

CCL: 0.80 8X2116; Test method: TMA

No delamination at 300 °C after 30mins



SI10U(S)



SI643HU

## Moisture reliability test on 2-layers substrates

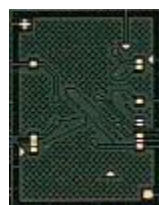
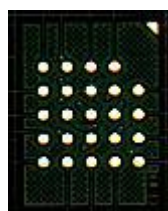
### Test sample

Core: 150 $\mu$ m T/T VLP

SR: 30 $\mu$ m

Outer Cu: 25 $\mu$ m

L/S: 50/50 $\mu$ m



### Test condition

precon: JEDEC MSL-1(C-168h/85deg C/85%RH)

Lead free reflow X 3 times

### Test result

material	1time	2times	3times
SI10U(S)	0/660*	0/660*	0/660*

\*No delamination appearance in 660 units