

Polyimide Multilayer Material

MCL-I-671 GIA-671N<Prepreg>

Glass Modified Polyimide Multilayer Material(GPY)

■ Features

- High Tg (>230°C : DMA) material for high through-hole reliability.
- FR-4 lamination condition can be applied. (175°C, 90 min.)
- MDA, a general polyimide resin curing agent, is not used. (Non-MDA Resin System)
- Resin flow control technology enables from high to low flow.

■ Applications

- Main frame computers and super computers.
- Semiconductor testing equipment, and burn-in boards.
- Flex-rigid PWBs. (no-flow prepreg)

■ Standard Specifications

Part Number	Type	Copper Foil Thickness	Code Name	Laminate Thickness
MCL-I-671	—	12μm 18μm 35μm 70μm	0.06	0.06mm
			0.1	0.10mm
			0.2	0.20mm
			0.3	0.30mm
			0.41	0.41mm
			0.79	0.79mm

Note1) The thickness means that of dielectric layer.

■ Characteristics

(t0.8mm)

Item	Condition *3	Unit	Actual Value	Reference	
			MCL-I-671	(IPC-TM-650)	
Tg	TMA method	A	200~213	2.4.24	
	DMA method	A	230~245	—	
CTE *1	X(30~120°C)	A	12~15	—	
	Y(30~120°C)	A	12~16		
	Z	<Tg	A	50~80	2.4.24
		>Tg	A	200~300	
Solder Heat Resistance(260°C)		A	sec.	>300	—
T-260 (Without Copper)		A	min.	>60	2.4.24.1
T-288 (Without Copper)				>15	
Decomposition Temperature(TGA method 5% Weight Loss)		A	°C	330~350	2.3.40
Copper Peel Strength (18μm)	20°C	A	kN/m	1.3~1.5	2.4.8
	180°C			1.0~1.2	
Flexural Modulus (Lengthwise)		A	GPa	24~26	2.4.4
Dielectric Constant	1MHz	A	—	4.2~4.4	2.5.5.9
	1GHz*2			4.1~4.3	JPCA TM-001
Dissipation Factor	1MHz	A	—	0.0110~0.0130	2.5.5.9
	1GHz*2			0.0130~0.0150	JPCA TM-001
Volume Resistivity	C-96/40/90	—	Ω·cm	1×10 ¹⁴ ~1×10 ¹⁶	2.5.17
Surface Resistance			Ω	1×10 ¹³ ~1×10 ¹⁵	
Insulation Resistance	A	—	Ω	1×10 ¹⁴ ~1×10 ¹⁶	—
	D-2/100			1×10 ¹² ~1×10 ¹⁴	—

*1) Heating Rate: 10°C/min.

*2) Measured by Triplate-line Resonator.

*3) Refer to last page "Condition Note"

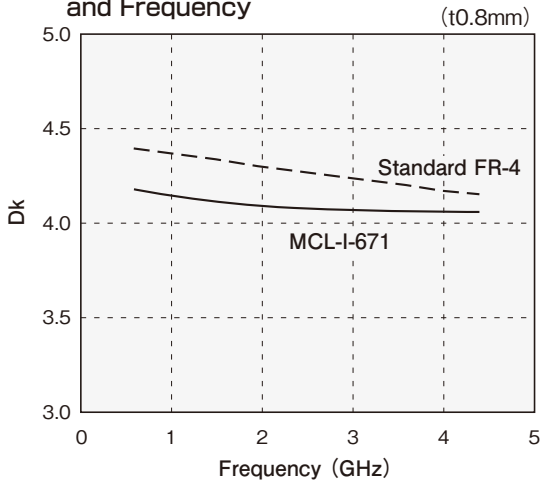
*Above data are experimental results and not guaranteed.

●Prepreg

Part Number	Type		Glass Cloth	Properties		Application
			Style	Resin Content (%)	Dielectric Thickness after Lamination*1 (mm)	
GIA-671N	(T)	0.03	106	72±3	0.059	MLB
		0.05	1080	65±3	0.087	
		0.1	2116	54±3	0.134	
	(N)	0.03	106	68±3	0.047	Flex-rigid PWBs
		0.05	1080	59±3	0.072	
		(F)	0.05	1080	74±3	
Reference(IPC-TM-650)				2.3.16	-	-

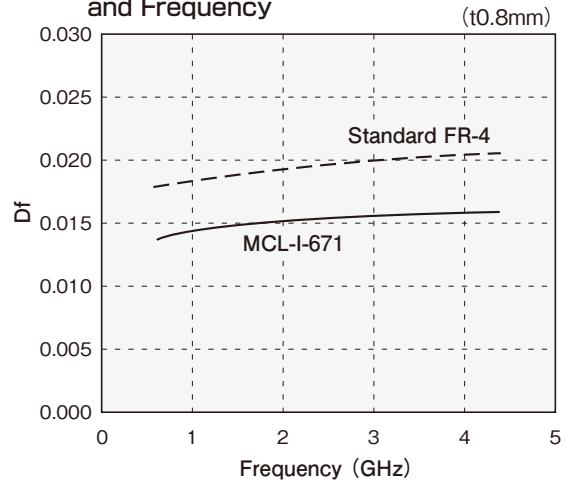
*1) The dielectric thickness after lamination is defined as the theoretical calculation thickness of one sheet of prepreg when the resin flow is 0%. This value changes depending on the press condition or inner layer pattern.

●Correlation between Dielectric Constant and Frequency

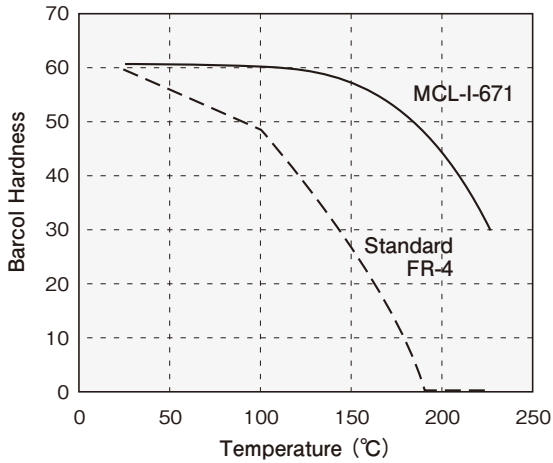


Note) Measured by Triplate-line Resonator.

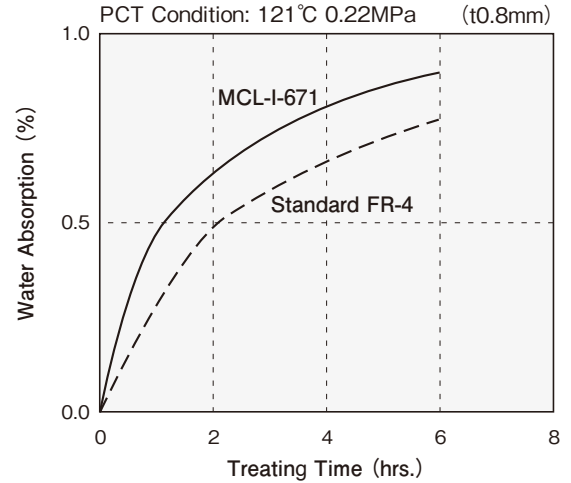
●Correlation between Dissipation Factor and Frequency



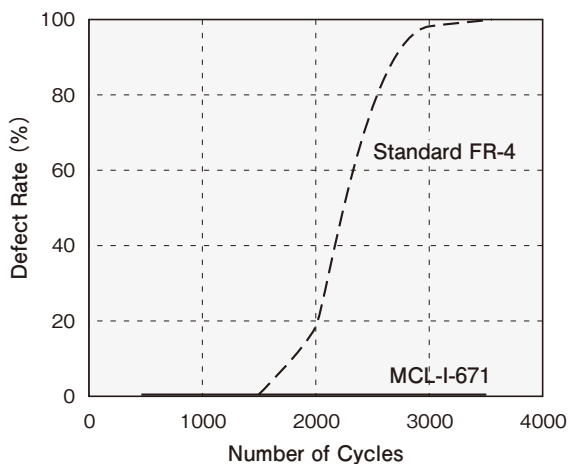
●Barcol Hardness



●Water Absorption



●Thermal Shock Test MIL-STD-202 Method 107E



●Flexural Strength

