Teflon woven glass fabric copper clad laminates with ceramic filledF4BT-1/2

F4BT-1/2 is a micro dispersed ceramic PTFE composite with a woven fiberglass reinforcement through scientific formulation and strict technology procedures. This product have higher dielectric constant than the traditional PTFE copper clad laminates to meet the design and manufacturing of circuit miniaturization. Due to filling with the ceramic powder , F4BT-1/2 have a low Z axis coefficient of thermal expansion ensures excellent reliability of plated through-holes. Besides , because of the high thermal conductivity , advantage to the heat dissipation of apparatus.

Technical Specifications :

Appearance	Meet the specification requirements for microwave PCB baseplate by National and Military Standards.				
Types	F4BT294		F4BT600		
Dielectric Constant	2.94		6.0		
Dimension （mm）	500×600　　430×430				
Thickness and Tolerance （mm）	Plate thickness	0.25	0.5	0.8	1.0
	Tolerance	±0.02 ~ ±0.04			
	Plate thickness	1.5	2.0	3.0	4.0

	Tolerance	±0.05 ~ ±0.07		
	Plate thickness includes the copper thickness. For special dimension，customized laminates is available			
Mechanical Strength	Warp	Plate thickness（mm）	Maximum Warp	
			Single side	Double side
		0.25 ~ 0.5	0.050	0.025
		0.8 ~ 1.0	0.030	0.020
		1.5 ~ 2.0	0.025	0.015
		3.0 以上	0.02	0.010
	Cutting/punching Strength	Thickness < 1mm，no burrs after cutting，minimum space between two punching holes is 0.55mm，no delamination.		
		Thickness > 1mm，no burrs after cutting，minimum space between two punching holes is 1.10mm，no delamination.		
	Peel strength	Normal state：≥17N/cm，After thermal stress：≥14 N/cm		
Chemical Property	According to different properties of baseplates，the chemical etching method for PCB can be used. The dielectric properties of baseplates are not changed. The plating through hole can be done. The Hot Air Level temperature can not be higher than 263℃，and can not repeated.			

	Name	Test condition	Unit	Value
Electrical Property	Density	Normal state	g/ cm3	2.3 ~ 2.6
	Moisture Absorption	Dip in the distilled water of 20±2℃ for24 hours	%	≤0.02
	Operating Temperature	High-low temperature chamber	℃	-50℃ ~ +260℃
	Thermal Conductivity		W/m/k	0.4
	CTE	0 ~ 100℃	ppm/℃	20 (x)
				25 (y)
				140 (z)
	Shrinkage Factor	2 hours in boiling water	%	0.0002
	Surface Resistivity		M·Ω	≥1×104
	Volume	Normal state	MΩ.cm	≥1×105

	Resistivity	Constant humidity and temperature			≥1×104
	Pin Resistance	500VDC	Normal state	MΩ	≥1×105
			Constant humidity and temperature		≥1×104
	Dielectric Breakdown			kv	≥20
	Dielectric Constant	10GHZ		εr	2.94，6.0（±2%）
	Dissipation Factor	10GHZ		tgδ	≤1×10-3