Teflon woven glass fabric with ceramic filler copper-clad laminates F4BTME-1/2

F4BTME-1/2 is laminated by laying up of the imported varnished glass cloth with Teflon resin and filler with the Nano-ceramic membrane，according to the scientific formulation and strict technology process. The low roughness copper foil adopted. This product takes advantages over F4BM-2-A series in the electrical performance、improved the heat dissipation and have the small thermal expansion coefficient. PIM stability，applicable for the communication of 4G and 5G.

Technical Specifications：

Appearance	Meet the specification requirements for the laminate of microwave PCB by National and Military Standards.					
Types	F4BTME-1/2（255）	F4BTME-1/2（265）	F4BTME-1/2（285）	F4BTME-1/2（294）	F4BTME-1/2（300）	F4BTME-1/2（320）
	F4BTME-1/2（338）	F4BTME-1/2（350）	F4BTME-1/2（400）	F4BTME-1/2（440）		
Dimension	610×460	600×500	1220×914	1220×1000	1500×1000	

www.ipcb.com

（mm）	For special dimension，customized laminates is available.					
Thickness and Tolerance（mm）	Laminate thickness	0.254	0.508	0.762	0.787	1.016
	Tolerance	±0.025	±0.05	±0.05	±0.05	±0.05
	Laminate thickness	1.27	1.524	2.0	3.0	4.0
	Tolerance	±0.05	±0.05	±0.075	±0.09	±0.1
	Laminate thickness	5.0	6.0	9.0	10.0	12.0
	Tolerance	±0.1	±0.12	±0.18	±0.18	±0.2
Mechanical Strength	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（1oz copper）	Normal state：≥16N/cm；No bubble、delamination、peel strength≥14N/cm（in the constant humidity and temperature、and keep in the melting solder of 265℃±2℃ for 20 seconds）.				
	Thermal stress	After solder float，260ºC，10s，≥3 times ，no delamination and blister.				

www.ipcb.com

<table>
<tr><td>Chemical Property</td><td colspan="4">According to the properties of laminate，the chemical etching method for PCB can be used. The dielectric properties of laminate are not changed. The plating through hole can be done ,but the sodium treatment or the plasma treatment must be used.</td></tr>
<tr><td rowspan="8">Electrical Property</td><td>Name</td><td>Test condition</td><td>Unit</td><td>Value</td></tr>
<tr><td>Density</td><td>Normal state</td><td>g/ cm3</td><td>2.1～2.8</td></tr>
<tr><td>Moisture Absorption</td><td>Dip in the distilled water of 20±2℃ for24 hours</td><td>%</td><td>≤0.05</td></tr>
<tr><td>Operating Temperature</td><td>High-low temperature chamber</td><td>℃</td><td>-50℃～+260℃</td></tr>
<tr><td>Thermal Conductivity</td><td></td><td>W/m/k</td><td>0.6~0.9</td></tr>
<tr><td rowspan="3">CTE （typical）</td><td rowspan="3">-55～288℃ （εr ：2.55~3.0）</td><td rowspan="3">ppm/℃</td><td>15（x）</td></tr>
<tr><td>15（y）</td></tr>
<tr><td>65（z）</td></tr>
</table>

www.ipcb.com

	CTE (typical)	-55 ~ 288℃ (εr : 3.2~3.5)		ppm/℃	15 (x)
					15 (y)
					55 (z)
	CTE (typical)	-55 ~ 288℃ (εr : 4.0~4.4)		ppm/℃	12 (x)
					14 (y)
					50 (z)
	Shrinkage Factor	2 hours in boiling water		%	☐ 0.0002
	Surface Resistivity	500V DC	Normal state	M·Ω	≥1×106
			Constant humidity and temperature		≥1×105
	Volume Resistivity	Normal state		MΩ.cm	≥1×107
		Constant humidity and temperature			≥1×106
	Surface dielectric strength	Normal state		d=1mm (Kv/mm)	≥1.2
		Constant humidity and temperature			≥1.1

www.ipcb.com

	Dielectric Constant	10GHZ	εr	2.85±0.05、2.94±0.05 3.00±0.05、3.20±0.05 3.38±0.05、3.50±0.05 4.00±0.08、4.40±0.1	
	Thermal Coefficient ofεr （PPM/℃） -50□150℃	εr	Value		
		2.85，2.94	-85		
		3.0，3.2	-75		
		3.38	-65		
		3.5	-60		
		4.0	-60		
		4.4	-60		
	Dissipation Factor	10GHZ	tgδ	2.55□3.0	≤1.5×10-3
			tgδ	3.0□3.5	≤2.0×10-3
			tgδ	4.0□4.4	≤2.5×10-3

www.ipcb.com

	PIMD	2.5 GHZ	dbc	□-163
	UL Flammability Rating	94 V-0		

Please visit our website https://www.ipcb.com

iPcb.com Products:

Radio/Microwave/Hybrid High Frequency , FR4 Double/Multi-Layer , 1~3+N+3 HDI , Anylayer HDI , Rigid-Flex , Blind Buried, Blind Slot , Backdrilled , IC ,Heavy Copper Board and etc.

*Any question,Don't hesitate to contact us through www.ipcb.com, We will get back to you as soon as possible.

*Send inquiry to sales@ipcb.com directly