F4B-1/2(M:1-GT)Woven-glass PTFE Copper-clad Substrate

This substrate of good quality is widely and specially used to microware printed-circuits.It is made from import highly rated materials and completed through high temperature, high-pressure,baking and sintering processes according To the electrical requirements of a microwave circuit.

※Technical Specifications:

1、Exterior Looks:In conformity to the exterior looks,performances of microwave printed-circuit substrate materials specified by both the National and Milirary Standards.

2、Normal Dimensions(mm):840×840；600×500；500×500；500×430；380×350；300×250

3、Thickness of Copper-clad(mm):0.035 or 0.018

4、Thickness and Tolerance:

a. The normal thickness of copper-clad includes that of the copper sheets on both sides of the substrates.

b. Thickness and Tolerance

Thickness(mm)	0.17,0.25	0.5,0.8,1.0	1.5,2.0	3.0,4.0,5.0
Tolerance(mm)	±0.01	±0.03	±0.05	±0.06

c. Specified dimensions can be assigned according to the requirements of customers' circuit design.

5、Metamucil Properties:

a. Flexibility Factory:

Thickness(mm)	Maxi am Flexibility Factor(mm/mm)		
	Laminate Board With smooth Surfaace	Single-sided Copper-clad	Double-sided Copper-clad
0.25-0.5	0.03	0.05	0.025
0.8-1.0	0.025	0.03	0.020
1.5-2.0	0.020	0.025	0.015
3.0-5.0	0.015	0.020	0.010

b. Shearing and punching Properties:

Shearing: ＜1mm thickness without burrs after shearing, the minimum separation between two holes punched being 0.55without peeling off.

≥1mm thickness without burrs after，the minimum separation between two holes punched being 1.10 without peeling off.

c.Copper Peel Strength: ≥15N/cm(in normal condition).

≥12N/cm（being Kept in constant damp and hot and 260℃±2℃ solder conditions for 20seconds without blisters and peeling off）

d.Chemical Properties:Printed-circuits made by photo-fabrication with the performance of the dielectric materials of the substrate unchanged and moralizing holes process ability.

e.Physical and Electrical Properties:See"Table of Performance"Characteristics of Main Substrates affianced.

Number	Item	Test Condition		Unit	Target value
1	Gravity	In normal		g/cm²	2.2 ~ 2.3
2	Water Absorption	Soaking in Distilled water of20±2℃ for 24 hours.		%	≤0.02
3	Operating Temperature	High AND Low Temperature Oven		℃	-50 ~ +260
4	Heat Conduction Coefficient			Kcal/m.hour℃	0.8
5	Linear Expansion Coefficient	Arise of 96℃ in Temperature/hour		×1	≤5×10-5
6	Shrinkage	To be boiled in Boiling water for 2 hors.		%	0.0002
7	Surface Insulation Resistance	500V direct current	normal	M.Ω	≥1×10-4
			const damp and hot		≥1×10-3
8	Bulk Resistance	In normal conditio		MΩ.cm	≥1×10-6
		const damp and hot			≥1×10-5
9	Resistance Between Plugs	500V direct current	In normal conditio	MΩ	≥1×10-5
			In constant damp condition		≥1×10-3
10	Surface Electric Strength	In normal conditio		δ=1mm(kv/mm)	≥1.2
		In constant damp condition			≥1.1
11	Dielectric Constant	10GHz		εr	2,55(±2%)
					2,65(±2%)
12	Dielectric Constant Tangent	10GHz		tgδ	≤1×10-3