



# CuFlon<sup>®</sup> MICROWAVE SUBSTRATES



## TECHNICAL FEATURE

### FEATURES AND BENEFITS

- Ultra Low Loss
- High Power Amplifier
- Isotropic Properties

### TYPICAL APPLICATIONS

- High Power Amplifier
- NRM/MRI Coils
- Isotropic Properties

### DESIGN NOTES

Polyflon has taken advantage of the qualities of PTFE and coupled them with a proprietary plating process to produce a microwave substrate whose loss performance cannot be equaled by any other substrate available at this time.

PTFE has unique electrical and physical properties: low loss tangent and dissipation factor, very low dielectric constant, high volume and surface resistivity, high chemical inertness, and almost zero water absorption.

PROPERTY	VALUE	UNITS	DIRECTION	FREQUENCY	TEST METHOD/CONDITION
Dielectric Constant	2.05 +/- .05	-	Z	18 GHz	IPC-TM-650
Dissipation Factor	0.00045	-	Z	18 GHz	IPC-TM-650
Dielectric Strength (0.020")	1000	V/mil	Z	-	ASTM D 149
Volume Resistivity	10 <sup>18</sup>	ohm • cm	Z	-	ASTM D 257
Maximum Temperature	225	°C	-	-	Short Duration
Thermal Conductivity	0.25	W/m/°C	Z	-	ASTM C 518
Specific Gravity	2.15	-	-	-	ASTM D 792
Thermal Expansion (Unclad Dielectric)	129 129 129	ppm/°C ppm/°C ppm/°C	X Y Z	- - -	ASTM E 831 ASTM E 831 ASTM E 831
Water Absorption	<.01	%	-	-	ASTM D 570
Copper Peel (Average)	6-8	lbs/in	-	-	
Operating Temperature	-55 to 175	°C	-	-	
RoHS Compliant	Yes	Compliance Statement Available Upon Request*			

### PANEL SIZES FOR VARIOUS STANDARD DIELECTRIC THICKNESS'

9" X 9" PANEL	12" X 18" PANEL
0.00025" (6µm)	0.010" (.25 mm)
0.0005" (13µm)	0.015" (.38 mm)
0.001" (25µm)	0.020" (.51 mm)
0.002" (51µm)	0.031" (.79 mm)
0.003" (76µm)	0.062" (1.57 mm)
0.005" (127µm)	0.125" (3.18 mm)

### STANDARD COPPER WEIGHT/THICKNESS

1/8 oz/ft2 (4 µm)
¼ oz/ft2 (9 µm)
½ oz/ft2 (18 µm)
1 oz/ft2 (35 µm)
2 oz/ft2 (70 µm)
Other Available on Request

Microwave Solutions  
Merrimac Industries  
41 Fairfield Place,  
West Caldwell, NJ 07006

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