



## Copper Clad ULTEM<sup>®</sup> Microwave Laminates

Polyflon's Copper Clad ULTEM Laminates are made from PEI (Polyetherimide), an engineering amorphous thermoplastic. They have isotropic electrical and mechanical properties with good thermal stability. The copper is bonded directly to the dielectric material without adhesives.

ULTEM is used for very specific niche applications such as non-multilayer antennas.

**Features and Benefits**

- Thermally Stable
- Isotropic Properties
- High Temperature Performance

Property	Value	Units	Direction	Frequency	Test Method/Condition
Dielectric Constant	3.05	-	Z	3GHz	IPC-TM-650
Dissipation Factor	0.003	-	Z	3GHz	IPC-TM-650
Dielectric Strength (0.062")	830	V/mil	Z	-	ASTM D 149
Volume Resistivity	6.7 10 <sup>17</sup>	ohm • cm	Z	-	ASTM D 257
Maximum Temperature	225	°C	-	-	Short Duration
Thermal Conductivity	0.22	W/m/°C	Z	-	ASTM C 518
Specific Gravity	1.27	-	-	-	ASTM D 792
Thermal Expansion	56	ppm/°C	X	-	ASTM E 831
(Unclad Dielectric)	56	ppm/°C	Y	-	ASTM E 831
	56	ppm/°C	Z	-	ASTM E 831
Water Absorption	.25	%	-	-	ASTM D 570
Copper Peel (Average)	6-8	lbs/in	-	-	
Operating Temperature	-55 to 175	°C	-	-	
RoHS Compliant	Yes	Compliance Statement Available Upon Request			
Color, Dielectric	Amber				

### Copper Clad ULTEM Ordering Information

Dielectric Thickness	Panel Size	Copper Weight/Thickness
0.035" (0.889mm)	12" x 18" (305mm x 457mm)	½ oz/ft <sup>2</sup> (17 microns)
0.062" (1.575mm)		1 oz/ft <sup>2</sup> (35 microns)
0.125" (3.175mm)		2 oz/ft <sup>2</sup> (70 microns)

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