

FEP Bond Film

DuPont Teflon® FEP is commonly used for bonding PTFE multilayer printed circuits. The primary use is as a bond agent between two PTFE circuit boards to form a stripline circuit. Other uses include bonding PTFE laminates to ground planes of various metal types and thicknesses. Used in conjunction with lower melt point bond films such as CTFE, limited sequential lamination is possible.

The excellent electrical characteristics of this material make it ideal for circuitry designed for the microwave frequency range. The surface of the FEP is treated for enhanced bonding characteristics and Taconic recommends using Type C20 for multilayer applications.

Property	Benefit
Closely controlled melt point	Predictable lamination cycle
Dielectric constant	Very little effect on DK of total package
Dissipation factor	Excellent low loss performance
Chemically stable	Not affected by standard processing chemicals

FEP Typical Properties			
Property	Value	Unit	Test Method
Dielectric Constant	2.00		ASTM 3380D
Dissipation Factor	0.0003		ASTM 3380D
Thickness	0.0020	Inches	Starrett Micrometer

Lamination

Etch the inner layers taking care not to disturb the surface of the PTFE after etching. If subsequent cleaning of the copper surface is necessary, use a chemical cleaning process. Bake the inner layers for 30 minutes at 220°F to remove any moisture from the surface. The FEP bond film does not need special preparation other than tooling holes and relief cutouts, if required. Lay up the bond package and place a thermocouple at the bond line of the middle laminate in the middle opening of the press. Place the bond package in a hot or cold press and apply full pressure of 200 psi and maintain throughout the complete press cycle. Monitor the package temperature. When the package reaches 530°F, maintain the temperature between 530°F and 550°F for 20 minutes. Turn off the heat and allow the package to air cool to approximately 300°F before quick cooling.

