

Lead free compatible**Tg180 high thermal resistant for Lead free compatible laminate and prepreg**

TU-772, TU-77P

TU-772 epoxy laminates offer enhanced thermal resistance due to a high Tg of 180°C. TU-772 laminates also provide UV-block characteristic and compatibility with AOI process. These products are suitable for boards that need to survive severe thermal cycles, or to experience excessive assembly work. The lower Z-axis thermal expansion also minimizes the problems, such as lifted pads and barrel cracks. TU-772 laminates also exhibit superior chemical resistance, thermal stability for lead free soldering assembly and CAF resistance.

PERFORMANCE AND PROCESSING ADVANTAGES

- Lead Free compatible
- Anti-CAF capability
- Superior dimensional stability, thickness uniformity and flatness
- Good drilling processability
- Excellent through-hole and soldering reliability
- High interlayer bonding strength with optimum resin flow
- Superior dielectric thickness control
- Wide processing window for maximum lamination performance
- Excellent thermal and chemical resistance
- Compatible with AOI process with UV-block property
- Higher Tg characteristics
- Reduced Z-axis thermal expansion

GENERAL INFORMATION

- **Industry Approvals**

UL Designation – ANSI Grade	FR-4
UL File Number	E189572
Flammability Rating	94V-0
Maximum Operating Temperature	130°C
- **Standard Availability**

Thickness: 0.002"[0.05mm] to 0.062"[1.58mm], available in sheet or panel form
Copper Foil Cladding: 1/3 to 5oz (HTE) for built-up; 1/3 to 3oz (HTE) for double sides and H to 2oz (MLS)
Prepregs: Available in roll or panel form
Glass Styles: 106, 1080, 2113, 2116, 1506 and 7628, etc.

TYPICAL PROPERTIES FOR TU-772 LAMINATES

PROPERTY	IPC-4101	SPEC	TYPICAL VALUES
Thermal			
Tg (DMA)			185 °C
Tg (DSC)			175 °C
Tg (TMA)	E-2/105+des	N/A	165 °C
Td (TGA)			330 °C
CTE x-axis	Ambient to Tg	-	12~16 ppm/°C
CTE y-axis	Ambient to Tg	-	12~16 ppm/°C
CTE z-axis	25 to 260°C	-	3.5 %
Thermal Stress,			
Solder Float , 288°C	A	> 10	> 60 sec
T-260			> 30 min
T-288	E-2/105+des	N/A	> 5 min
Flammability	E-24/125+des	94V-0	94V-0
Electrical			
Permittivity (RC 50%)			
1MHz (LCR meter)	C-24/23/50	< 5.4	4.5
1GHz (HP4291B)	C-24/23/50	-	4.2
Loss Tangent (RC 50%)			
1MHz (LCR meter)	C-24/23/50	< 0.035	0.016
1GHz (HP4291B)	C-24/23/50	-	0.014
Volume Resistivity	C-96/35/90	> 10 ⁶	> 10 ¹⁰ MΩ·cm
Surface Resistivity	C-96/35/90	> 10 ⁴	> 10 ⁸ MΩ
Mechanical			
Young's Modulus			
Warp Direction		G Pa	25
Fill Direction	-		22
Flexural Strength			
Lengthwise	A	> 60,000	> 70,000 psi
Crosswise	A	> 50,000	> 55,000 psi
Peel Strength,			
1.0 oz. Cu foil	A	> 6	8~11 lb/inch
Water Absorption	E-1/105+des+D-24/23	< 0.8	0.18 %

NOTE:

1. Property values are for information purposes only and are not guaranteed.

2. Any sales of these products will be governed by the terms and conditions of the agreement under which they are sold.