

## Mid Tg epoxy multilayer laminate and prepreg

# TU-622-5, TU-62P-5

TU-622-5/ TU-62P-5 laminate/ prepreg are made of high quality woven E-glass coated with the epoxy resin system, which provides the laminates with UV-block characteristic, and compatibility with automated optical inspection (AOI) process. TU-62P-5 is designed for use with TU-622-5 following standard processing conditions to make FR-4 thin-core multilayer printed circuit boards.

## PERFORMANCE AND PROCESSING ADVANTAGES

- Cost effective way to meet the higher Tg requirement
- Use friendly FR-4 processing conditions such as oxide, press, drilling and desmear
- Chemical and thermal resistance property
- Superior dimensional stability, thickness uniformity and flatness
- Fluorescence for AOI
- Optical characteristics provide UV-block property
- High interlayer bonding strength with optimum resin flow
- Superior dielectric thickness control
- Wide processing window for maximum lamination performance

## GENERAL INFORMATION

- **Industry Approvals**

UL Designation - ANSI Grade	FR-4
UL File Number	E1 89572
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 12oz (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-622-5 LAMINATES

PROPERTY	IPC-4101	SPEC	TYPICAL VALUES
<b>Thermal</b>			
Tg (DMA)			155 °C
Tg (DSC)			145 °C
Tg (TMA)	E-2/105+des	N/A	135 °C
Td (TGA)			310 °C
CTE x-axis	Ambient to Tg	-	14~18 ppm/°C
CTE y-axis	Ambient to Tg	-	14~18 ppm/°C
CTE z-axis	25 to 260°C	-	4.1 %
Thermal Stress, Solder Float , 288°C	A	> 10	> 60 sec
T-260	E-2/105+des	N/A	> 20 min
Flammability	E-24/125+des	94V-0	94V-0
<b>Electrical</b>			
Permittivity (RC 50%)	(IPC-TM-650 2.5.5.9)		
1 MHz	C-24/23/50	< 5.4	4.5
1 GHz	C-24/23/50	-	4.2
Loss Tangent (RC 50%)	(IPC-TM-650 2.5.5.9)		
1 MHz	C-24/23/50	< 0.035	0.016
1 GHz	C-24/23/50	-	0.015
Volume Resistivity	C-96/35/90	> 10 <sup>6</sup>	> 10 <sup>10</sup> MΩ·cm
Surface Resistivity	C-96/35/90	> 10 <sup>4</sup>	> 10 <sup>8</sup> MΩ
<b>Physical</b>			
Peel Strength, 1.0 oz. Cu foil	A	> 6	9~12 lb/inch
<b>Flexural Strength</b>			
Lengthwise	A	> 60,000	> 80,000 psi
Crosswise	A	> 50,000	> 70,000 psi
<b>Bow and Twist</b>			
0.020"~0.031"		Max 1.5	< 0.8 %
0.032"~0.065":		Max 1.0	< 0.8 %
>0.066"		Max 1.0	< 0.8 %
Dimensional Stability	E-4/105+E-2/150	< 0.03	< 0.03 %
Water Absorption	E-1/105+des+D-24/23	< 0.8	0.18 %

## NOTE:

- Property values are for information purposes only and are not guaranteed.
- Any sale of these products will be governed by the terms and conditions of the agreement under which they are sold.