



# TU-84P NF

Prepreg: TU-84P NF

TU-84P NF no-flow, halogen-free prepreg consist of optimal resin flow specially formulated for unique purpose bonding application. The special design TU-84P NF no-flow, halogen-free prepreg is appropriate for applying in multiple layer rigid-flex bonding, heat sink bonding and die cavity board application. TU-84P NF no-flow prepreg also provide excellent bonding performance with a variety of polyimide materials and with excellent high Tg, low CTE thermal performance for sequential lamination and lead-free processes.

## Applications

- Rigid-flex
- Heat sink, Cavity

## Performance and Processing Advantages

- Stable resin flow
- Excellent bonding strength with polyimide materials
- Low resin powder dust generation
- Higher Tg and halogen free characteristics
- Lead Free process compatible
- Reduced z-axis thermal expansion
- Superior dimensional stability, thickness uniformity and flatness
- Good drilling & lamination processes friendly
- Superior dielectric thickness control

## Industry Approvals

- IPC-4101E Type Designation : /127, /128, /130
- IPC-4101E/130 Validation Services QPL Certified
- UL Designation – ANSI Grade: FR-4.1
- UL File Number: E189572
- Flammability Rating: 94V-0
- Maximum Operating Temperature: 130°C

## Standard Availability

- Prepregs: Available in roll or panel form
- Glass Styles: 106 and 1080, other prepreg grades are available upon request





Typical Properties for TU-84P NF Prepreg			
	Typical Values	Conditioning	IPC-4101 /130
<b>Thermal</b>			
Tg (DMA)	190 °C		
Tg (TMA)	165 °C	E-2/105	N/A
Td (TGA)	390 °C		
CTE x-axis	11~15 ppm/°C		N/A
CTE y-axis	11~15 ppm/°C	E-2/105	N/A
CTE z-axis	2.1 %		< 3.0%
Thermal Stress, Solder Float, 288°C	> 60 sec	A	> 10 sec
T-260	> 60 min		> 30 min
T-288	> 60 min	E-2/105	> 15 min
T-300	> 30 min		> 2 min
Flammability	94V-0	E-24/125	94V-0
<b>Electrical</b>			
Permittivity (RC50%)			
1GHz (HP4291B)	4.4		
5GHz (SPC method)	4.5	E-2/105	N/A
10GHz (SPC method)	4.4		
Loss Tangent (RC50%)			
1GHz (HP4291B)	0.010		
5GHz (SPC method)	0.014	E-2/105	N/A
10GHz (SPC method)	0.015		
Volume Resistivity	> 10 <sup>10</sup> MΩ·cm	C-96/35/90	> 10 <sup>6</sup> MΩ·cm
Surface Resistivity	> 10 <sup>8</sup> MΩ	C-96/35/90	> 10 <sup>4</sup> MΩ
<b>Mechanical</b>			
Young's Modulus			
Warp Direction	26 GPa	A	N/A
Fill Direction	24 GPa		
Flexural Strength			
Lengthwise	> 75,000 psi	A	> 60,000 psi
Crosswise	> 65,000 psi		> 50,000 psi
Peel Strength, 1.0 oz RTF Cu foil	9~12 lb/in	A	> 4 lb/in
Dimensional Stability	< 0.03%	E-4/105+E-2/150	< 0.03 %
Water Absorption	0.15 %	E-1/105+D-24/23	< 0.8 %

NOTE:

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

