



# TU-668

Core: TU-668

Prepreg: TU-668P

TU-668/ TU-668P laminate/ prepreg are made of high quality woven E-glass coated with the epoxy resin system, which provides the laminates UV-block characteristic, and compatibility with automated optical inspection (AOI) process. These products are suitable for boards that need to survive severe thermal cycles, or to experience excessive assembly work. TU-668 laminates exhibit excellent CTE, superior chemical resistance, and thermal stability for lead free soldering assembly with general CAF resistance.

## Applications

- Automotive
- Consumer Electronics

## Performance and Processing Advantages

- Lead Free process compatible
- Excellent coefficient of thermal expansion
- Anti-CAF property
- Use friendly FR-4 processing conditions such as oxide, press, drilling and desmear
- Superior chemical and thermal resistance
- Fluorescence for AOI
- Optical characteristics provide UV-block property
- High interlayer bonding strength with optimum resin flow
- Low moisture absorption

## Industry Approvals

- IPC-4101 Type Designation : /21, /98, /99, /101
- UL Designation – ANSI Grade: FR-4.0
- 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 6 oz (HTE) for built-up; 1/3 to 3 oz (HTE) for double sides and H to 2 oz (MLS)
- Prepregs: Available in roll or panel form
- Glass Styles: 106, 1080, 2113, 2116, 1506 and 7628 etc.





Typical Properties for TU-668 Laminate			
	Typical Values	Test Condition	SPEC
<b>Thermal</b>			
Tg (DMA) Tg (DSC) Tg (TMA) Td (TGA)	160 °C 150 °C 140 °C 340 °C	E-2/105+des	N/A
CTE x-axis CTE y-axis CTE z-axis	11~15 ppm/°C 11~15 ppm/°C 3.2 %	Ambient to Tg Ambient to Tg 50 to 260°C	N/A N/A < 3.5%
Thermal Stress, Solder Float, 288°C	> 60 sec	A	> 10 sec
T-260 T-288	> 60 min > 10 min	E-2/105+des	> 30 min > 5 min
Flammability	94V-0	E-24/125+des	94V-0
<b>Electrical</b>			
Permittivity (RC50%) 1 MHz (LCR meter) 1 GHz (SPC method/HP4291B)	4.7 4.4/4.3	C-24/23/50	< 5.4 N/A
Loss Tangent (RC50%) 1 MHz (LCR meter) 1 GHz (SPC method/HP4291B)	0.016 0.018/0.014	C-24/23/50	< 0.035 N/A
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
Electric Strength	> 40 KV/mm		> 30 KV/mm
Dielectric Breakdown Voltage	> 50 KV		> 40 KV
<b>Mechanical</b>			
Flexural Strength Lengthwise Crosswise	> 75,000 psi > 65,000 psi	A A	> 60,000 psi > 50,000 psi
Peel Strength, 1.0 oz. Cu foil	8~11 lb/in	A	> 4 lb/in
Bow and Twist 0.020"~0.031" 0.032"~0.065" >0.066"	< 0.8% < 0.8% < 0.8%	A	Max 1.5 Max 1.0 Max 1.0
Dimensional Stability	< 0.03%	E-4/105+E-2/150	< 0.03 %
Water Absorption	0.13 %	E-1/105+des+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.

