

Low Dk/Df specialty material**High thermal reliability laminate and prepreg**

TU-872 LK, TU-87P LK

TU-872 LK is based on a high performance modified epoxy FR-4 resin. This material is reinforced with regular woven E-glass and designed with low dielectric constant and low dissipation factor for high speed low loss and high frequency multilayer circuit board application. TU-872 LK material is suitable for environmental protection lead free process and also compatible with FR-4 processes. TU-872 LK laminates also exhibit excellent CTE, superior chemical resistance, thermal stability, CAF resistance, and toughness enhanced by an allyl network forming compound.

PERFORMANCE AND PROCESSING ADVANTAGES

- Excellent electrical properties
- Dielectric constant less than 4.0
- Dissipation factor less than 0.010
- Stable and flat Dk/Df performance
- Compatible with most FR-4 processes
- Lead Free process compatible
- Anti-CAF capability
- Improved Z-axis thermal expansion
- Superior dimensional stability, thickness uniformity and flatness
- Excellent through-hole and soldering reliability
- The cost of ownership against performance is favorable

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 5 oz for built-up & double sides
Prepregs: Available in roll or panel form
Glass Styles: 106, 1080, 2113, 2116 and other prepreg grades are available upon request

TYPICAL PROPERTIES FOR TU-872 LK LAMINATES

PROPERTY	IPC-4101	SPEC	TYPICAL VALUES
Thermal			
Tg (DMA)			220 °C
Tg (DSC)			200 °C
Tg (TMA)	E-2/105+des	N/A	190 °C
Td (TGA)			340 °C
CTE x-axis	Ambient to Tg	-	12~15 ppm/°C
CTE y-axis	Ambient to Tg	-	12~15 ppm/°C
CTE z-axis	50 to 260°C	-	2.5 %
Thermal Stress,			
Solder Float , 288°C	A	> 10	> 60 sec
T-260			60 min
T-288	E-2/105+des	N/A	20 min
Flammability	E-24/125+des	94V-0	94V-0
Electrical			
Permittivity (RC50%)			
1GHz (SPC method)			4.0
5GHz (SPC method)	C-24/23/50	< 5.4	3.8
10GHz (SPC method)			3.8
Loss Tangent (RC50%)			
1GHz (SPC method)			0.008
5GHz (SPC method)	C-24/23/50	< 0.035	0.008
10GHz (SPC method)			0.009
Volume Resistivity	C-96/35/90	> 10 ⁶	> 10 ¹⁰ MΩ·cm
Surface Resistivity	C-96/35/90	> 10 ⁴	> 10 ⁸ MΩ
Electric Strength		>30 kV/mm	> 40 kV/mm
Dielectric Breakdown Voltage		>40 kV	> 50 kV
Mechanical			
Young's Modulus			
Warp Direction			26
Fill Direction	-	G Pa	24
Flexural Strength			
Lengthwise	A	> 60,000	> 60,000 psi
Crosswise	A	> 50,000	> 50,000 psi
Peel Strength, 1.0 oz. Cu foil	A	> 4	5~7 lb/inch
Water Absorption	E-1/105+des+D-24/23	< 0.8	0.15 %

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.
- This product is based on a patent pending technology.