



Taiwan Union Technology Corporation

TUC Taiwan (Headquarters) ☎ +886 3 555 1105
TUC Changshu, China ☎ +86 512 5230 1688
TUC Zhongshan, China ☎ +86 760 2813 6688
www.tuc.com.tw

Green material Lead free processing compatible Metal Copper Clad Laminate

TU-322

TU-322, MCCL, offer you an effective solution to the thermal problem in electronic field. With high thermal conductive insulator on Aluminum or Copper, it rapidly transfers the heating from component side to the back of the substrate. There are three layers material included, copper foil, thermal conductive film, and base metal.

Applications of TU-322 cover a broad spectrum of product markets, such as High-power LED lighting, Back-light Unit, Power module, and chip packaging.

PERFORMANCE AND PROCESSING ADVANTAGES

- High thermal Dissipation and Durability
- Excellent circuit integration
- High performance in reliability
- Good mechanical strength
- PCB process Compatible
- Halogen free and RoHS compliant

GENERAL INFORMATION

- Industry Approvals

UL Designation – ANSI Grade	No ANSI
UL File Number	E189572
Flammability Rating	94V-0
- Standard Availability
 - Aluminum Base Thickness: min 0.5mm
 - Copper Foil Cladding: 1/2 to 2oz
 - Film type without Glass Fiber



TYPICAL PROPERTIES FOR TU-322 LAMINATES

PROPERTY	TEST METHOD	SPECIMEN	TYPICAL VALUES
Thickness	IPC 4101	PP	80 μm
Thermal Conductivity	ASTM E1461	PP	1.7~2.3 W/MK
Tg (DMA)	IPC 4101 E-2/105+des	PP	125 °C
CTE (<Tg/ >Tg)	IPC 4101 ,TMA	PP	34/123 ppm/ppm
Thermal Stress Solder Float , 288°C Solder Float , 300°C	IPC-TM-650 2.3.14.1 (Aluminum side float)	Al+PP+Cu	> 20 min > 5 min
Thermal Stress Solder Dip , 288°C Lead Free Reflow X 2 cycles + Solder Dip X 3 cycles	IPC-TM-650 2.4.13.1	Al+PP+Cu	6 cycles Pass
Bending Test	360 ° Bend R = 5mm	Al+PP	Pass
PCT Test Solder Dip X 3 cycles Water Absorption Rate	121°C/2.0atm/100RH% 24h 121°C/2.0atm/100RH% 2h 121°C/2.0atm/100RH% 2h	Al+PP+Cu Al+PP+Cu PP	Pass Pass < 0.5 %
Flammability	TUC UL File E189572	PP PP+Cu Al+PP+Cu	94V-0
Permittivity (1MHz)	Static capacitor method	PP	5.5~6.5
Loss Tangent (1MHz)	Static capacitor method	PP	0.029
Volume Resistivity	JIS K6911 (Test condition A /35°C 90RH% 96h)	PP	8.7E+18/ 4.3E+18 Ω·cm
Surface Resistivity	JIS K6911 (Test condition A /35°C 90RH% 96h)	PP	5.6E+17/ 3.3E+17 Ω
Dielectric Breakdown Strength	ASTM D149 (Test condition A)	PP	6 KV (AC)
High Pot Withstand	IPC-TM-650 2.5.7 2" Pattern, 60Sec 100 VAC/sec increased Max Lmt.:3mA	Al+PP+Cu	4.5 KV (AC)
Young's Modulus	Tensile test	PP	5.1 Gpa
Peel Strength (1.0 oz. Cu foil) After Solder Float (288°C/10 sec) After Solder Float (260°C/30 min)	IPC-TM-650 2.4.8	Al+PP+Cu	9.0 lb/inch 9.0 lb/inch 8.0 lb/inch

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.