KL LAMINATES S.R.L.

Technical data sheet

PROPERTIES
THERMAL E
The values are measured on standard Thermal E, with copper surface of 35µ, dielectric of 0.10mm, aluminium of 1.50 mm.
Produced with epoxy multifunctional and dysfunctional epoxy resin

DILECTRIC LAYERS CHARACTERISTICS

DIELECTRIC CONSTANT 1 MHz	4.7
DISSIPATION FACTOR	0.018.
TMA-T260 Min	13
Tma-t300 Min	0
TDA – TD 5% WT loss °C	315
HPCT (2 h) + 20 sec dip.288°C	100% pass
Average Z CTE 40-200°C ppm/K	160
Dielectric thickness available = 0.10mm – 0.20 mm	

COMPOSITE LAMINATE
DENOMINATION : THERMAL E

THERMAL E is a composite laminate with copper, prepreg, epoxy or modified epoxy resin and aluminium Alloy

APPLICATIONS	*For all the applications where the thermal dissipation of the heat is needed, with or without SMD components*
STANDARD CONSTRUCTION	ALUMINIUM thickness in mm : 0.8 – 1.0 – 1.5 – 2.0 – 3.0
INSULATING PREPREG	0.10 mm – 0.20 mm
STANDARD SIZES	*400mm X 500mm - 460mm X 610mm* 230mm x 380mm
COPPER µ	18µ - 35µ - 70µ - 105µ - 140µ - 400µ
THERMAL E PROTECTION PURPOSES	Alu side protection with dry film Alu side protection with dry film and Mylar Alu and copper side protection with dry film

Rote Optionen sind bei Multi PCB verfügbar

1.5mm thickness > 35µm copper
2.0mm thickness > 140µm copper

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	TEST METHOD	*TEST CONDITIONS*	*UNITS*	*TYPICAL VALUE*
THERMAL STRESS	IPC 2.4.1.3.1.	288°C (550,4°F)	min.	**3**
COPPER PEEL	IPC 2.4.8.2.	20s/288°C	N/cm²	16
DIEL BREAKDOWN	IPC 650	A		6
DIEL BREAKDOWN AFTER 500h at 500°C	IPC 2.5.6.650	E 500/150	KW	4
DIEL BREAKDOWN AFTER WATER IMMERSION	IPC 2.5.6.650	D 48/50	KW	3
THERMAL CONDUCTIVITY	ASTM-D5470	60°C	W/m/k	4/6
SURFACE RESISTANCE	IPC 2.5.1.7.1	C 96/35/90	MΩ	1.10X10*6
RELATIVE PERMITTIVITY AU MHz	IPC 2.5.5.3		1 MHz	0.018
DISSIPATION FACTOR	IPC 2.5.5.3		1 MHz	4.7CM °K
COMPARATIVE TRACKING INDEX CTI				200
GLASS TRANSICTION . TEMPERATURE OF DIELECTRIC LAYER	IPC-TM150	A	°C	130
FLAMMABILITY UL 94				V0
MOISTURE ABSORBTION	IPC 2.6.2.1	D 24/23	%	Max 0.15
THERMAL TEST CONDUCTIVITY	EVALUATED ON INSULATING THICKNESS OF 0.1mm			

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