



LAMPLEX / FR-4

LAMPLEX / FR-4 is a copper clad laminate for P.C.B. production, consisting of epoxy resin, glass fibre fabric and copper foil.

This material is in accordance to specification PND 39-683-92, NEMA LI-1: FR 4 and MIL-P-13949 G: GFN.

available format: 920 x 1220 mm

available copper cladding: 18, 35, 70 possible 105 µm.

available thickness: 0,2 to 3,2 mm; standard thickness: 0,8 - 1,0 - 1,5 - 1,6 - 2,0 mm

	Properties		Unit	Method of Testing IPC-TM-650	Test Condition	Values acc. to MIL-P-13949 G	FR4 φ values
electrical properties	Volume resistivity after moisture resistance	min.	MΩcm	2.5.17.1.	F	10 ⁶	10 ⁸
	Surface resistivity after moisture resistance	min	MΩ	2.5.17.1.	F	10 ⁴	10 ⁷
	Dielectric breakdown	min.	kV	2.5.6.	D48/50+D0.5/23	40	>45
	Permittivity at 1 MHz	max.		2.5.5.2.	C40/23/50	5.4	4.3
	Permittivity at 10 MHz	max.		2.5.5.2.	C40/23/50		4.3
	Loss tangent at 1 MHz	max.		2.5.5.2.	C40/23/50	0.03	0.023
	Cross Tracking Index CTI	max.					175
	Arc resistance	min.	s	2.5.1.	D48/50+D0.5/23	60	>120
non-electrical properties	Peel strength for copper foil 18 µm - after thermal stress - at elevated temp - after exposure to processing solution	min.	N/mm	2.4.8.	A 125 °C A	1.05 0.7 0.8	1.5 0.9 1
	Peel strength for copper foil 35 µm - after thermal stress - at elevated temp - after exposure to processing solution	min.	N/mm	2.4.8.	A 125 °C A	1.4 0.9 1.3	1.9 1.2 1.5
	Water absorption (thickness 1,5 mm)	max.	%	2.6.2.1.	E1/105+D24/23	0.35	0.1
	Solderbath resistance at 288 °C	min.	s	4.8.3.6.3.C (MIL-P-13949 G)	A	120	>120
	Pressure cooker test			2.6.16.	A	-	without measing and delamination
Flammability		class	UL 94	A	V0	V0	

UL-Approvals Fil-No. E143003

The statements of this technical information are the results of careful investigations and analyses. In view of various production processes of the customers the datas are only guidelines without obligation or warranty.

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