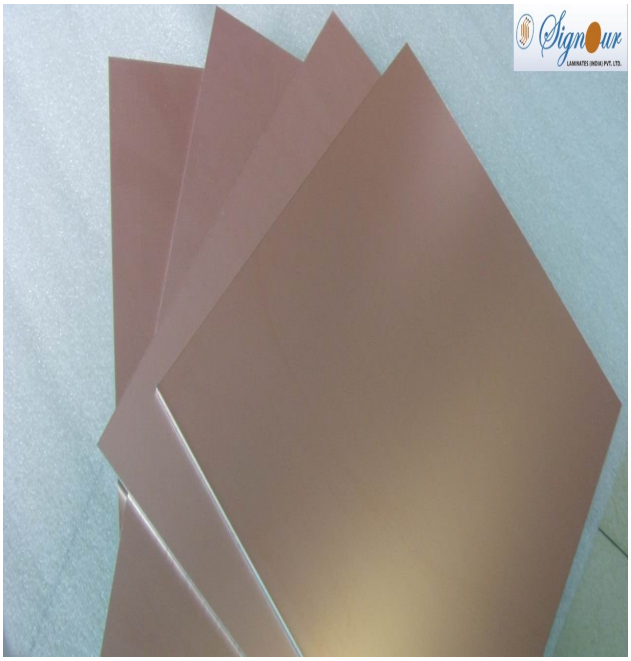
FR-4 Grade of Copper Clad Laminate-IPC/NEMA standards



FR4 grade copper clad laminates ranging from 0.2mm to 3.2mm with copper thickness of 18/35/70 micron both single & double side. Copper clad laminates are used for making PCB (Printed circuit Board) which has wide range of application in computers. Communication equipment, Automatic control devices, Electronic apparatus, Military instruments, Aviation and Space.

General Specification

Thickness tolerance and standard Size for FR4 laminate

Thickness and tolerance		**Size and tolerance**		**Copper**
Nominal Thickness (mm)	Tolerance (mm)	Standard Size	Tolerance	
0.165 - 0.299	± 0.038	48" x 42" 1220mm x 1067mm	+ 3 mm - 0 mm	18 µ (1/2 OZ) 35 µ (1 OZ) 70 µ (2 OZ)
0.300 -0.499	± 0.05			
0.500 - 0.785	± 0.064			
0.786 - 1.039	± 0.10			
1.040 - 1.674	± 0.13			
1.675 - 2.564	± 0.18			
2.565 - 3.579	± 0.23			

Note:
This dimension are general guideline only

GLASS EPOXY COPPER CLAD LAMINATE (FR4)

IDENTIFICATION	'SL' (red)
COPPER FOIL THICKNESS	18, 35 & 70 micron
INSPECTION IN ACCORDANCE WITH :	IPC
GLASS TRANSITION TEMPERATURE (Tg)	>130º C.

EXCELLENT MECHANICAL AND ELECTRICAL PROPERTY

GOOD DIMENSIONAL STABILITY AND THERMAL RESISTANCE

SR.NO.	PROPERTY	CONDITIONING	UNIT	SPECIFICATION IPC 4101	TYPICAL VALUE
	CLAD PROPERTY				
1	THERMAL STRESS (ETCHED & UNETCHED)	10S @288 DEG.C	SEC.	> 10	> 40
2 (a)	PEEL STRENGTH (FOR 18 MICRON)				
	*AS RECEIVED	A	lbs/inch	> 6	8
	*AFTER THERMAL STRESS	10S @288 DEG.C	lbs/inch	> 6	8
	*AT ELEVATED TEMP.	E-1/125 DEG. C	lbs/inch	> 4	6
2 (b)	PEEL STRENGTH (FOR 35 MICRON)				
	*AS RECEIVED	A	lbs/inch	> 8	11
	*AFTER THERMAL STRESS	10S @288 DEG.C	lbs/inch	> 8	11
	*AT ELEVATED TEMP.	E-1/125 DEG. C	lbs/inch	> 5	7
2 (c)	PEEL STRENGTH (FOR 70 MICRON)				
	*AS RECEIVED	A	lbs/inch	> 10	14
	*AFTER THERMAL STRESS	10S @288 DEG.C	lbs/inch	> 10	14'
	*AT ELEVATED TEMP.	E-1/125 DEG. C	lbs/inch	> 6	9
	ELECTRICAL PROPERTY				
3	VOLUME RESISTIVITY *AT ELEVATED TEMP.	E-24/125	Mohm cm	> 10^3	2x 10^6
	*AFT. MOISTURE RESISTANCE	C-96/35/90	Mohm cm	> 10^6	3x 10^8
4	SURFACE RESISTANCE *AT ELEVATED TEMP.	E-24/125	Mohm	> 10^3	2x 10^6
	*AFT. MOISTURE RESISTANCE	C-96/35/90	Mohm	> 10^4	2 x 10^7
5	DI ELECTRIC BREAK DOWN	D-48/50 +D-0.5/23	kV	> 40	> 40
6	DIELECTRIC CONSTANT *AT 1 Mhz	C -40/23/50	-	< 5.4	4.5
7	DISSIPATION FACTOR	C -40/23/50	-	< 0.035	0.018

	MECHANICAL PROPERTY				
8	FLEXURAL STRENGTH *LENGTHWISE *CROSS WISE	A A	psi psi	> 60,000 > 50,000	73000 64000
	GENERAL PROPERTY				
9	MOISTURE ABSORPTION	s E-1/105 +D-24/23	%	< 0.25	0.12
10	BOW & TWIST	A	%	< 1	0.4
11	FLAMMABILITY *SINGLE * TOTAL	A (UL-94) V-O A (UL-94) V-O	SEC. SEC.	< 10 < 50	4 20
12	PRESSURE VESSEL TEST	25 MIN./15 PSI 15 SEC./288 C	-	NO MEASLING & NO BLISTER	NO MEASLING & NO BLISTER
13	SOLVENT RESISTANCE WITH T.C.E.	A		NO MEASLING & NO BLISTER	NO MEASLING & NO BLISTER

INSPECTION : Visual Inspection - 100 % of the Cut Sheets