



NAN YA PLASTICS CORPORATION

ELECTRONIC MATERIALS DIVISION.

COPPER CLAD LAMINATE DEPARTMENT

Glass cloth base epoxy resin flame retardant copper clad laminate

NO. 201. TUNG HWA N. ROAD,
TAIPEI, TAIWAN.

UV BLOCK FR-4-86

■ FEATURES

- High luminance of epoxy contrast with copper for laser type A.O.I.
- UV solder mask may be applied simultaneously to increase yields.
- High performance epoxy blended to achieve higher heat resistance than that of FR-4-86
- Thickness 0.8mm capability.

■ PERFORMANCE LIST

Characteristics	Unit	Conditioning	Typical Values	SPEC	Test Method	
Volume resistivity	MΩ-cm	C-96/35/90	$5 \times 10^8 \sim 5 \times 10^9$	$10^6 \uparrow$	2.5.17	
Surface resistivity	MΩ	C-96/35/90	$5 \times 10^6 \sim 5 \times 10^7$	$10^4 \uparrow$	2.5.17	
Permittivity 1MHZ	-	C-24/23/50	4.5-4.7	5.4 ↓	2.5.5.9	
Permittivity 1GHZ	-	C-24/23/50	4.0-4.2	-	2.5.5.9	
Loss Tangent 1MHZ	-	C-24/23/50	0.015-0.020	0.035 ↓	2.5.5.9	
Loss Tangent 1GHZ	-	C-24/23/50	0.012-0.014	-	2.5.5.9	
Arc resistance	SEC	D-48/50+D-0.5/23	120 ↑	60 ↑	2.5.1	
Dielectric breakdown	KV	D-48/50	60 ↑	40 ↑	2.5.6	
Moisture absorption	%	D-24/23	0.05-0.10	0.35 ↓	2.6.2.1	
Flammability	-	C-48/23/50	94V0	94V0	UL94	
Peel strength 1 oz	lb/in	288 x10" solder floating	10-14	6 ↑	2.4.8	
Thermal stress	SEC	288 solder dipping	200 ↑	10 ↑	2.4.13.1	
Pressure cooker (2 atm 120)	1/2 hr	SEC	288 dipping	150↑	N/A	-
	1 hr	SEC	288 dipping	150↑	N/A	-
	2 hr	SEC	288 dipping	150	N/A	-
Flexural strength	LW	N/mm ²	A	480-550	415 ↑	2.4.4
	CW	N/mm ²	A	415-480	345 ↑	2.4.4
Dimensional stability X-Y axis	%	E-0.5/170	0.005-0.030	0.050 ↓	2.4.39	
Coefficient of thermal expansion						
Z-axis before Tg	ppm/	TMA	50-70	N/A	2.4.24	
Z-axis after Tg	ppm/	TMA	250-350			
Glass transition temp		DSC	140 ± 5	N/A	2.4.25	

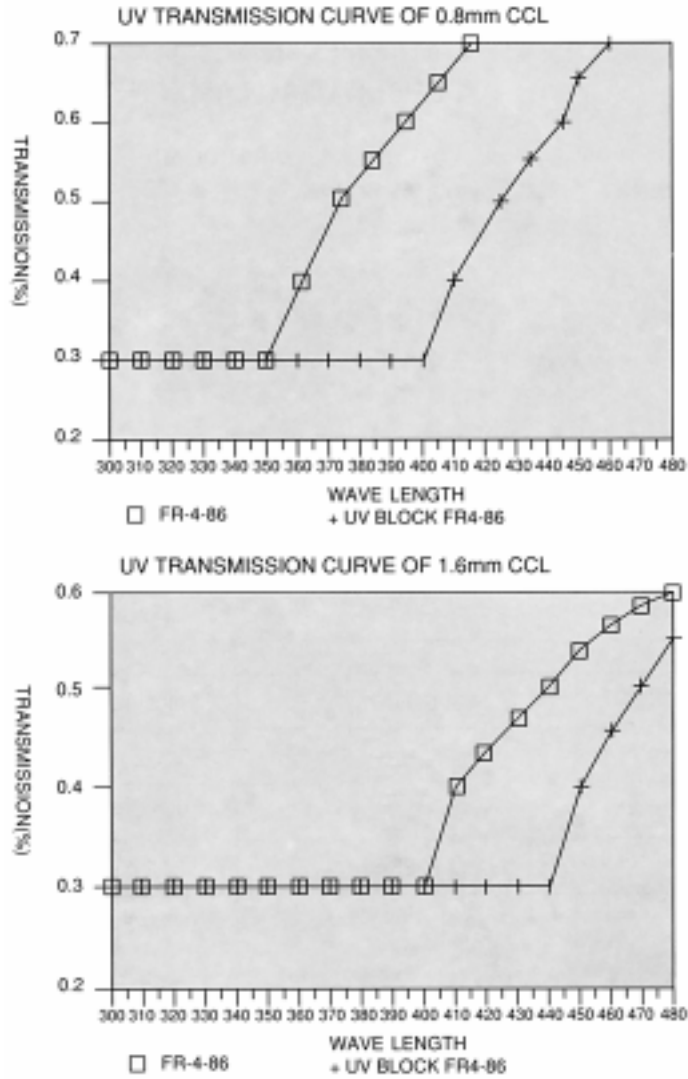
NOTE:

The average value in the table refers to samples of .062" 1/1.

Test method per IPC-TM-650

Data shown are nominal values for reference only.

■ Low UV Transmission



■ High luminance of epoxy contrast with copper

FR-4-86 1.6 mm

Orbotech's

