NAN YA PLASTICS CORPORATION
ELECTRONIC MATERIALS DIVISION.
COPPER CLAD LAMINATE DEPARTMENT
NO. 201. TUNG HWA N. ROAD, TAIPEI, TAIWAN.

Issued: 2008/03/01
New: 2014/04/30

Glass cloth base epoxy resin
flame retardant copper clad laminate

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.

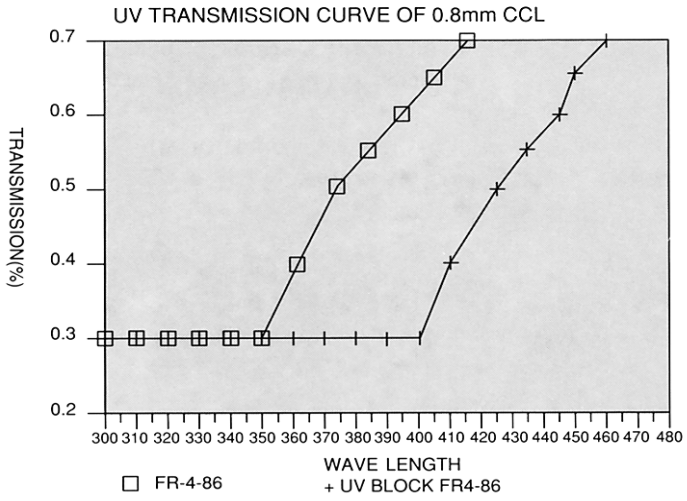
■ PERFORMANCE LIST

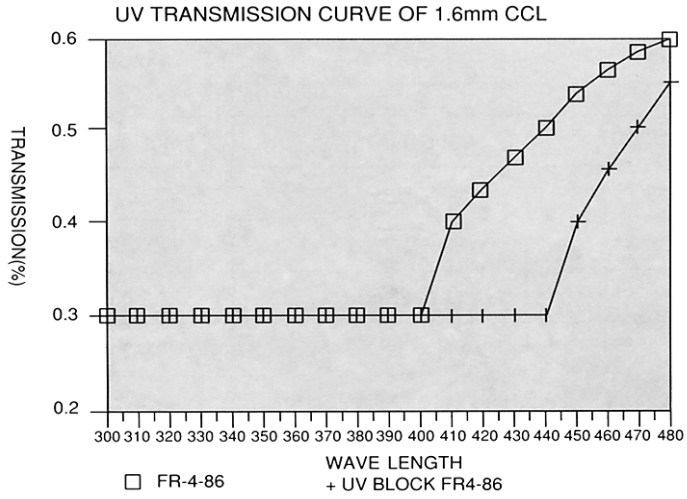
Characteristics		Unit	Conditioning	Typical Values	SPEC	Test Method
Volume resistivity		MΩ-cm	C-96/35/90	5 x10^8 ~ 5x10^9	10^6 ↑	2.5.17
Surface resistivity		MΩ	C-96/35/90	5 x10^6 ~ 5x10^7	10^4 ↑	2.5.17
Permittivity 1MHZ		-	C-24/23/50	4.5-4.7	5.4 ↓	2.5.5.9
Permittivity 1GHZ		-	C-24/23/50	4.0-4.2	-	2.5.5.9
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 Z-axis after Tg		 ppm/℃ ppm/℃	 TMA TMA	 50-70 250-350	N/A	2.4.24
Glass transition temp		℃	DSC	135 ± 5	N/A	2.4.25
Decomposition Temperature (Td 5% W/L)		℃	TGA	310	N/A	2.4.24.6

Data shown are nominal values for reference only.

NOTE:
The average value in the table refers to samples of .062" 1/1.
Test method per IPC-TM-650

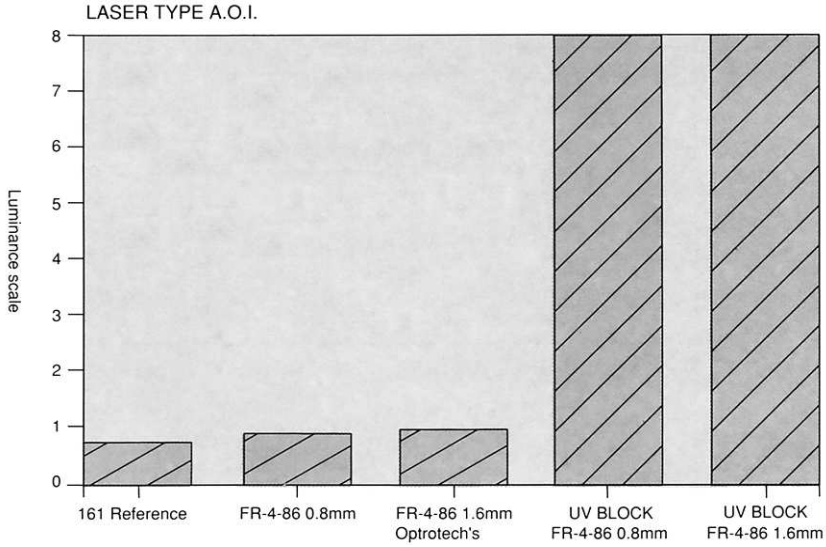
■ Low UV Transmission





■ High luminance of epoxy contrast with copper

FR-4-86 1.6 mm
Orbotech's



■ CERTIFICATION UL

・UL File No. : E98983 ・ANSI TYPE:FR-4.0