NAN YA PLASTICS CORPORATION
ELECTRONIC MATERIALS DIVISION.
COPPER CLAD LAMINATE DEPARTMENT
NO. 390 SEC 6 NANJING E RD, NEIHU DISTRICT, TAIPEI, TAIWAN

Issued: 2010/07/14
New: 2025/02/04

Glass cloth and glass mat base epoxy resin
Flame retardant copper clad laminate

CEM-3-09HT

■ FEATURES

- Excellent in thermal conductivity and anti-tracking property
- The CTE of X and Y-axis before Tg under 20ppm
- Electrical property as well as chemical resistance are the same as those FR-4
- Through-hole reliability and warpage have been improved in order to replace some portions of the FR-4 market.
- IPC-4101E L12

■ PERFORMANCE LIST

Characteristics		Unit	Condition	Typical Values	SPEC	Test Method
Volume resistivity		MΩ-cm	C-96/35/90	5.0×10^8	10^6 ↑	2.5.17
Surface resistivity		MΩ	C-96/35/90	5.0×10^7	10^4 ↑	2.5.17
Permittivity 1MHz		-	C-24/23/50	5.1	5.4 ↓	2.5.5.2
Loss tangent 1MHz		-	C-24/23l/50	0.020	0.035 ↓	2.5.5.2
Dielectric breakdown		KV	D-48/50	60 ↑	40 ↑	2.5.6
Moisture absorption		%	D-24/23	0.09	0.50 ↓	2.6.2.1
Flammability		-	C-48/23/50	V-0	V-0	UL94
Peel strength 1oz (≥0.5mm)		lb/in	288℃ x 10" solder floating	8-11	6 ↑	2.4.8
Thermal stress		SEC	260℃ dipping	200 ↑	40 ↑	2.4.13.1
Flexural strength	LW	N/mm^2	A	300-400	276 ↑	2.4.4
	CW	N/mm^2	A	200-300	186 ↑	2.4.4
Coefficient of thermal expansion Z-axis before Tg Z-axis after Tg X-axis before Tg Y-axis before Tg		 ppm/℃ ppm/℃ ppm/℃ ppm/℃	 TMA TMA TMA TMA	 30-50 160-260 16-18 17-19	N/A	2.4.24
Glass transition temperature		℃	DSC	135 ± 5	N/A	2.4.25
Thermal Conductivity		W/m.K	A	1.0	N/A	ASTM D-5470
			A	2.0	N/A	ASTM E-1461
Punchability		Kg/cm^2	Shear strength ASTM D-732	1150	N/A	ASTM D-732
Comparative Tracking Index		V	Etched	600 ↑	N/A	ASTM-D3638
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

■ CERTIFICATION UL

- UL File No.: E98983
- ANSI TYPE: CEM-3