



**Continuous filament woven glass fabric
Surfaces, cellulose paper core**

CEM-1-05

FEATURES

- Halogen, antimony, and red phosphorous free
- Flammability meets UL94V-0
- Excellent electrical properties, cold punchability, low warpage, high dimensional stability and superior thermal stability during IR fusing or hot air leveling.
- IPC-4101C is applicable.
- Plated through-hole are not recommended because the cellulose core is easily attacked by electrolyte (moisture).

PERFORMANCE LIST

Characteristics	Unit	Conditioning	Typical Values	SPEC	Test Method	
Volume resistivity	MΩ-cm	C-96/35/90	5.0x10 ⁸	10 ⁶ ↑	2.5.17	
Surface resistivity	MΩ	C-96/35/90	5.0x10 ⁷	10 ⁴ ↑	2.5.17	
Permittivity 1MHZ	—	C-24/23/50	4.7	5.4 ↓	2.5.5.2	
Loss tangent 1MHZ	—	C-24/23/50	0.021	0.035 ↓	2.5.5.2	
Dielectric breakdown	KV	D-48/50	60 ↑	40 ↑	2.5.6	
Moisture absorption	%	E-1/105+24/23	0.15 ↓	0.50 ↓	2.6.2.1	
Flammability	—	C-48/23/50	94V0	94V0	UL94	
Peel strength (1 oz)	lb/in	288°Cx10" solder floating	8-10	6 ↑	2.4.8	
Thermal stress	SEC	260°C dipping	80 ↑	40 ↑	2.4.13.1	
Flexural strength	LW	N/mm ²	A	300-400	242 ↑	2.4.4
	CW	N/mm ²	A	200-300	172 ↑	2.4.4
Dimensional stability X-Y axis	%	E-0.5/170	< 0.065	0.11 Max	2.4.3.9	
Coefficient of thermal expansion Z-axis before Tg Z-axis after Tg X-axis before Tg Y-axis before Tg	ppm/°C	TMA	50-70 250-350 17-19 15-17	N/A	2.4.24	
Glass transition temp	°C	DSC	105 ± 5	N/A	2.4.25	
Punchability	Kg/cm ²	ASTM D-732 Shear strength	900	N/A	ASTM D-732	
Comparative Tracking Index	V	Etched	600 ↑	N/A	ASTM D-3638	
Decomposition Temperature (Td 5% W/L)	°C	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 for IPC-TM-650

CERTIFICATION UL

- UL File No. : E98983
- ANSI TYPE:CEM-1