



## HTE-500 (FR-4.0) Copper clad laminate

● **FEATURES:**

- 1.Nominal Tg155 °C (DSC)
- 2.Excellent electrical and chemical resistance characteristics.
- 3.Improved heat resistance and dimensional stability
- 4.Fluoresced and U.V. Blocked
- 5.IPC4101E/ 97 . 98 . 99 & 101 & Lead-free process compatible
- 6.Superior CAF-Resistance (Anti-migration)

Characteristics		IPC TM-650	Test Condition	Unit	Typical Values
Glass transition temp.(Tg)		2.4.25	DSC	°C	155
Decomposition Temp.(Td)		2.4.24.6	TGA(5%, Weight loss)	°C	345
Flammability		2.3.10	A&E-4/125	-	94V-0
Water absorption		2.6.2.1	D-24/23	%	0.10
Dk RC 50	1GHz	2.5.5.13	C-24/23/50	-	4.29
	10GHz			-	4.23
Df RC 50	1GHz	2.5.5.13	C-24/23/50	-	0.0162
	10GHz			-	0.0176
Volume resistivity		2.5.17.1	C-96/35/90	MΩ-cm	≥ 10 <sup>8</sup>
Surface resistivity		2.5.17.1	C-96/35/90	MΩ	≥ 10 <sup>7</sup>
Dielectric breakdown		2.5.6.2	D-48/50	KV	≥ 50
Arc resistance		2.5.1	D-48/50+D-0.5/23	Sec	120
Thermal stress		2.4.13.1	As Received	Sec	≥ 60
T-260		2.4.24.1	E-2/105	Min	≥ 60
T-288		2.4.24.1	E-2/105	Min	≥ 15
Peel strength (1oz)	T < 0.5mm	2.4.8	After thermal stress	Lb/in	6
	T ≥ 0.5mm				7~10
Flexural strength	Lengthwise	2.4.4	As Received	1000psi	≥ 70
	Crosswise				≥ 60
Dimensional stability X-Y axis		2.4.39	E-4/105+E-2/150(T1.0mm)	±%	≤ 0.03
CTE- Z axis		2.4.24	Before Tg	ppm/°C	40
			After Tg		240
Z- axis Expansion		2.4.24	50~260°C	%	2.6
CTI		UL 746	UL 746	PLC (Volts)	3 (175~249)

Note 1: Data shown are for information purposes only and are not guaranteed.



Note 2: Precondition C-24/23/50-> 24HR,23°C,RH50%;D->immersion in water ; A -> as received.

● **General product size & thickness:**

Thickness		Copper cladding weight		Typical size		Note
Inch	(mm)	OZ	(um)	Inch	mm	
0.002	(0.05)	0.33	(12)	36.8*48.8	0935*1239	Class C/M
to		to		40.8*48.8	1036*1239	
0.062	(1.57)	6.00	(210)	42.8*48.8	1087*1239	

Note: Special copper & special size are available upon customer request.

● **Construction:**

Nominal Thickness		Tolerance		IPC4101E Thickness level	Normal construction
mil	mm	mil	mm		
2.0	0.05	+/- 0.5	+/- 0.013	Class C	106*1
2.0	0.05	+/- 0.5	+/- 0.013	Class C	1067*1
3.0	0.08	+/- 0.5	+/- 0.013	Class C	1080*1
4.0	0.10	+/- 0.5	+/- 0.013	Class C	3313*1
4.2	0.11	+/- 0.5	+/- 0.013	Class C	2116*1
5.0	0.13	+/- 0.7	+/- 0.018	Class C	2116*1
6.0	0.15	+/- 0.7	+/- 0.018	Class C	1506*1
7.0	0.18	+/- 1.0	+/- 0.025	Class C	7628*1
8.0	0.20	+/- 1.0	+/- 0.025	Class C	7628*1
10.0	0.25	+/- 1.0	+/- 0.025	Class C	2116*2
12.0	0.30	+/- 1.5	+/- 0.038	Class C	1506*2
14.0	0.35	+/- 1.5	+/- 0.038	Class C	7628*2
15.0	0.38	+/- 1.5	+/- 0.038	Class C	7628*2
18.0	0.45	+/- 1.5	+/- 0.038	Class C	7628*2+1080*1
20.0	0.50	+/- 2.0	+/- 0.050	Class C	7628*2+2116*1
21.0	0.53	+/- 2.0	+/- 0.050	Class C	7628*3
24.0	0.60	+/- 2.0	+/- 0.050	Class C	7628*3
28.0	0.71	+/- 2.0	+/- 0.050	Class C	7628*4
31.0	0.80	+/- 3.0	+/- 0.075	Class M	7628*4
36.0	0.90	+/- 3.0	+/- 0.075	Class M	7628*5
39.0	1.00	+/- 3.0	+/- 0.075	Class M	7628*5
43.0	1.10	+/- 3.0	+/- 0.075	Class M	7628*6
47.0	1.20	+/- 3.0	+/- 0.075	Class M	7628*6
51.0	1.30	+/- 3.0	+/- 0.075	Class M	7628*7
55.0	1.40	+/- 3.0	+/- 0.075	Class M	7628*7
59.0	1.50	+/- 3.0	+/- 0.075	Class M	7628*8
62.0	1.60	+/- 5.0	+/- 0.130	Class L	7628*8

Note1: Laminate thickness <0.71mm is excluding copper; thickness ≥0.74mm is including copper.

Note2: Position for thickness measurement shall be no closer than 1 inch from any edge.

Note3: Special thickness (eg:2.0mm/2.4mm/3.2mm) and special construction (eg:1080\*2 for 6mil) are available upon customer request.