IT-158

Features

- Low CTE with excellent thermal resistance
- Tg ≥150℃(DSC)
- High thermal decomposition temperature (Td)
- Lead-free process compatible
- Extremely robust, good for high reliability board

Properties

ITEQ Laminate/ Prepreg : IT-158TC / IT-158BS IPC-4101 Spec /99						
LAMINATE (IT-158TC)						
Property	**Thickness<0.50 mm [0.0197 in]**		**Thickness≧0.50 mm [0.0197 in]**		**Units**	**Test Method**
	Typical Value	**Spec**	**Typical Value**	**Spec**	**Metric (English)**	**IPC-TM-650 (or as noted)**
Peel Strength, minimum A. Low profile copper foil and very low profile copper foil - all copper weights > 17μm [0.669 mil] B. Standard profile copper foil 1. After Thermal Stress 2. At 125°C [257 F]	0.88(5.0) 1.58(9.0) 1.31(7.5)	0.70(4.0) 0.80 (4.57) 0.70 (4.00)	0.88(5.0) 1.66(9.5) 1.40(8.0)	0.70(4.0) 1.05 (6.00) 0.70 (4.00)	N/mm (lb/inch)	2.4.8 2.4.8.2 2.4.8.3
Volume Resistivity, minimum A. C-96/35/90 B. After moisture resistance C. At elevated temperature E-24/125	$3.0x10^7$ - $5.0x10^7$	10^6 — 10^3	 $5.0x10^7$ $1.0x10^8$	--- 10^4 10^3	MΩ-cm	2.5.17.1
Surface Resistivity, minimum A. C-96/35/90 B. After moisture resistance C. At elevated temperature E-24/125	$1.0x10^7$ --- $5.0x10^7$	10^4 — 10^3	 $1.0x10^{7---}$ $3.0x10^7$	--- 10^4 10^3	MΩ	2.5.17.1
Moisture Absorption, maximum		-	0.08	0.5	%	2.6.2.1
Dielectric Breakdown, minimum	-	-	60	40	kV	2.5.6
Permittivity at 1 MHz, maximum (Laminate & Prepreg as laminated)	4.6	5.4	4.8	5.4	—	2.5.5.
Loss Tangent at 1 MHz, maximum (Laminate & Prepreg as laminated)	0.016	0.035	0.016	0.035	—	2.5.5.
Flexural Strength, minimum A. Length direction B. Cross direction	- -	— —	487(70,000) 466(67,000)	415 (60,190) 345 (50,140)	N/mm^2 (lb/in^2)	2.4.4
Arc Resistance, minimum	125	60	125	60	S	2.5.1
Thermal Stress 10 s at 288°C [550.4F],minimum A. Unetched B. Etched	 Pass Pass	 Pass Visual Pass Visual	 Pass Pass	 Pass Visual Pass Visual	Rating	2.4.13.1
Electric Strength, minimum (Laminate & Prepreg as laminated)	45	30	-	—	kV/mm	2.5.6.2
Flammability,	V-0	V-0	V-0	V-0	Rating	UL94

(Laminate & Prepreg as laminated)						
Glass Transition Temperature	155	150 - 200	155	150 - 200	˚C	2.4.25
Decomposition Temperature		--	345	330 minimum	˚C	2.3.40 (5% wt loss)
Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 Degrees C	 - - -	 -- -- --	 40 240 3.3	 60 maximum 300 maximum 3.5	 PPM/˚C PPM/˚C %	2.4.24
Thermal Resistance A. T260 B. T288	 - -	 -- --	 >60 >20	 30 minimum 5 minimum	 Minutes Minutes	2.4.24.1

PREPREG (IT-158BS)

	Typical Value	Specification	Units	Test Method
1. Shelf Life, minimum (Condition 1/Condition 2)	Meet requirement	180/90	Days	AABUS
2. Volatile content maximum	0.4	1.5	%	2.3.19

*AABUS = As agreed upon between user and supplier.

Laminate Construction

Nominal Thickness		Tolerance		Construction
mil	mm	mil	mm	
2	0.05	±0.5	±0.013	106*1
3	0.08	±0.5	±0.013	1078*1 or 1086*1
3.5	0.09	±0.5	±0.013	2113*1
4	0.10	±0.5	±0.013	2116*1 or 106*2
5	0.13	±0.7	±0.018	2116*1
6	0.15	±0.7	±0.018	1506*1 or 1080*2
7	0.18	±1.0	±0.025	7628*1
8	0.20	±1.0	±0.025	7628*1
9	0.23	±1.0	±0.025	7628*1 or 2116*2
10	0.25	±1.0	±0.025	2116*2
12	0.30	±1.0	±0.025	1506*2
14	0.35	±1.5	±0.038	7628*2
15	0.38	±1.5	±0.038	7628*2
16	0.40	±1.5	±0.038	7628*2
18	0.45	±1.5	±0.038	7628*2 or 7628*2+2116*1
20	0.50	±2.0	±0.050	7628*2+2116*1
21	0.53	±2.0	±0.050	7628*3
24	0.60	±2.0	±0.050	7628*3
26	0.65	±2.0	±0.050	1506*2+7628*2
28	0.71	±2.0	±0.050	7628*4
31	0.80	±3.0	±0.075	7628*4
37	1.0 1/1	±3.0	±0.075	7628*5
39	1.05 1/1	±3.0	±0.075	7628*5

41	1.1 1/1	±3.0	±0.075	7628*5
45	1.2 1/1	±3.0	±0.075	7628*6
57	1.5 1/1	±5.0	±0.130	7628*8
60	1.6 1/1	±5.0	±0.130	7628*8

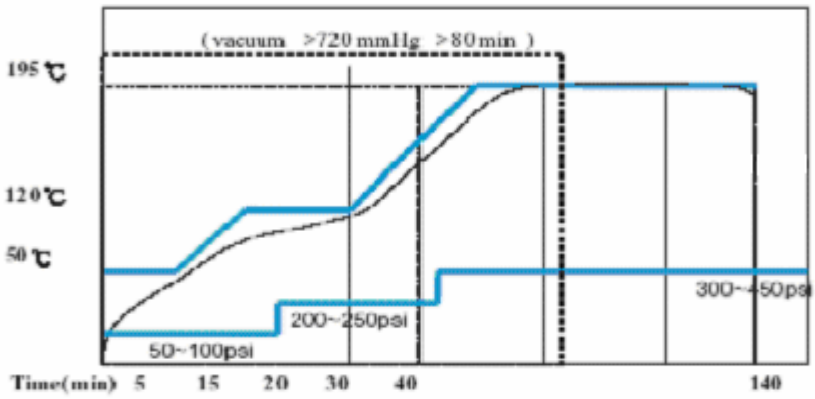
Scope : This specification covers ANSI FR-4 thin laminate for use in manufacture of multilayer printed wiring board

Prepreg specifications

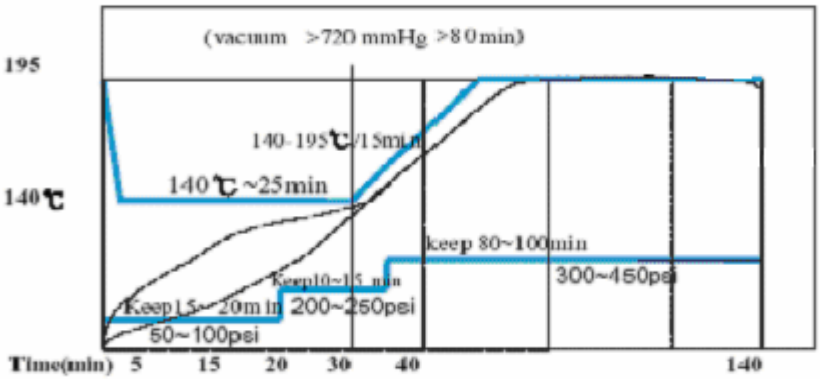
Type	Resin Content (%)	Resin Flow (%)	Gel Time (sec)	Scaled Flow (mils/ply)	Volatile Content (%)
7628UF	47.0 ± 3	24.0 ± 5	135 ± 20	8.4 ± 0.4	< 0.75
7628MF	43.0 ± 3	21.0 ± 5	135 ± 20	7.7 ± 0.4	
7628TF	44.0 ± 3	22.0 ± 5	135 ± 20	7.7 ± 0.4	
7628HF	46.0 ± 3	24.0 ± 5	135 ± 20	8.3 ± 0.4	
7628SF	48.0 ± 3	26.0 ± 5	135 ± 20	8.5 ± 0.4	
7628WF	43.0 ± 3	20.0 ± 5	135 ± 20	7.7 ± 0.4	
7628LF	46.0 ± 3	23.0 ± 5	135 ± 20	8.3 ± 0.4	
7629HF	47.0 ± 3	29.0 ± 5	135 ± 20	8.4 ± 0.4	
7630MF	50.5 ± 3	31.0 ± 5	135 ± 20	9.0 ± 0.4	
7631MF	52.0 ± 3	32.0 ± 5	135 ± 20	11.0 ± 0.4	
1506MF	48.0 ± 3	26.0 ± 5	135 ± 20	7.0 ± 0.3	
1506HF	50.0 ± 3	28.0 ± 5	135 ± 20	8.0 ± 0.3	
1506SF	52.0 ± 3	29.0 ± 5	135 ± 20	8.5 ± 0.3	
2165HF	52.0 ± 3	32.0 ± 5	135 ± 20	5.1 ± 0.3	
2116MF	53.0 ± 3	30.0 ± 5	135 ± 20	4.9 ± 0.3	
2116HF	55.0 ± 3	33.0 ± 5	135 ± 20	5.2 ± 0.3	
2116TF	50.0 ± 3	28.0 ± 5	135 ± 20	4.5 ± 0.3	
2116SF	57.0 ± 3	35.0 ± 5	135 ± 20	5.5 ± 0.3	
2116UF	61.0 ± 3	38.0 ± 5	135 ± 20	6.0 ± 0.3	
2125MF	50.0 ± 3	28.0 ± 5	135 ± 20	4.5 ± 0.3	
2125HF	57.0 ± 3	36.0 ± 5	135 ± 20	5.8 ± 0.3	
2112MF	57.0 ± 3	35.0 ± 5	135 ± 20	4.4 ± 0.3	
2113HF	56.0 ± 3	35.0 ± 5	135 ± 20	4.5 ± 0.3	
2113SF	58.0 ± 3	38.0 ± 5	135 ± 20	4.6 ± 0.3	
3313MF	58.0 ± 3	35.0 ± 5	135 ± 20	4.6 ± 0.3	
3313LF	50.0 ± 3	28.0 ± 5	135 ± 20	4.3 ± 0.3	
3313SF	63.0 ± 3	42.0 ± 5	135 ± 20	4.8 ± 0.3	
3313HF	53.0 ± 3	31.0 ± 5	135 ± 20	4.4 ± 0.3	
1080MF	62.0 ± 3	38.0 ± 5	135 ± 20	2.9 ± 0.3	
1080LF	63.0 ± 3	39.0 ± 5	135 ± 20	2.9 ± 0.3	
1080HF	65.0 ± 3	42.0 ± 5	135 ± 20	3.2 ± 0.3	
1080SF	68.0 ± 3	44.0 ± 5	135 ± 20	3.4 ± 0.3	
1081MF	71.0 ± 3	50.0 ± 5	135 ± 20	3.8 ± 0.3	
106MF	71.5 ± 3	46.0 ± 5	135 ± 20	2.1 ± 0.3	

Recommended Press Cycle For IT158

(a) Cold Press Cycle



(b) Hot Press Cycle



Suggestion :

1.Heating rate of material between 80℃ and 140℃ is 1.3~1.8℃/min

2.Curing time : 165℃ and above for >60min

www.iteq.com.tw

Factory	Address	Tel	Fax	Contact	E - Mail
Taiwan	22,Kung Yen 1st Rd. Ping Chen Industry Zone. Ping Chen, Taoyuan, Taiwan, R.O.C.	886-3-4191130	886-3-4191131	Mike Lin	mikelin@iteq.com.tw
South China	168,dongfang Road,Nanfang Industrial Park,Beice VillageHumen Town,Dongguan City,Guangdong Province,China	86-769-8623268	86--769-5700426	AndyChen	andychen@iteq.com.tw
East China	Chun Hui Rd.,Xishan Economic Development Zone,Wuxi City,Jiangsu Province,China	86-510-2235888	86-510-2235889	R.X.Lo	rx-lo@wxiteq.com