IT-170G

Features

- Halogen and antimony- free
- Tg ≥175℃ (DSC)
- Excellent thermal resistance and reliability
- Good moisture resistant
- High thermal decomposition temperature (Td)
- Lead-free process compatible

Properties

ITEQ Laminate/ Prepreg : IT-170GTC/IT-170GBS

IPC-4101A Spec / 24

LAMINATE (IT-170GTC)

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]	0.87(5.0) 1.40(8.0) 1.22(7.0)	0.70(4.0) 0.80 (4.57) 0.70 (4.00)	0.87(5.0) 1.58(9.0) 1.22(7.0)	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	10^7 - -	10^6 — 10^3	 10^7 -	--- 10^4 10^3	MW-cm	2.5.17.1
Surface Resistivity, minimum A. C-96/35/90 B. After moisture resistance C. At elevated temperature E-24/125	10^5 - -	10^4 — 10^3	- 10^5 -	--- 10^4 10^3	MW	2.5.17.1
Moisture Absorption, maximum	-	—	0.10	0.8	%	2.6.2.1
Dielectric Breakdown, minimum	-	—	60	40	kV	2.5.6
Permittivity at 1 MHz, maximum (Laminate & Prepreg as laminated)	4.5	5.4	4.6	5.4	—	2.5.5.
Loss Tangent at 1 MHz, maximum (Laminate & Prepreg as laminated)	0.009	0.035	0.010	0.035	—	2.5.5.
Flexural Strength, minimum A. Length direction B. Cross direction	- -	— —	483(70,000) 448(65,000)	415 (60,190) 345 (50,140)	N/mm^2 (lb/in^2)	2.4.4
Arc Resistance, minimum	-	60	100	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)	48	30	-	—	kV/mm	2.5.6.2

Flammability, (Laminate & Prepreg as laminated)	V-0	V-1	V-0	V-1	Rating	UL94
Glass Transition Temperature	180	150 - 200	180	150 - 200	℃	2.4.25
Decomposition Temperature	-	—	380	-	℃	2.3.40 (5% wt loss)
Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 Degrees C	 - - -	 — — —	 40 240 3.0	 - - -	 PPM/℃ PPM/℃ %	2.4.24
Thermal Resistance A. T260 B. T288	 - -	 — —	 >60 >30	 - --	 Minutes Minutes	2.4.24.1

PREPREG(IT-170GBS)

	Typical Value	Specification	Units	Test Method
1. Shelf Life, minimum (Condition 1/Condition 2)	Meet requirement	180/90	Days	AABUS
2. Volatile content maximum	0.3	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

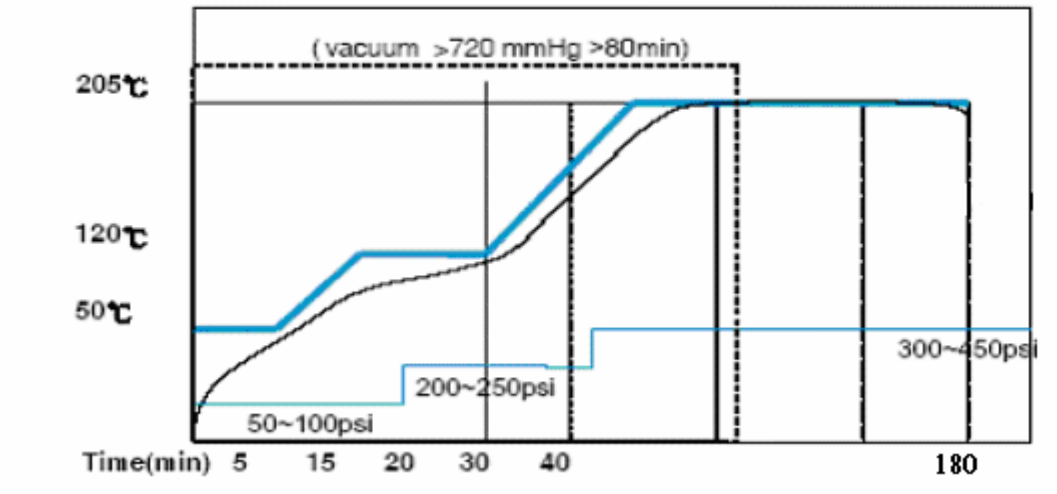
Scope : This specification covers ANSI FR-4 thin laminate for use in manufacture of multilayer printed wiring board

Prepreg specifications

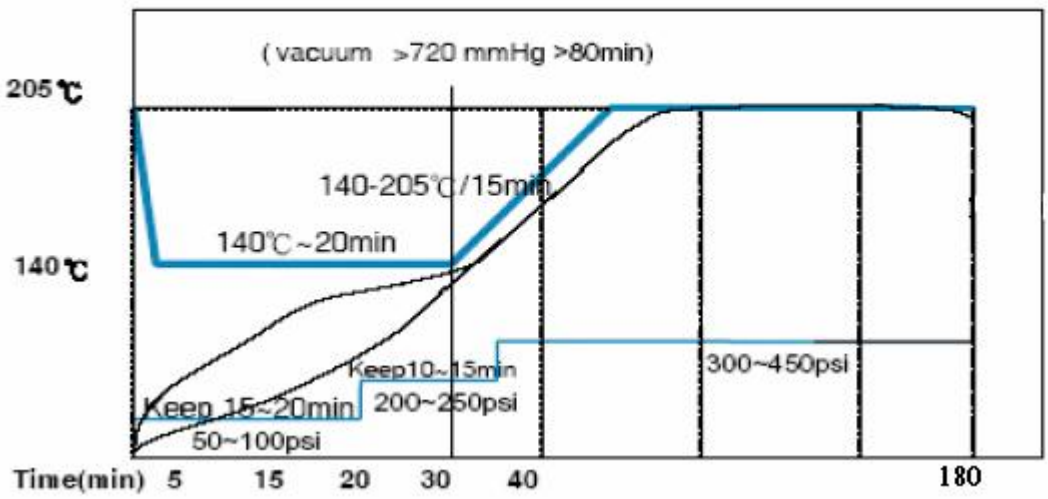
Type	Resin Content ±3%	Resin Flow ±5%	Gel time ±20sec	Volatile Content (%)
7628MF	43	20	150	< 0.75
7628LF	46	22	145	
7628SF	47.5	24	145	
7630MF	49	27	145	
1506MF	48	25	150	
1506HF	50	27	150	
2116QF	48	23	150	
2116TF	50	26	150	
2116MF	53	30	150	
2116HF	55	32	145	
2116SF	57	35	145	
3313MF	58	35	160	
2112SF	60	38	160	
2113HF	56	32	160	
1080MF	62	38	160	
1080HF	65	40	160	
1080UF	68	44.0	160	
106MF	71.5	46	160	

Recommended Press Cycle For IT170G

(a) Cold Press Cycle



(b) Hot Press Cycle



Suggestion:

1. Heating rate of material between 80℃ and 140℃ is 1.8~2.3℃/min.
2. Curing condition: 180℃ and above for＞100 min**.**

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