Lead-free , Halogen-free Material
EM-370(5) / EM-37B(5)

- Superior thermal resistance for lead-free process
- Halogen, antimony and red phosphorus free
- For LCD, memory module and mobile device application

Basic Laminate Property

Item		IPC-TM-650	Test condition	Unit	Typical Value
Glass transition temp.		2.4.25	DSC	℃	155
CTE, X-, Y-axis		2.4.24	Pre-Tg, TMA	ppm/℃	12/15
CTE, Z-axis		2.4.24	Alpha 1, TMA	ppm/℃	40
			Alpha 2, TMA	ppm/℃	190
Z-axis Expansion		2.4.24	50~260℃, TMA	%	2.60
Decomposition temp.		2.4.24.26	TGA	℃	385
Thermal stress 10sec 288℃		2.4.13.1	Clad	—	Pass Visual
			Etched	—	Pass Visual
Water absorption		2.6.2.1	E-1/105+D-24/23	%	0.11
Peel strength	0.5 oz	2.4.8	as received	lb/in	7.4
			after thermal stress	lb/in	7.4
	1.0 oz	2.4.8	as received	lb/in	8.6
			after thermal stress	lb/in	8.4
Permittivity (RC 50%)	1 MHz	2.5.5.9	C-24/23/50	—	4.8
	1 GHz			—	4.3
Loss tangent (RC 50%)	1 MHz	2.5.5.9	C-24/23/50	—	0.009
	1 GHz			—	0.013
Volume resistivity		2.5.17.1	C-96/35/90	MΩ-cm	$>10^{10}$
Surface resistivity		2.5.17.1	C-96/35/90	MΩ	$>10^{9}$
Flexural strength	Warp	2.4.4	as received	MPa	560~600
	Fill		as received	MPa	470~510
Flame resistance		UL-94	A&E-24/125	—	V-0

Specification Sheet : IPC-4101C / 127/128

Lead-free , Halogen-free Material
EM-370(5) / EM-37B(5)

Basic Available Prepreg

Type	Resin Content (%)	Gel Time (sec)	Volatile Content (%)	Unclad Laminate Thickness (mil)
7628	45.5±3.0	130±25	≦2.0	7.9
	49.0±3.0	125±25	≦2.0	8.6
7629	45.5±3.0	130±25	≦2.0	7.9
	49.0±3.0	125±25	≦2.0	8.6
1501	49.0±3.0	140±25	≦2.0	6.7
	53.0±3.0	140±25	≦2.0	7.5
2116	53.0±3.0	140±25	≦2.0	4.8
	57.0±3.0	140±25	≦2.0	5.4
2113	56.0±3.0	140±25	≦2.0	3.9
1080	64.0±3.0	115±25	≦2.0	3.0
	67.0±3.0	115±25	≦2.0	3.3
106	71.0±3.0	115±25	≦2.0	2.2
	75.0±3.0	115±25	≦2.0	2.5
1086	64.0±3.0	115±25	≦2.0	3.4
	67.0±3.0	115±25	≦2.0	3.9
1067	71.0±3.0	115±25	≦2.0	2.6
	75.0±3.0	115±25	≦2.0	3.1
1037	71.0±3.0	115±25	≦2.0	2.2
	75.0±3.0	115±25	≦2.0	2.5

Notice:
1. Table listed as above is basic property for reference only.
2. Lower resin content might be insufficient resin for lower copper residual or heavy copper of inner layer.
3. If you have any other requirement, please contact our sales or customer service

Lead-free , Halogen-free Material

EM-370(5) / EM-37B(5)

Basic Available CCL

Thickness inch (mm)	Tolerance inch (mm)	Construction
0.0023” (0.058)	±0.0005” (0.013)	1067×1
0.0025” (0.064)	±0.0005” (0.013)	1067×1
0.003” (0.076)	±0.0005” (0.013)	1086×1
0.0042” (0.107)	±0.0005” (0.013)	2116×1
0.005” (0.127)	±0.0007” (0.018)	2116×1
0.0064” (0.163)	±0.0007” (0.018)	1501×1
0.007” (0.178)	±0.0010” (0.025)	7628×1
0.008” (0.203)	±0.0010” (0.025)	7629×1
0.010” (0.254)	±0.0010” (0.025)	2116×2
0.0125” (0.318)	±0.0015” (0.038)	1501×2
0.014” (0.355)	±0.0015” (0.038)	7628×2
0.015” (0.381)	±0.0015” (0.038)	7629×2
0.021” (0.533)	±0.0020” (0.051)	7628×3
0.024”(0.610)	±0.0020” (0.051)	7629×3
0.028” (0.711)	±0.0020” (0.051)	7628×4
0.031” (0.787)	±0.0030” (0.076)	7629×4

* Notice: Above thickness does not include copper

Thickness inch (mm)	Tolerance inch (mm)	Construction
0.039” (0.991)	± 0.0030” (0.076)	7628×2+7629×3 (1oz)
0.047” (1.194)	± 0.0030” (0.076)	7629×6 (Hoz / 1oz)
0.059” (1.499)	± 0.0030” (0.076)	7629×4+7628×4 (H oz)
0.062” (1.575)	± 0.0030” (0.076)	7629×8 (Hoz / 1oz)

* Notice: Above thickness include copper.

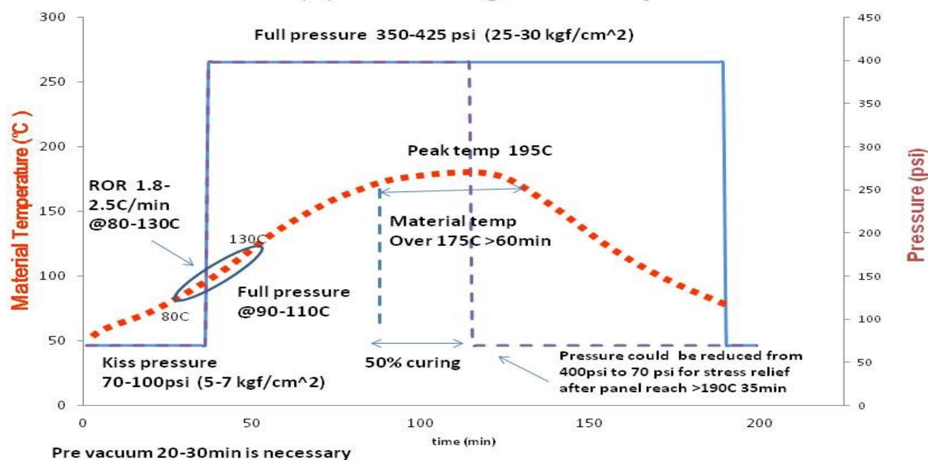
Lead-free , Halogen-free Material

EM-370(5) / EM-37B(5)

Press Cycle

Basic press cycle for normal construction of multilayer PWB:

Pre Vacuum	20-30min
Platen Temperature	200 ~ 205°C depends on the difference between platen and product temperature (peak temperature of material should be achieved at 195°C)
Curing	>175°C (material temperature) x60 min for board thickness<3.5mm >175°C (material temperature) x 80 min for board thickness≧3.5mm for board thickness≧5mm, please contact local customer service for further assistance
Material Heat Rise	1.8 ~2.5°C/min (from 80°C to 130°C)
Pressure	Kiss pressure 5~7 kgf/cm^2 (70~100 psi) for 20 min, Apply full pressure 25~30 kgf/cm^2 (350 ~ 425) psi when the material's temperature reaches 90°C-110°C Reduce the full pressure to kiss pressure when 50%-60% curing stage for stress relief.
Cooling Rate	< 2°C/min, is preferable starting from 190°C to 120°C
Hot Press Duration	190 minutes typical
Note	That the actual full pressure may differ from the suggested setting in this graph. Pressure and cure duration selected may depend upon board design as well as other factors. Please contact our customer service for setting suitable press cycle if necessary. Note that the attached graph is for reference purpose only and may require adjustment depending on the board size, thickness and complexity.



Prepreg storage (Shelf life)

EM-37B(5) should be stored under 23℃, RH 55% for 3 month shelf life.