Low CTE High Tg Material

EM-827(I) / EM-827B(I)

- Low Z-axis CTE
- Low moisture absorption
- Excellent CAF Resistance
- Excellent thermal stability for lead-free processing
- For automotive application and other applications with CAF resistance concern mostly

Basic Laminate Property

Item		IPC-TM-650	Test condition	Unit	Typical Value
Glass transition temp.		2.4.25	DSC	℃	175
CTE, X-, Y-axis		2.4.24	Pre-Tg, TMA	ppm/℃	12/15
CTE, Z-axis		2.4.24	Alpha 1, TMA	ppm/℃	45
			Alpha 2, TMA	ppm/℃	225
Z-axis Expansion		2.4.24	50~260℃, TMA	%	2.6
Decomposition temp.		2.4.24.26	TGA	℃	350
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	%	0.12
Peel strength	0.5 oz	2.4.8	as received	lb/in	6.5
			after thermal stress	lb/in	6.5
	1.0 oz	2.4.8	as received	lb/in	8.5
			after thermal stress	lb/in	8.5
Permittivity (RC 50%)	1 MHz	2.5.5.9	C-24/23/50	—	4.8
	1 GHz			—	4.2
Loss tangent (RC 50%)	1 MHz	2.5.5.9	C-24/23/50	—	0.018
	1 GHz			—	0.019
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	420~540
	Fill		as received	MPa	380~440
Flame resistance		UL-94	A&E-24/125	—	V-0

Specification Sheet : IPC-4101C / 24、26、126

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Basic Available Prepreg

Type	Resin Content (%)	Gel Time (sec)	Volatile Content (%)	Unclad Laminate Thickness (mil)
7628	52.0±3.0	100±25	≦0.7	9.0
	47.0±3.0	100±25	≦0.7	7.9
1506	54.0±3.0	105±25	≦0.7	7.3
	50.0±3.0	105±25	≦0.7	6.7
2116	58.0±3.0	105±25	≦1.0	5.3
	55.0±3.0	105±25	≦1.0	4.8
2113	58.0±3.0	105±25	≦1.0	4.1
1080	68.0±3.0	105±25	≦1.5	3.4
	65.0±3.0	105±25	≦1.5	3.1
	62.0±3.0	105±25	≦1.5	2.7
106	76.0±3.0	105±25	≦1.5	2.3
	72.0±3.0	105±25	≦1.5	2.1

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 representatives

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Basic Available CCL

Thickness inch (mm)	Tolerance inch (mm)	Construction
0.002” (0.051)	±0.0005” (0.013)	106×1
0.0025” (0.064)	±0.0005” (0.013)	106×1
0.003” (0.076)	±0.0005” (0.013)	1080×1
0.0035”(0.089)	±0.0005” (0.013)	2113×1
0.004” (0.102)	±0.0005” (0.013)	2113×1
0.004” (0.102)	±0.0005” (0.013)	106×2
0.0042” (0.107)	±0.0005” (0.013)	2116×1
0.0045” (0.114)	±0.0005” (0.013)	2116×1
0.0045” (0.114)	±0.0005” (0.013)	106×2
0.005” (0.127)	±0.0007” (0.018)	2116×1
0.005” (0.127)	±0.0007” (0.018)	1080×2
0.006”(0.152)	±0.0007” (0.018)	1080×2
0.0064” (0.163)	±0.0007” (0.018)	1506×1
0.007” (0.178)	±0.0010” (0.025)	7628×1
0.007” (0.178)	±0.0010” (0.025)	2113×2
0.008” (0.203)	±0.0010” (0.025)	7628×1
0.010” (0.254)	±0.0010” (0.025)	2116×2
0.0125” (0.318)	±0.0015” (0.038)	1506×2
0.014” (0.355)	±0.0015” (0.038)	7628×2
0.015” (0.381)	±0.0015” (0.038)	7628×2
0.021” (0.533)	±0.0020” (0.051)	7628×3
0.028” (0.711)	±0.0020” (0.051)	7628×4
0.031” (0.787)	±0.0030” (0.076)	7628×4

* Notice: Above thickness does not include copper.

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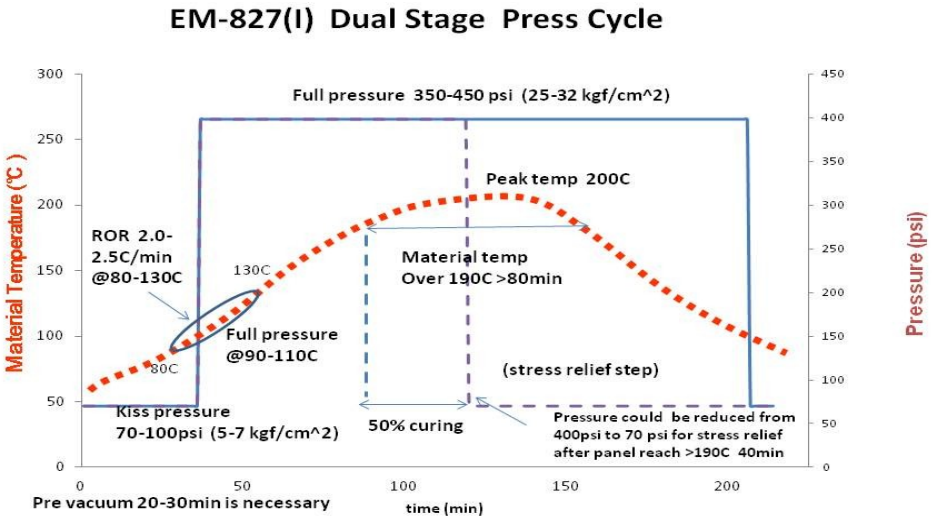
Press Cycle

Basic press cycle for normal construction of multilayer PWB:

Pre Vacuum	20-30min
Platen Temperature	205 ~ 215°C depends on the difference between platen and product temperature (peak temperature of material should be achieved at 200°C)
Curing	>190°C (material temperature) x80 min for board thickness<3.5mm >190°C (material temperature) x100 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 25~32 kgf/cm^2 (350 ~ 450) psi when the material's temperature reaches 90~110°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	200 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-827B (I) should be stored under 23℃, RH 55% for 3 month shelf life.