



Superior Dk/Df, Lead-free & Halogen-free EM-370(D) / EM-37B(D)

- Standard FR-4 Dk and lower Df
- Tg 175°C, Td 385°C and T288 > 60 minutes (clad)
- Z-axis CTE 2.2%(50~260°C)
- Low moisture absorption and excellent CAF resistance
- Halogen, antimony and red phosphorus free
- For high performance server, network and telecom application

Basic Laminate Property

Item	IPC-TM-650	Test condition	Unit	Typical Value	
Glass transition temp.	2.4.25	DSC	°C	175	
	2.4.24.3	TMA	°C	170	
	2.4.24.2	DMA	°C	195	
CTE, X-, Y-axis	2.4.24	Pre-Tg, TMA	ppm/°C	12/15	
CTE, Z-axis	2.4.24	Alpha 1, TMA	ppm/°C	40	
		Alpha 2, TMA	ppm/°C	200	
Z-axis Expansion	2.4.24	50~260°C, TMA	%	2.2	
Decomposition temp.	2.4.24.6	TGA	°C	385	
Thermal stress 10sec 288°C	2.4.13.1	Clad	—	Pass Visual	
		Etched	—	Pass Visual	
Water absorption	2.6.2.1	E-1/105+D-24/23	%	0.10	
Peel strength (HTE)	0.5 oz	2.4.8	as received	lb/in	5
			after thermal stress	lb/in	5
	1.0 oz		as received	lb/in	6
	after thermal stress		lb/in	6	
Peel strength (RTF)	0.5 oz	2.4.8	as received	lb/in	4
			after thermal stress	lb/in	4
	1.0 oz		as received	lb/in	4.5
			after thermal stress	lb/in	4.5
Permittivity (RC 50%)	1 GHz	2.5.5.9	C-24/23/50	—	4.1
	10GHz	Cavity Resonator		—	4.0
Loss tangent (RC 50%)	1 GHz	2.5.5.9	C-24/23/50	—	0.011
	10GHz	Cavity Resonator		—	0.015
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	460~500
	Fill		as received	MPa	420~440
Flame resistance	UL-94	A&E-24/125	—	V-0	



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Basic Available Prepreg

Type	R/C (%)	100% Pressed thickness (mil)
1037	71±3.0	2.2
1037	74±3.0	2.5
106	71±3.0	2.1
106	74±3.0	2.4
1067	71±3.0	2.8
1067	74±3.0	3.1
1078	63±3.0	3.0
1078	66±3.0	3.5
1080	63±3.0	3.0
1080	66±3.0	3.4
1086	63±3.0	3.4
1086	66±3.0	3.8
2113	55±3.0	4.0
2113	59±3.0	4.4
3313	57±3.0	4.4
3313	59±3.0	4.6
2116	52±3.0	4.9
2116	56±3.0	5.4
2116	58±3.0	5.7
1501	48±3.0	6.7
7628	44±3.0	7.9
7629	44±3.0	7.9
7628	48±3.0	8.4
7629	48±3.0	8.4

Notice:

1. Lower resin content might be insufficient resin for lower copper residual or heavy copper of inner layer.
2. If you have any other requirement, please contact our sales or customer service representatives.



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Basic Available CCL

Thickness (mil)	Tolerance inch (mm)	Construction
0.002" (0.051)	± 0.0005" (0.013)	1037x1
0.002" (0.051)	± 0.0005" (0.013)	106×1
0.0025" (0.064)	± 0.0005" (0.013)	1067x1
0.003" (0.076)	± 0.0005" (0.013)	1080×1
0.003" (0.076)	± 0.0005" (0.013)	1086X1
0.0035" (0.089)	± 0.0005" (0.013)	1037X2
0.0035" (0.089)	± 0.0005" (0.013)	2113X1
0.0035" (0.089)	± 0.0005" (0.013)	3313X1
0.004" (0.102)	± 0.0005" (0.013)	1037x2
0.004" (0.102)	± 0.0005" (0.013)	106×2
0.004" (0.102)	± 0.0005" (0.013)	2113x1
0.004" (0.102)	± 0.0005" (0.013)	3313X1
0.0042" (0.107)	± 0.0005" (0.013)	2116X1
0.0045"(0.114)	± 0.0005" (0.013)	1067X2
0.0045"(0.114)	± 0.0005" (0.013)	2116x1
0.0045"(0.114)	± 0.0005" (0.013)	3313x1
0.005" (0.127)	± 0.0007" (0.018)	1067X2
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
0.006" (0.152)	± 0.0007" (0.018)	1086X2
0.0064" (0.163)	± 0.0007" (0.018)	1501x1
0.007" (0.178)	± 0.0010" (0.025)	2113x2
0.007" (0.178)	± 0.0010" (0.025)	3313X2
0.007" (0.178)	± 0.0010" (0.025)	7628×1
0.008" (0.203)	± 0.0010" (0.025)	2116x2
0.008" (0.203)	± 0.0010" (0.025)	3313X2
0.008" (0.203)	± 0.0010" (0.025)	7629×1
0.010" (0.254)	± 0.0010" (0.025)	2116×2
0.012" (0.305)	± 0.0015" (0.038)	1501x2
0.014" (0.355)	± 0.0015" (0.038)	7628x2
0.015" (0.355)	± 0.0015" (0.038)	7629x2
0.021" (0.533)	± 0.0020" (0.051)	7628×3
0.028" (0.711)	± 0.0020" (0.051)	7628x4
0.031" (0.787)	± 0.0030" (0.076)	7629×4
0.039" (0.991)	± 0.0030" (0.076)	7628x2+7629x3(1oz)
0.039" (0.991)	± 0.0030" (0.076)	7628x5(Hoz)
0.047" (1.194)	± 0.0030" (0.076)	7629x6
0.059" (1.50)	± 0.0030" (0.076)	7628x6+7629x2(1oz)
0.059" (1.50)	± 0.0030" (0.076)	7628x4+7629x4(Hoz)
0.062" (1.575)	± 0.0030" (0.076)	7629x8

* Above thickness does not include copper



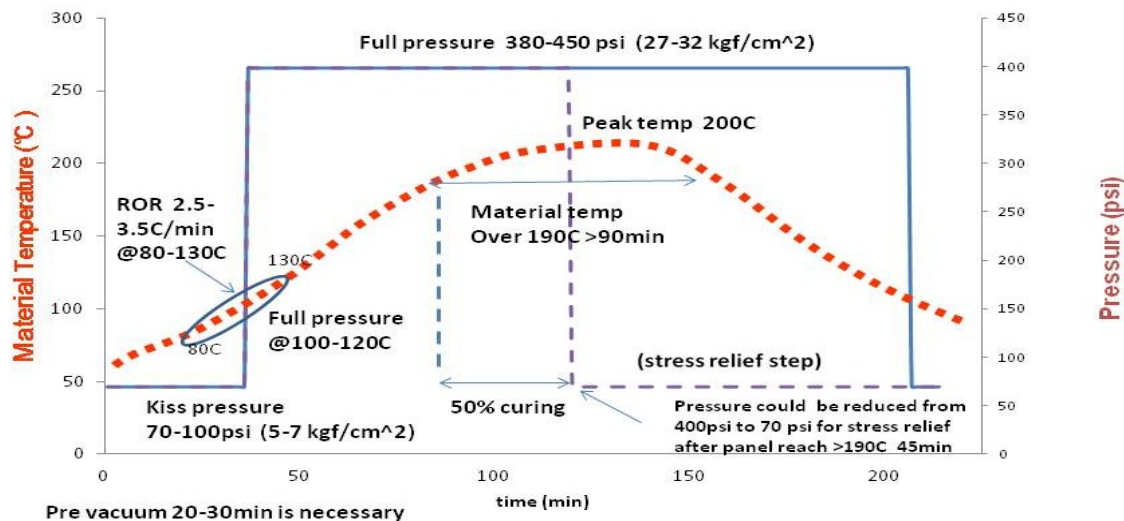
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Press Cycle

Basic press cycle for normal construction of multilayer PWB:

Pre Vacuum	20-30min
Platen Temperature	210 ~ 220°C depends on the difference between platen and product temperature . (peak material temperature should be achieved at 200°C)
Curing	>190°C (material temperature) x90 min for board thickness<3.5mm >190°C (material temperature) x 110 min for board thickness ≥ 3.5mm for board thickness ≥ 5mm, please contact local customer service for further assistance
Material Heat Rise	2.5 ~3.5°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 27~32 kgf/cm ² (380 ~ 450) psi when the material temperature reaches 100°C-120°C Reduce the full pressure to kiss pressure when 50%-60% curing stage is reached for stress relief.
Cooling Rate	< 2°C/min, is preferable starting from 190°C to 120°C
Hot Press Duration	240 minutes typical
Note	Please contact our customer service for setting suitable press cycle . Note that the attached graph is for reference purpose only and may require adjustment depending on the board size, thickness and complexity.

EM-370 (D) Dual Stage Press Cycle



Prepreg storage (Shelf life)

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