



广东龙宇新材料有限公司

High Tg Halogen Free /Up mid Loss

半固化片(Prepreg)-B-STAGE 品名: LYPP-170G

覆铜板(Laminates)-C-STAGE 品名: LYCCL-170G

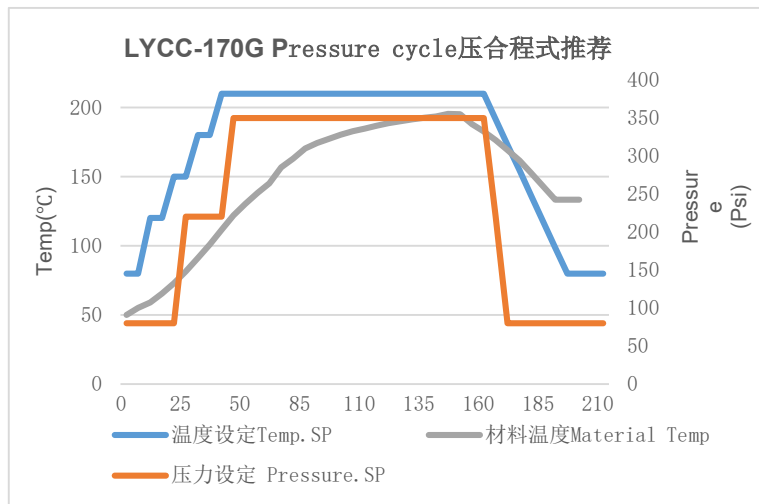
产品特性 Product Performance

- 无卤素 高Tg: Tg190°C (DSC), Halogen free
- 低介电常数、低损耗电性能/Low DK and Low Loss Electrical Performance
- 优异的热性能, Td $\geq$ 370°C Excellent Thermal Resistivity, Td $\geq$ 370°C
- 低Z轴热膨胀系数 Low Z axis CTE 1
- 良好的防潮性, 耐CAF性能好, 高可靠性
Superior moisture resistance, Excellent anti-CAF, high reliability.

产品应用 Product application

- 专为高热性和CAF需求的厚铜板设计
Specially designed for heavy copper with high heat resistance and CAF resistance requirements
- 厚铜 Heavy copper $\geq$ 3oz
- HDI 应用 $\geq$ 3阶
HDI applications for over 3 layers
服务器、交换机、路由器、基站、背板和线卡
Server, switch, router, base station, backplane, and line card

LYCCL-170G 压合程式



Heat-up rate 1.5-3.0/min (80~140°C)

Kiss Pressure: 90~120psi

Full Pressure: 300~400psi

Full Pressure apply at 80-110°C/Material's Temp

Curing time: 80min(>180°C/Material's Temp.)

Cooling rate: <2°C/min



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产品特性 Product Performance

检测项目 (Test Items)			单位 (unit)	测试方法 (Test method)	测试条件 (Test Condition)	规范标准 (SPEC)	典型值 Typical Value
热性能 Thermal Performance	玻璃转化温度(Tg)		℃	2.4.25	DSC	≥170	190
	玻璃转化温度(TMA)		℃	2.4.25	TMA	≥170	178
	Z 轴膨胀系数 Z-CTE	Alpha 1	Ppm/℃	2.4.24	TMA	35	35
		Alpha 2	Ppm/℃	2.4.24	TMA	190	190
		%	%	2.4.24	TMA	1.8	1.80
	热分解温度 Td(TGA)		℃	2.4.24.6	5% wt. loss	≥340	390
	T-260		Min	2.4.24.1	TMA (etched)	≥30	>60
	T-288		Min	2.4.24.1	TMA (etched)	≥15	>60
	T-300		Min	2.4.24.1	TMA (etched)	≥2	>30
	压力锅测试(PCT)		Sec	2.6.16	PCT0.5h 288℃, solder dip	>10sec 不分层起泡	Pass
热应力 Thermal stress(unetched)		Sec	2.4.13.1	288℃, solder dip	>60sec 不分层起泡	Pass	
电性能 Electric Performance	介电常数 Permittivity		-	2.5.5.13	C-24/23/50 1G HZ R/C50%	≤5.20	4.3
	介电损耗因子 Loss Tangent		-	2.5.5.13		≤0.035	0.013
	表面电阻 Surface Resistivity		MΩ	2.5.17.1	C-96/35/90	>10e+4	7.60E+08
	体积电阻 Volume Resistivity		MΩ-cm	2.5.17.1	C-96/35/90	>10e+6	6.80E+10
	漏电起痕指数 CTI		V	IEC 60112	D-48/50+D-0.5/23	175-250 (PLC-3)	PLC-3
	击穿电压 Dielectric Breakdown)		KV	2.5.6	D-48/50+D-0.5/23	≥40	50
	耐电弧 Arc Resistive		Sec	2.5.1	D-48/50+D-0.5/23	≥60	150
物理性能 Physical Performance	剥离强度 Peel strength 10Z	Standard profile copper foil	Lb/in	2.4.8	288℃/10s >0.5mm	≥6.0	6.70
		Low profile copper foil			288℃/10s >0.6mm	≥4.0	4.65
	弯曲强度 Flexural strength		N/mm2	2.4.4	A	≥415	510
					A	≥345	430
	吸水率 Moisture absorption		%	2.6.2.1	E-1/105+D-24/23	<0.80	0.10
	燃烧性 Flammability		Rating	UL94	C-48/23/50	V-0	V-0



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LYPP-170G 半固化片(Prepreg)-B-STAGE Product Datasheet

PP 型号 Glass type	玻璃布 厚度 Glass fabric Thickness	树脂含 量 R/C	100%残铜 压合厚度 Cured press thickness		Dk Test by TMA650 2.5.13			Df Test by TMA650 2.5.13		
	mil		(mils)	(mm)	1GHz	5GHz	10GHz	1GHz	5GHz	10GHz
106	1.18	72	2.0	0.051	3.82	3.75	3.70	0.0140	0.0147	0.0151
		74	2.2	0.056	3.77	3.70	3.65	0.0141	0.0148	0.0152
		76	2.4	0.061	3.71	3.64	3.59	0.0142	0.0150	0.0154
1080	1.97	65	3.0	0.076	4.00	3.93	3.88	0.0135	0.0142	0.0145
		67	3.2	0.081	3.94	3.87	3.82	0.0136	0.0144	0.0147
		69	3.4	0.086	3.89	3.82	3.77	0.0138	0.0145	0.0148
		71	3.6	0.091	3.84	3.77	3.72	0.0139	0.0146	0.0150
2113	2.75	56	3.8	0.097	4.23	4.16	4.11	0.0129	0.0136	0.0138
		58	4.0	0.102	4.18	4.11	4.06	0.0130	0.0138	0.0140
		60	4.2	0.107	4.12	4.05	4.00	0.0132	0.0139	0.0141
		62	4.5	0.114	4.07	4.00	3.95	0.0133	0.0140	0.0143
3313	2.95	55	3.8	0.097	4.25	4.18	4.13	0.0129	0.0135	0.0138
		57	4.0	0.102	4.20	4.13	4.08	0.0130	0.0137	0.0139
		59	4.2	0.107	4.15	4.08	4.03	0.0131	0.0138	0.0141
		61	4.5	0.114	4.10	4.03	3.98	0.0132	0.0140	0.0142
2116	3.54	54	4.8	0.122	4.28	4.21	4.16	0.0128	0.0135	0.0137
		56	5.0	0.127	4.23	4.16	4.11	0.0129	0.0136	0.0138
		58	5.3	0.135	4.18	4.11	4.06	0.0130	0.0138	0.0140
		60	5.6	0.142	4.12	4.05	4.00	0.0132	0.0139	0.0141
		62	5.9	0.150	4.07	4.00	3.95	0.0133	0.0140	0.0143
1506	5.51	48	6.5	0.165	4.43	4.36	4.31	0.0124	0.0131	0.0132
		50	6.8	0.173	4.38	4.31	4.26	0.0125	0.0132	0.0134
		52	7.1	0.180	4.33	4.26	4.21	0.0127	0.0133	0.0135
7628	6.9	45	7.6	0.193	4.51	4.44	4.39	0.0122	0.0129	0.0130
		47	7.9	0.201	4.46	4.39	4.34	0.0123	0.0130	0.0131
		49	8.3	0.211	4.41	4.34	4.29	0.0125	0.0131	0.0133
		51	8.7	0.221	4.35	4.28	4.23	0.0126	0.0133	0.0135

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LYCCL-170G 覆铜板(Laminates)-C-STAGE Product Datasheet

Typical Core Thickness		Standard Construction	RC(%)	Dk Test method TM650 2.5.13			Df Test method TM650 2.5.13		
(mil)	(mm)			1GHz	5GHz	10GHz	1GHz	5GHz	10GHz
2	0.051	1067×1	67	3.94	3.87	3.82	0.0136	0.0144	0.0147
		106×1	72	3.82	3.75	3.70	0.0140	0.0147	0.0151
2.5	0.064	1067×1	73	3.79	3.72	3.67	0.0140	0.0148	0.0151
		106×1	77	3.69	3.62	3.57	0.0143	0.0151	0.0154
3	0.076	1080×1	65	4.00	3.93	3.88	0.0135	0.0142	0.0145
		1086×1	62	4.07	4.00	3.95	0.0133	0.0140	0.0143
3.5	0.089	3313×1	52	4.33	4.26	4.21	0.0127	0.0133	0.0135
		2113×1	53	4.30	4.23	4.18	0.0127	0.0134	0.0136
		1037×2	70	3.87	3.80	3.75	0.0138	0.0146	0.0149
4	0.102	3313×1	57	4.20	4.13	4.08	0.0130	0.0137	0.0139
		2113×1	58	4.18	4.11	4.06	0.0130	0.0138	0.0140
		1067×2	67	3.94	3.87	3.82	0.0136	0.0144	0.0147
		106×2	72	3.82	3.75	3.70	0.0140	0.0147	0.0151
4.2	0.107	2116×1	49	4.41	4.34	4.29	0.0125	0.0131	0.0133
4.5	0.114	2116×1	52	4.33	4.26	4.21	0.0127	0.0133	0.0135
		1067×2	70	3.87	3.80	3.75	0.0138	0.0146	0.0149
5	0.127	2116×1	56	4.23	4.16	4.11	0.0129	0.0136	0.0138
		1080×2	59	4.15	4.08	4.03	0.0131	0.0138	0.0141
		1067×2	73	3.79	3.72	3.67	0.0140	0.0148	0.0151
5.5	0.14	1652×1	49	4.41	4.34	4.29	0.0125	0.0131	0.0133
		1086×2	59	4.15	4.08	4.03	0.0131	0.0138	0.0141
		1080×2	62	4.07	4.00	3.95	0.0133	0.0140	0.0143
6	0.152	1652×1	52	4.33	4.26	4.21	0.0127	0.0133	0.0135
		1080×2	65	4.00	3.93	3.88	0.0135	0.0142	0.0145
6.2	0.157	1506×1	46	4.48	4.41	4.36	0.0123	0.0129	0.0131
6.5	0.165	1506×1	48	4.43	4.36	4.31	0.0124	0.0131	0.0132
7	0.178	3313×2	50	4.38	4.31	4.26	0.0125	0.0132	0.0134
		2113×2	53	4.30	4.23	4.18	0.0127	0.0134	0.0136
7.2	0.183	7628×1	42	4.58	4.51	4.46	0.0120	0.0127	0.0128
8	0.203	7628×1	47	4.46	4.39	4.34	0.0123	0.0130	0.0131
		2113×2	58	4.18	4.11	4.06	0.0130	0.0138	0.0140
		3313×2	57	4.20	4.13	4.08	0.0130	0.0137	0.0139
9	0.229	2116×2	52	4.33	4.26	4.21	0.0127	0.0133	0.0135
10	0.254	2116×2	56	4.23	4.16	4.11	0.0129	0.0136	0.0138



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(mil)	(mm)			1GHz	5GHz	10GHz	1GHz	5GHz	10GHz
11	0.279	1652x2	49	4.41	4.34	4.29	0.0125	0.0131	0.0133
12	0.305	1506x2	46	4.48	4.41	4.36	0.0123	0.0129	0.0131
13	0.330	1506x1	48	4.43	4.36	4.31	0.0124	0.0131	0.0132
14	0.356	7628x2	43	4.56	4.49	4.44	0.0121	0.0127	0.0128
15	0.381	7628x2	44	4.53	4.46	4.41	0.0121	0.0128	0.0129
16	0.406	7628x2	47	4.46	4.39	4.34	0.0123	0.0130	0.0131
18	0.457	7628x2+1080x1	47	4.46	4.39	4.34	0.0123	0.0130	0.0131
20	0.508	7628x2+2116x1	46.5	4.47	4.40	4.35	0.0123	0.0130	0.0131
21	0.533	7628x3	42	4.58	4.51	4.46	0.0120	0.0127	0.0128
24	0.61	7628x3	47	4.46	4.39	4.34	0.0123	0.0130	0.0131
26	0.66	7628x2+1506x2	44	4.53	4.46	4.41	0.0121	0.0128	0.0129
28	0.711	7628x4	42	4.58	4.51	4.46	0.0120	0.0127	0.0128
31	0.787	7628x4	47	4.46	4.39	4.34	0.0123	0.0130	0.0131
33	0.84	7628x5	41	4.61	4.54	4.49	0.0119	0.0126	0.0127
36	0.91	7628x5	43	4.56	4.49	4.44	0.0121	0.0127	0.0128
41	1.04	7628x6	42	4.58	4.51	4.46	0.0120	0.0127	0.0128
43	1.09	7628x6	44	4.53	4.46	4.41	0.0121	0.0128	0.0129
47	1.19	7628x6	47	4.46	4.39	4.34	0.0123	0.0130	0.0131
49	1.24	7628x7	42	4.58	4.51	4.46	0.0120	0.0127	0.0128
51	1.30	7628x7	42.5	4.57	4.50	4.45	0.0120	0.0127	0.0128
53	1.35	7628x7	45	4.51	4.44	4.39	0.0122	0.0129	0.0130
55	1.40	7628x8	42	4.58	4.51	4.46	0.0120	0.0127	0.0128
57	1.45	7628x8	43	4.56	4.49	4.44	0.0121	0.0127	0.0128
59	1.50	7628x8	44	4.53	4.46	4.41	0.0121	0.0128	0.0129

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