



广东龙宇新材料有限公司

High Tg Halogen Free /Mid Loss

半固化片(Prepreg)-B-STAGE 品名: LYPP-L2G

覆铜板(Laminates)-C-STAGE 品名: LYCCL-L2G

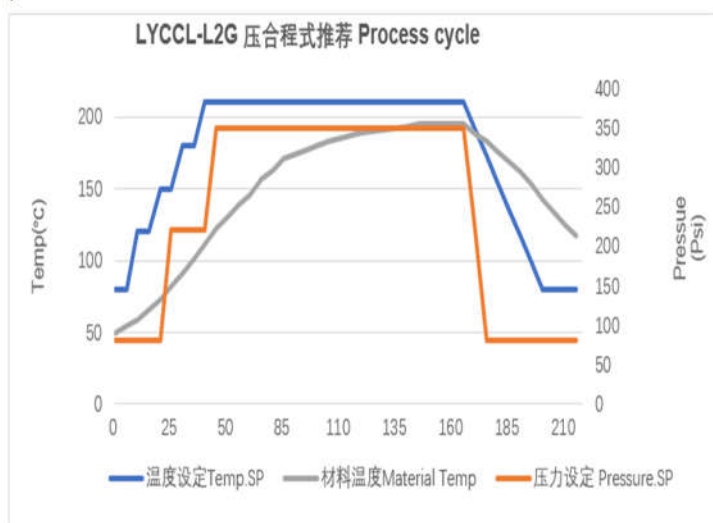
产品特性 Product Performance

- 无卤素 高Tg: $>170^{\circ}\text{C}$ (DSC), Halogen free
- 中损耗电性能/ mid loss Electrical Performance
- 优异的热性能, $T_d \geq 370^{\circ}\text{C}$ Excellent Thermal Resistivity, $T_d \geq 370^{\circ}\text{C}$
- 低Z轴热膨胀系数 Low Z axis CTE
- 较低的吸水性, 耐CAF性能好, 高可靠性
Low water absorption, Excellent anti-CAF, high reliability.

产品应用 Product application

- 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
- 光通信产品
Optical Communication Product

LYCCL-L2G 压合程式



Heat-up rate 1.5-2.5/min ($70^{\circ}\text{C} \sim 140^{\circ}\text{C}$)

Kiss Pressure: 80~100psi

Full Pressure: 350~450psi

Full Pressure apply at $90^{\circ}\text{C} \sim 110^{\circ}\text{C}$ / Material's Temp

Curing time: 90min ($> 190^{\circ}\text{C}$ / Material's Temp.)

Cooling rate: $< 2^{\circ}\text{C}/\text{min}$



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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)		°C	2.4.25	DSC	≥170	185
	玻璃转化温度(TMA)		°C	2.4.25	TMA	≥170	180
	Z 轴膨胀系数 Z-CTE	Alpha 1	Ppm/°C	2.4.24	TMA	≤60	40
		Alpha 2	Ppm/°C	2.4.24	TMA	≤300	180
		%	%	2.4.24	TMA	≤3.0	2.20
	热分解温度 Td(TGA)		°C	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°C, solder dip	>10sec 不分层起泡	Pass
	热应力 Thermal stress(unetched)		Sec	2.4.13.1	288°C, 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	4.30
	介电损耗因子 Loss Tangent		-	2.5.5.13		≤0.035	0.011
	表面电阻 Surface Resistivity		MΩ	2.5.17.1	C-96/35/90	>10e+4	8.20E+08
	体积电阻 Volume Resistivity		MΩ-cm	2.5.17.1	C-96/35/90	>10e+6	6.60E+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	60
	耐电弧 Arc Resistive		Sec	2.5.1	D-48/50+D-0.5/23	≥60	120
物理性能 Physical Performance	剥离强度 Peel strength 10Z	Standard profile copper foil	Lb/in	2.4.8	288°C/10s >0.5mm	≥6.0	6.70
		Low profile copper foil			288°C/10s >0.6mm	≥4.0	4.65
	弯曲强度 Flexural strength		N/mm2	2.4.4	A	≥415	500
					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-L2G 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	3.75	3.68	3.64	0.0119	0.0126	0.0131
		74	2.2	0.056	3.70	3.63	3.59	0.0120	0.0127	0.0132
		76	2.4	0.061	3.65	3.58	3.54	0.0121	0.0129	0.0134
1067	1.18	67	2.0	0.051	3.87	3.80	3.76	0.0115	0.0123	0.0127
		69	2.2	0.056	3.82	3.75	3.71	0.0117	0.0124	0.0128
		71	2.4	0.061	3.77	3.70	3.66	0.0118	0.0125	0.0130
1080	1.97	64	3.0	0.076	3.94	3.87	3.83	0.0113	0.0121	0.0124
		66	3.2	0.081	3.89	3.82	3.78	0.0115	0.0122	0.0126
		68	3.4	0.086	3.85	3.78	3.74	0.0116	0.0123	0.0127
		70	3.6	0.091	3.80	3.73	3.69	0.0117	0.0125	0.0129
1078	1.97	64	3.0	0.076	3.94	3.87	3.83	0.0113	0.0121	0.0124
		66	3.2	0.081	3.89	3.82	3.78	0.0115	0.0122	0.0126
		68	3.4	0.086	3.85	3.78	3.74	0.0116	0.0123	0.0127
		70	3.6	0.091	3.80	3.73	3.69	0.0117	0.0125	0.0129
1086	1.97	62	3.0	0.076	3.99	3.92	3.88	0.0112	0.0119	0.0123
		64	3.2	0.081	3.94	3.87	3.83	0.0113	0.0121	0.0124
		66	3.4	0.086	3.89	3.82	3.78	0.0115	0.0122	0.0126
		68	3.6	0.091	3.85	3.78	3.74	0.0116	0.0123	0.0127
2113	2.75	56	3.8	0.097	4.14	4.07	4.03	0.0108	0.0115	0.0118
		58	4.0	0.102	4.09	4.02	3.98	0.0109	0.0117	0.0120
		60	4.2	0.107	4.04	3.97	3.93	0.0111	0.0118	0.0121
		62	4.5	0.114	3.99	3.92	3.88	0.0112	0.0119	0.0123
3313	2.95	55	3.8	0.097	4.17	4.10	4.06	0.0108	0.0114	0.0118
		57	4.0	0.102	4.12	4.05	4.01	0.0109	0.0116	0.0119
		59	4.2	0.107	4.07	4.00	3.96	0.0110	0.0117	0.0121
		61	4.5	0.114	4.02	3.95	3.91	0.0111	0.0119	0.0122
2116	3.54	54	4.8	0.122	4.19	4.12	4.08	0.0107	0.0114	0.0117
		56	5.0	0.127	4.14	4.07	4.03	0.0108	0.0115	0.0118
		58	5.3	0.135	4.09	4.02	3.98	0.0109	0.0117	0.0120
		60	5.6	0.142	4.04	3.97	3.93	0.0111	0.0118	0.0121
		62	5.9	0.150	3.99	3.92	3.88	0.0112	0.0119	0.0123
1506	5.51	48	6.5	0.165	4.34	4.27	4.23	0.0103	0.0110	0.0112
		50	6.8	0.173	4.29	4.22	4.18	0.0104	0.0111	0.0114
		52	7.1	0.180	4.24	4.17	4.13	0.0106	0.0112	0.0115



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	Mil	%	(mils)	(mm)	1GHz	5GHz	10GHz	1GHz	5GHz	10GHz
7628	6.90	45	7.8	0.198	4.42	4.35	4.31	0.0101	0.0108	0.0110
		47	8.1	0.206	4.37	4.30	4.26	0.0102	0.0109	0.0111
		49	8.5	0.216	4.32	4.25	4.21	0.0104	0.0110	0.0113
		51	8.9	0.226	4.27	4.20	4.16	0.0105	0.0112	0.0115

如需要更多的规格，请直接联系广东龙宇销售或客服人员。

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LYCCL-L2G 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	3.87	3.80	3.76	0.0115	0.0123	0.0127
		106×1	72	3.75	3.68	3.64	0.0119	0.0126	0.0131
2.5	0.064	1067×1	73	3.72	3.65	3.61	0.0119	0.0127	0.0131
		106×1	77	3.62	3.55	3.51	0.0122	0.0130	0.0134
3	0.076	1080×1	64	3.94	3.87	3.83	0.0113	0.0121	0.0124
		1086×1	62	3.99	3.92	3.88	0.0112	0.0119	0.0123
3.5	0.089	3313×1	52	4.24	4.17	4.13	0.0106	0.0112	0.0115
		2113×1	53	4.22	4.15	4.11	0.0106	0.0113	0.0116
		1037×2	70	3.80	3.73	3.69	0.0117	0.0125	0.0129
4	0.102	3313×1	57	4.12	4.05	4.01	0.0109	0.0116	0.0119
		2113×1	58	4.09	4.02	3.98	0.0109	0.0117	0.0120
		1067×2	67	3.87	3.80	3.76	0.0115	0.0123	0.0127
		106×2	72	3.75	3.68	3.64	0.0119	0.0126	0.0131
4.2	0.107	2116×1	49	4.32	4.25	4.21	0.0104	0.0110	0.0113
4.5	0.114	2116×1	52	4.24	4.17	4.13	0.0106	0.0112	0.0115
		1067×2	70	3.80	3.73	3.69	0.0117	0.0125	0.0129
5	0.127	2116×1	55	4.17	4.10	4.06	0.0108	0.0114	0.0118
		1080×2	59	4.07	4.00	3.96	0.0110	0.0117	0.0121
		1067×2	72	3.75	3.68	3.64	0.0119	0.0126	0.0131
5.5	0.14	1652×1	48	4.34	4.27	4.23	0.0103	0.0110	0.0112
		1086×2	58	4.09	4.02	3.98	0.0109	0.0117	0.0120
		1080×2	62	3.99	3.92	3.88	0.0112	0.0119	0.0123
6	0.152	1652×1	52	4.24	4.17	4.13	0.0106	0.0112	0.0115
		1080×2	64	3.94	3.87	3.83	0.0113	0.0121	0.0124

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LYCCL-L2G 覆铜板(Laminates)-C-STAGE Product Datasheet

Typical Core Thickness		Standard Construction	RC(%)	Dk			Df		
(mil)	(mm)			Test method TM650 2.5.13			Test method TM650 2.5.13		
				1GHz	5GHz	10GHz	1GHz	5GHz	10GHz
6.2	0.157	1506×1	45	4.42	4.35	4.31	0.0101	0.0108	0.0110
6.5	0.165	1506×1	48	4.34	4.27	4.23	0.0103	0.0110	0.0112
7	0.178	3313×2	50	4.29	4.22	4.18	0.0104	0.0111	0.0114
		2113×2	53	4.22	4.15	4.11	0.0106	0.0113	0.0116
7.2	0.183	7628×1	43	4.47	4.40	4.36	0.0100	0.0106	0.0108
8	0.203	7628×1	47	4.37	4.30	4.26	0.0102	0.0109	0.0111
		2113×2	59	4.07	4.00	3.96	0.0110	0.0117	0.0121
		3313×2	55	4.17	4.10	4.06	0.0108	0.0114	0.0118
9	0.229	2116×2	52	4.24	4.17	4.13	0.0106	0.0112	0.0115
10	0.254	2116×2	55	4.17	4.10	4.06	0.0108	0.0114	0.0118
11	0.279	1652×2	48	4.34	4.27	4.23	0.0103	0.0110	0.0112
12	0.305	1506×2	45	4.42	4.35	4.31	0.0101	0.0108	0.0110
13	0.33	1506×1	48	4.34	4.27	4.23	0.0103	0.0110	0.0112
14	0.356	7628×2	43	4.47	4.40	4.36	0.0100	0.0106	0.0108
15	0.381	7628×2	44	4.44	4.37	4.33	0.0100	0.0107	0.0109
16	0.406	7628×2	47	4.37	4.30	4.26	0.0102	0.0109	0.0111
18	0.457	7628×2+1080×1	47	4.37	4.30	4.26	0.0102	0.0109	0.0111
20	0.508	7628×2+2116×1	46.5	4.38	4.31	4.27	0.0102	0.0109	0.0111
21	0.533	7628×3	43	4.47	4.40	4.36	0.0100	0.0106	0.0108
24	0.61	7628×3	47	4.37	4.30	4.26	0.0102	0.0109	0.0111
26	0.66	7628×2+1506×2	43	4.47	4.40	4.36	0.0100	0.0106	0.0108
28	0.711	7628×4	43	4.47	4.40	4.36	0.0100	0.0106	0.0108
31	0.79	7628×4	47	4.37	4.30	4.26	0.0102	0.0109	0.0111
33	0.84	7628×5	41	4.51	4.44	4.40	0.0098	0.0105	0.0107
36	0.91	7628×5	43	4.47	4.40	4.36	0.0100	0.0106	0.0108
39	0.99	7628×5	47	4.37	4.30	4.26	0.0102	0.0109	0.0111
41	1.04	7628×6	41	4.51	4.44	4.40	0.0098	0.0105	0.0107
43	1.09	7628×6	43	4.47	4.40	4.36	0.0100	0.0106	0.0108
45	1.14	7628×6	45	4.42	4.35	4.31	0.0101	0.0108	0.0110
47	1.19	7628×6	47	4.37	4.30	4.26	0.0102	0.0109	0.0111
49	1.24	7628×7	41	4.51	4.44	4.40	0.0098	0.0105	0.0107
52	1.32	7628×7	45	4.42	4.35	4.31	0.0101	0.0108	0.0110
55	1.40	7628×8	41	4.51	4.44	4.40	0.0098	0.0105	0.0107
59	1.50	7628×8	44	4.44	4.37	4.33	0.0100	0.0107	0.0109

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