

KB-6160/6160A/6160C (ANSI: FR-4.0)**覆铜箔环氧玻纤布层压板****Features 特点**

- 兼容紫外光阻挡及光学自动检查功能,可提高 PCB 生产效率与准确性
UVB and AOI (automatic optical inspection) compatible, so as to increase productivity and accuracy.
- 优良的耐热性能和机械性能
Excellent heat resistance and mechanical properties
- 符合 IPC-4101D/21 的规范要求
IPC-4101D/21 specification is applicable.

General Properties 一般特性

Test Item 测试项目	Unit 单位	Test Method (IPC-TM-650) 测试方法	Test Condition 处理条件	Specification (IPC-4101D) 规格值	Typical Value 典型值
Peel Strength (1 oz.) 铜箔剥离强度	N/mm	2.4.8	125℃	≥0.70	1.70
			Float 288℃ / 10 Sec	≥1.05	1.75
Thermal Stress 热应力	Sec	2.4.13.1	Float 288℃/unetched	≥10	180
Bow / Twist 弯弓度/翘曲度	%	2.4.22.1	A	≤ 1.0	0.17 / 0.35
Flexural Strength 抗弯强度	N/mm ²	2.4.4	Length direction	≥415	565
			Cross direction	≥345	416
Flammability 燃烧性	Rating	UL94	UL94	UL94 V-0	V-0
Glass Transition (Tg) 玻璃化转变温度	℃	2.4.25	E-2/105 DSC	≥130	135
Surface Resistivity 表面电阻	MΩ	2.5.17.1	C-96/35/90	≥1.0×10 ⁴	1.0×10 ⁶
Volume Resistivity 体积电阻	MΩ-cm	2.5.17.1	C-96/35/90	≥1.0×10 ⁶	1.0×10 ⁸
Dielectric Breakdown 介电击穿	kV	2.5.6	D-48/50+D0.5/23	≥40	69
Dielectric Strength 介电强度	kV/mm	2.5.6.2	D-48/50+D0.5/23	≥30	41
Dielectric Constant 介电常数	—	2.5.5.2	Etched/@1 MHZ	≤5.4	4.58
Loss Tangent 介电损耗	—	2.5.5.2	Etched/@1 MHZ	≤0.035	0.022
Arc Resistance 耐电弧性	Sec	2.5.1	D-48/50+D-0.5/23	≥60	125
Moisture Absorption 吸水率	%	2.6.2.1	D-24/23	≤0.35(min0.51mm)	0.21
				≤0.80(max0.51mm)	0.19
Z-Axis Expansion Z-轴热膨胀系数	ppm/℃	2.4.24	E-2/105 TMA	—	58/286
TD	℃	2.4.24.6	TGA	—	305
T-260	min	2.4.24.1	TMA	—	10

Remarks: Specimen Thickness: 1.6 mm 1/1 样品厚度: 1.6 mm 1/1

A = Keep the specimen originally without any process 保持原样,不作处理

C = Temperature and humidity conditioning 在恒温恒湿的空气中处理;

D = Temperature conditioning immersion in distilled water. 浸在恒温的水中处理

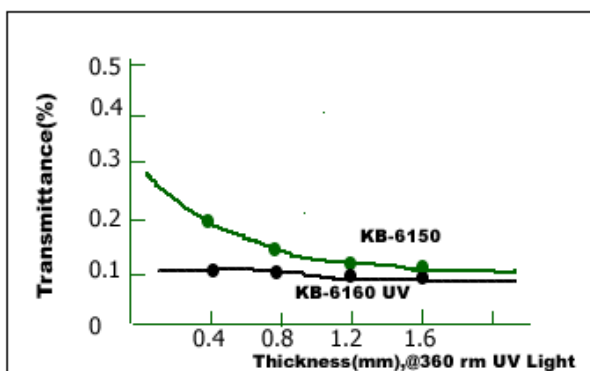
E = Immersing in distilled water with temperature control 在恒温的空气中处理;

KB-6160/6160A/6160C (ANSI: FR-4.0)

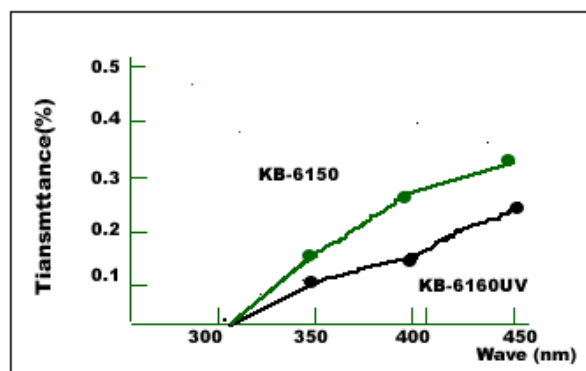
覆铜箔环氧玻纤布层压板

Speciality Chart 板材特性图

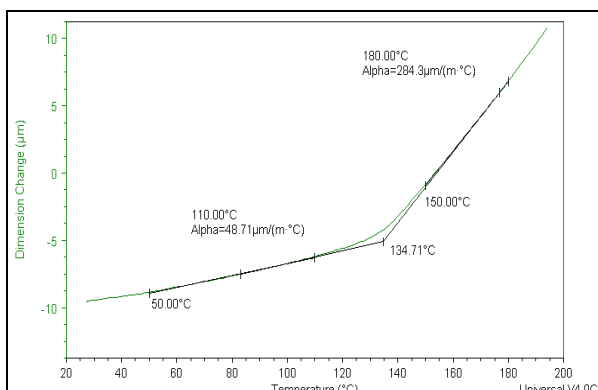
UV blocking (thickness) UV 阻挡



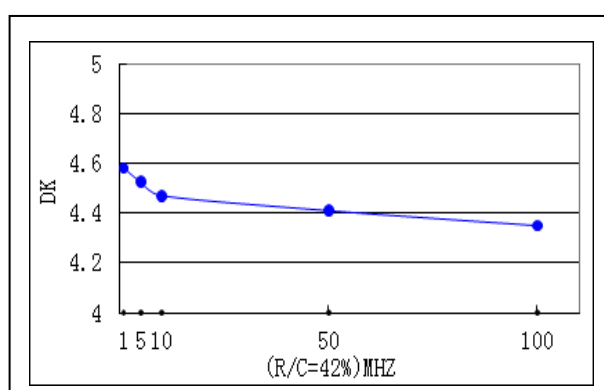
UV blocking (wave / UV-3100)



CTE Z 轴热膨胀系数(test by TMA)



Dielectric constant 介电常数



Applications 应用领域

- Computer, communication equipment, instrument, OA equipment, etc.
计算机及外围设备、通讯设备、仪器仪表、办公自动设备等

Purchasing Information 采购信息

Base Color 基板颜色	Thickness 厚度	Copper Cladding 铜箔厚度	Regular Size (mm) 常规尺寸	CTI Value CTI 值
黄色 (yellow)	0.05mm ~ 3.5mm	12μm, 18μm 35μm, 70μm 105μm	915*1220mm (36"*48") 1020*1220mm (40"*48") 1067*1220mm (42"*48")	KB-6160:175V KB-6160A:175V KB-6160C: 300V/600V

Note: Other sheet size and thickness could be available upon request.

可根据客户要求提供其它尺寸和厚度

KB-6160C Not recommended for solder mask rework.

KB-6160C 不适合翻洗绿油 (阻焊油墨)

KB-6165F (ANSI: FR-4.0)

覆铜箔环氧玻纤布层压板

General Properties 一般特性

Test Item 测试项目	Unit 单位	Test Method (IPC-TM-650) 测试方法	Test Condition 处理条件	Specification (IPC-4101D/99) 规格值		Typical Value 典型值	
				Thk < 0.50mm	Thk ≥ 0.50mm	Thk < 0.50mm	Thk ≥ 0.50mm
Peel Strength (1 oz.) 铜箔剥离强度	N/mm	2.4.8	125 °C	≥0.70	≥0.70	1.05	1.13
			Float 288 °C/ 10 Sec	≥0.80	≥1.05	1.22	1.39
			After process solution	≥0.55	≥0.80	0.87	0.96
Flammability 燃烧性	Rating	UL94	E-24/23	UL94 V-0		V-0	
Thermal stress 热应力	Sec	2.4.13.1	Float 288 °C/unetched	≥10		≥240	
Glass Transition (Tg) 玻璃化转变温度	°C	2.4.25	E-2/105 DSC	≥150		150	155 ± 5
Surface Resistivity 表面电阻	MΩ	2.5.17.1	C-96/35/90	≥1.0×10 ⁴	—	2.7×10 ⁷	—
			After moisture resistance	—	≥1.0×10 ⁴	—	8.4×10 ⁷
			At elevated temperature E-24/125	≥1.0×10 ³	≥1.0×10 ³	5.4×10 ⁷	5.7×10 ⁷
Volume Resistivity 体积电阻	MΩ-cm	2.5.17.1	C-96/35/90	≥1.0×10 ⁶	—	2.6×10 ¹⁰	—
			After moisture resistance	—	≥1.0×10 ⁴	—	5.8×10 ⁷
			At elevated temperature E-24/125	≥1.0×10 ³	≥1.0×10 ³	3.2×10 ¹⁰	8.3×10 ⁸
Flexural Strength 抗弯强度	N/mm ²	2.4.4	Length direction	—	≥415	—	519
			Cross direction	—	≥345	—	443
Dielectric breakdown 介质击穿	kV	2.5.6	D-48/50+D0.5/23	—	≥40	—	60
Dielectric strength 介质强度	kV/mm	2.5.6.2	D-48/50+D0.5/23	≥29	—	65	—
Dielectric Constant 介电常数	—	2.5.5.2	Etched/@1 MHZ	≤5.4		4.8~5.0	
Loss Tangent 介质损耗	—	2.5.5.2	Etched/@1 MHZ	≤0.035		0.017	
Arc Resistance 耐电弧性	Sec	2.5.1	D-48/50+D-0.5/23	≥60		121	
Moisture Absorption 吸水率	%	2.6.2.1	D-24/23	—	≤0.5	0.080	0.082
CTE/ Z-Axis Expansion Z-轴热膨胀系数	ppm/°C	2.4.24	Alpha 1	—	≤60	—	49
			Alpha 2	—	≤300	—	238
	%		50-260 °C	—	≤3.5	—	3.2
T-260	min	2.4.24.1	TMA	—	≥30	—	>60
T-288	min	2.4.24.1	TMA	—	≥5	—	20.52
T-300	min	2.4.24.1	TMA	—	AABUS	—	10.3
TD	°C	2.4.24.6	TGA	—	325	—	334

Remarks:

A = Keep the specimen originally without any process 保持原样, 不作处理

C = Temperature and humidity conditioning 在恒温恒湿的空气中处理

D = Immersing in distilled water with temperature control 浸在恒温的水中处理

E = Temperature conditioning 在恒温的空气中处理

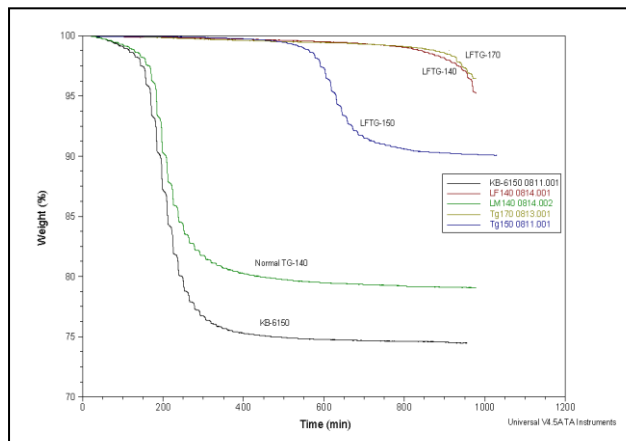
KB-6165F (ANSI: FR-4.0)

覆铜箔环氧玻纤布层压板

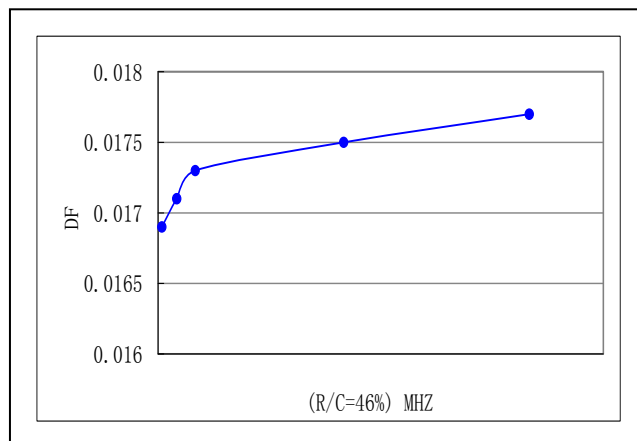
Speciality Chart 板材特性图

Thermal Cycling Test on Various Materials 各种材料热循环

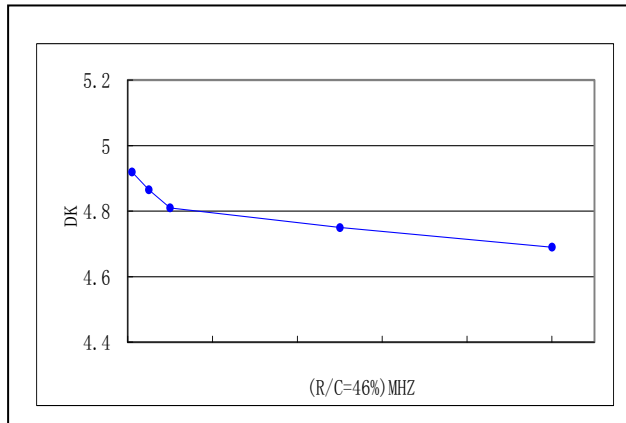
(TGA: Temp. was raised to 260°C at 10°C/min, then dropped to 200°C, and raised to 260°C, until delamination)



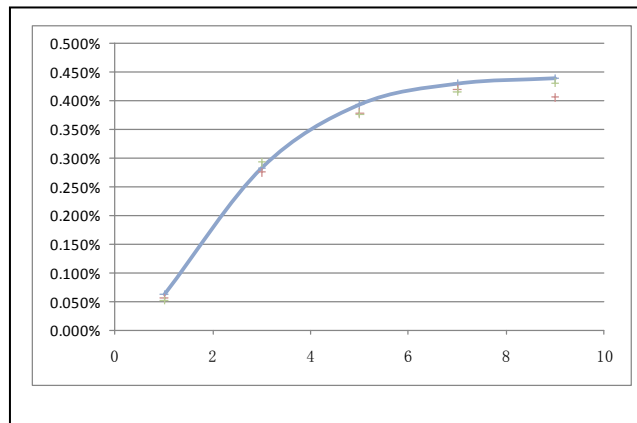
Loss Tangent 介质损耗



Dielectric constant 介质常数



Water absorption after PCT 吸水率 (%)



Purchasing Information 采购信息

Base Color 基板颜色	Thickness 厚度	Copper Cladding 铜箔厚度	Regular Size (mm) 常规尺寸	CTI Value
黄色 Yellow	0.05mm ~ 3.5mm	18 μ m 35 μ m 70 μ m. 204 μ m	915*1220mm (36"*48") 1020*1220mm (40"*48") 1067*1220mm (42"*48")	175V

Note: Other sheet size and thickness could be available upon request.

可根据客户要求提供其它尺寸和厚度

H140A

特性/Features

Tg:135±5℃ (DSC)
UV Blocking与 AOI兼容可提高PCB生产效率
UV Blocking and AOI compatible, so as to increase productivity efficiency
可依需求提供不具UV阻挡功能的自然色板材（白料）
No UV Blocking and natural color CCL upon request
可依需求提介电常数为：
4.3±0.3 (1 MHz)的FR-4板材
According to necessity to provide a dielectric constant:
4.3 ± 0.3 (1 MHz) of FR-4 plate

应用领域/Applications

适合于2-6层PCB、计算机及外围设备、通讯设备、办公自动设备等。
Suitable for medium multilayer printed circuit board, computer, communication equipment, OA equipment, etc.

主要特性/General properties

检测项目 Item		单位 Unit	检测条件 Test Condition	规范值 Spec	典型值 Typical Value
玻璃化转变温度/Tg		℃	DSC	135±5	135.5
剥离强度/1oz Peel Strength		N/mm	288℃, 10S	≥1.40	1.81
热应力/Thermal stress		S	288℃,solder dip	> 10	120 s No delamination
弯曲强度/Flexural Strength		N/mm ²	经向 LW 纬向 CW	≥415 ≥345	580 485
燃烧性/Flammability		—	E 24/125	UL94V-0	V-0
表面电阻/Surface Resistivity		MΩ	After moisture	≥1.0×10 ⁴	5.16×10 ⁷
体积电阻/Volume Resistivity		MΩ·cm	After moisture	≥1.0×10 ⁶	5.07×10 ⁸
介电常数/Dielectric Constant		—	1 MHz C 24/23/50	≤5.4	4.8
介质损耗角正切/Loss Tangent		—	1 MHz C 24/23/50	≤0.035	0.015
耐电弧/Arc Resistance		S	D48/50+D0.5/23	≥60	125
击穿电压/Dielectric Breakdown		KV	D48/50+D0.5/23	≥40	58
吸水率/Moisture Absorption		%	D24/23	≤0.35	0.15
热分解温度/Td		℃	Weight Loss 5%	—	310
CTE Z-axis	Alpha 1	ppm / °C	TMA	—	60
	Alpha 2	ppm / °C		—	300
	50 - 260 °C	%		—	4.3
T288		min	TMA	—	2
相比漏电起痕指数/CTI		V	IEC-60112	175~250	200

Specimen Thickness: 1.6mm; Specification Sheet: IPC-4101D/21, 97, is for your reference only
Explanation: C: Humidity conditioning; D: Immersion conditioning in distilled water;
E: Temperature conditioning;

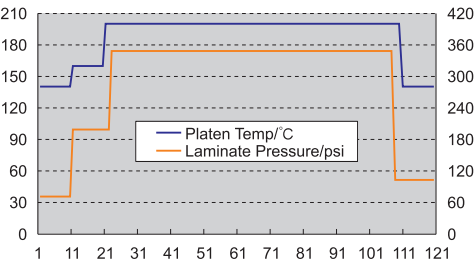
半固化片介绍-H140AP

Prepreg instruction

H140AP(UV Prepreg):

Prepreg Type	Resin Content(%)		压合厚度 / Cured Thickness			
	含量R/C(%)	公差Tolerance	Nominal		Range(±)mil	
	%	±	mm	mil	mm	mil
7628HRC	52	2	0.247	9.71	0.024	0.95
	50	2	0.234	9.23	0.023	0.9
	48	2	0.224	8.83	0.023	0.9
7628	45	2	0.207	8.15	0.020	0.8
	43	2	0.197	7.76	0.020	0.8
1506	48	2	0.175	6.89	0.018	0.7
	45	2	0.163	6.42	0.017	0.65
	43	2	0.155	6.1	0.015	0.6
2116	58	2	0.145	5.71	0.015	0.6
	57	2	0.142	5.59	0.014	0.55
	55	2	0.134	5.28	0.014	0.55
	53	2	0.127	5.00	0.013	0.5
	50	2	0.119	4.69	0.013	0.5
1080	68	2	0.093	3.66	0.010	0.4
	65	2	0.082	3.23	0.008	0.3
	63	2	0.078	3.07	0.008	0.3
	60	2	0.073	2.87	0.008	0.3

建议压制程式：Suggest cycle



Heat-up rate:1.0~2.5°C/min(80~140°C)

Curing time:>30min(>170°C)

The hot pressing parameters is for your reference only,
please turn to Zhejiang Huazheng New Material .Co.,Ltd
for detailed information.

储存条件：

温度≤23°C、湿度≤50%，保存时间3个月；
温度≤5°C、密封条件下，保存时间6个月。

Storage Condition:

T≤23°C & ≤50%RH, Within 3 months;
T≤5°C Within 6 months (seal condition)

在上述要求内，我司可立即安排PP送样；
若有特殊要求，由供需双方商定。

Follow above condition, our company will arrange
sample immediately. We can discuss if you have
any special requirement.

H150(LF)

特性/Features

Tg≥150℃ (DSC)
UV Blocking与 AOI兼容可提高PCB生产效率
UV Blocking and AOI compatible,
so as to increase production efficiency
优异的耐热性, Td ≥325℃, T288≥5min, 适合于无铅焊工艺;
High thermal performance, Td ≥325℃, T288≥5min,
suitable for lead-free process.

应用领域/Applications

计算机及外围设备、通讯设备、汽车电子。
Computer, communication equipment, automotive electronics.

主要特性/General properties

检测项目 Item		单位 Unit	检测条件 Test Condition	规范值 Spec	典型值 Typical Value
玻璃化转变温度/Tg		℃	DSC	≥150	154.5
剥离强度/1oz Peel Strength		N/mm	288℃, 10S	≥1.05	1.41
热应力/Thermal stress		S	288℃, solder dip	>10	180 s No delamination
弯曲强度/Flexural Strength		N/mm ²	经向 LW 纬向 CW	≥415 ≥345	570 465
燃烧性/Flammability		—	E 24/125	UL94V-0	V-0
表面电阻/Surface Resistivity		MΩ	After moisture	≥1.0×10 ⁴	6.12×10 ⁷
体积电阻/Volume Resistivity		MΩ·cm	After moisture	≥1.0×10 ⁵	6.25×10 ⁸
介电常数/Dielectric Constant		—	1 MHz C 24/23/50	≤5.4	4.7
介质损耗角正切/Loss Tangent		—	1 MHz C 24/23/50	≤0.035	0.016
耐电弧/Arc Resistance		S	D48/50+D0.5/23	≥60	125
击穿电压/Dielectric Breakdown		KV	D48/50+D0.5/23	≥40	57
吸水率/Moisture Absorption		%	D24/23	≤0.35	0.10
热分解温度/Td		℃	Weight Loss 5%	≥325	348
CTE Z-axis	Alpha 1	ppm / ℃	TMA	≤60	55
	Alpha 2	ppm / ℃		≤300	276
	50 - 260 ℃	%		≤3.5	3.3
T288		min	TMA	≥5	20
相比漏电起痕指数/CTI		V	IEC-60112	175~250	200

Specimen Thickness: 1.6mm; Specification sheet: IPC-4101D/99, is for your reference only
Explanation: C: Humidity conditioning; D: Immersion conditioning in distilled water;
E: Temperature conditioning;

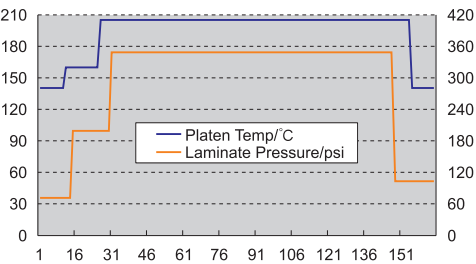
半固化片介绍-H150P(LF)

Prepreg instruction

H150P(LF) (UV Prepreg):

Prepreg Type	Resin Content(%)		压合厚度 / Cured Thickness			
	含量R/C(%)	公差Tolerance	Nominal		Range(±)mil	
	%	±	mm	mil	mm	mil
7628HRC	52	2	0.231	9.09	0.022	0.85
	50	2	0.22	8.66	0.022	0.85
	48	2	0.21	8.27	0.020	0.8
7628	45	2	0.195	7.68	0.019	0.75
	43	2	0.186	7.32	0.018	0.7
1506	48	2	0.164	6.46	0.017	0.65
	45	2	0.153	6.02	0.015	0.6
2116	58	2	0.136	5.35	0.014	0.55
	57	2	0.132	5.20	0.013	0.5
	55	2	0.125	4.92	0.013	0.5
	53	2	0.119	4.69	0.011	0.45
	50	2	0.11	4.33	0.011	0.45
1080	68	2	0.086	3.39	0.008	0.3
	65	2	0.077	3.03	0.008	0.3
	63	2	0.073	2.87	0.008	0.3

建议压制程式： Suggest cycle



Heat-up rate: 1.5~2.5°C/min (80~140°C)
Curing time: >60min (>180°C)
The hot pressing parameters is for your reference only,
please turn to Zhejiang Huazheng New Material.Co.,Ltd
for detailed information.

储存条件：

温度≤23°C、湿度≤50%，保存时间3个月；
温度≤5°C、密封条件下，保存时间6个月。

Storage Condition:

T≤23°C & ≤50%RH, Within 3 months;
T≤5°C Within 6 months (seal condition)

在上述要求内，我司可立即安排PP送样；
若有特殊要求，由供需双方商定。
Follow above condition, our company will arrange
sample immediately. We can discuss if you have
any special requirement.