

3.2 HRFR-4UV/HRPFR-4UV

(ANSI : FR-4) UV Blocking

1) 产品特点 Features

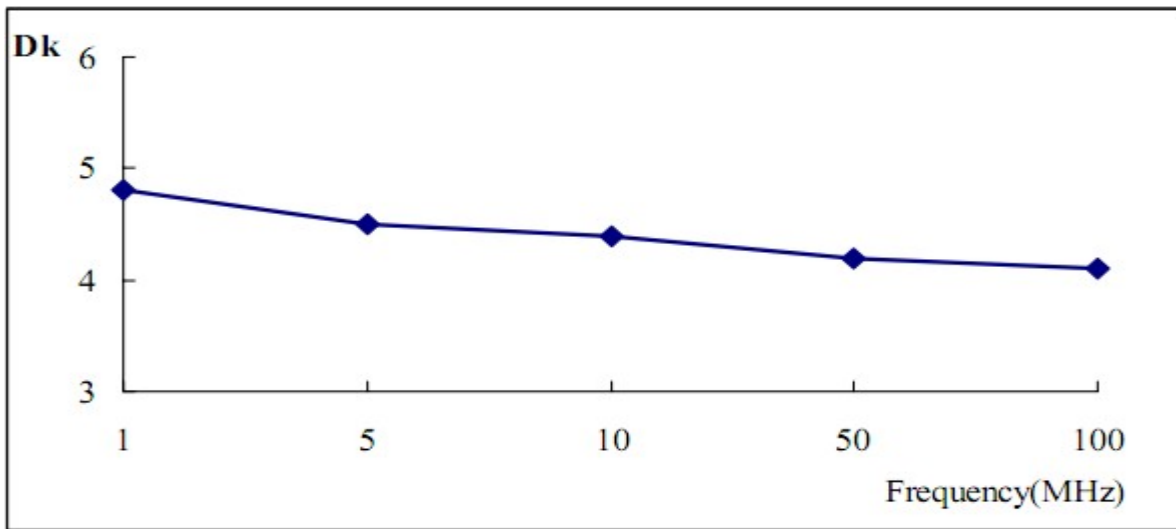
- UV Blocking 增加 AOI 自动光学检查机之对比性
UV Blocking Better laser type AOI characteristics
- Tg $135\pm 5^{\circ}\text{C}$ (DSC)
- 可依需求提供仪表类/路由器等专用的 FR-4 板材
- 可依需求提供具 UV 阻挡功能的自然色板
- 可依需求提供不具 UV 阻挡功能的自然色板 (白料)
- 可依需求提供特殊尺寸 (最大 51 英寸)、厚铜箔板 (4~120Z)

2) 基板性能表 Performance List for HRFR-4UV

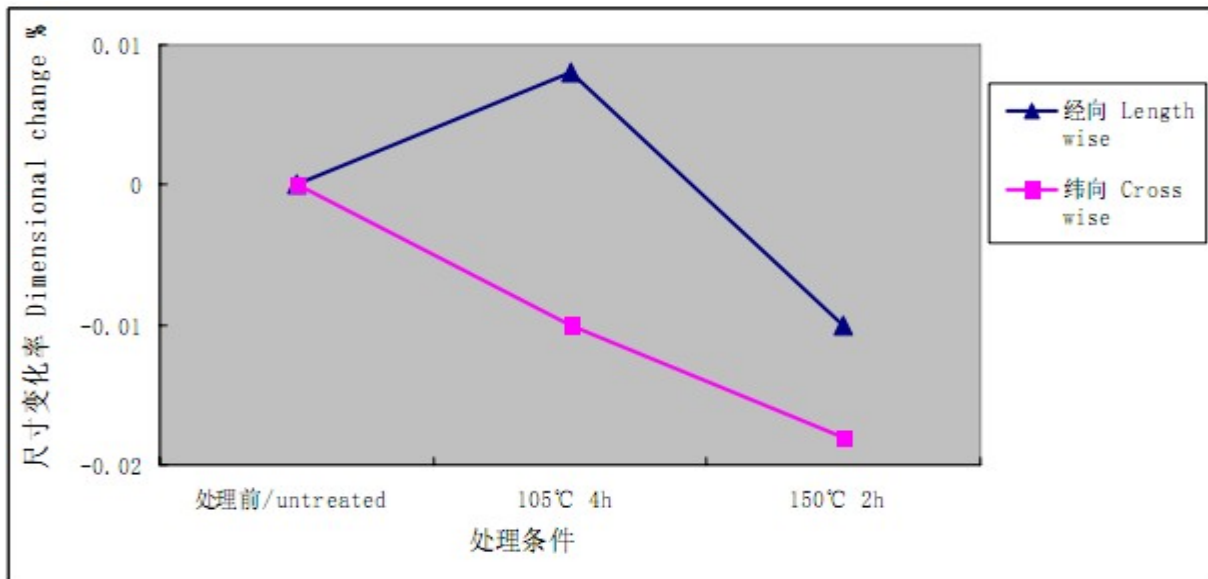
主要性能 Property to Test		实验条件 Test Condition	单位 Unit	指标 Guideline	典型值 Typical Value
剥离强度 Peel Strength	热应力后 After thermal stress	A	N/m m	≥ 1.05	1OZ 1.85 1/2OZ 1.35
	耐湿后 After moisture resistance	F		$\geq 10^4$	5.4×10^7
表面电阻率 Surface resistivity	高温下 At elevated temperature	E-24/125	M Ω	$\geq 10^3$	5.6×10^6
	耐湿后 After moisture resistance	F	M $\Omega \cdot \text{cm}$	$\geq 10^6$	5.2×10^8
体积电阻率 Volume resistivity	高温下 At elevated temperature	E-24/125		$\leq 10^3$	5.2×10^6
	吸水率 (板厚 $\geq 0.50\text{mm}$) Moisture absorption (Thickness of Laminates: $\geq 0.5\text{mm}$)	E-1/105+ DES+D-24/23	%	≤ 0.80	0.15
玻璃化温度 Tg(DSC)		E-1/125	$^{\circ}\text{C}$	≥ 125	135
介电击穿电压(平行与板面) Dielectric breakdown(parallel to laminate)		D-48/50+ D-0.5/23	KV	≥ 40	58
损耗角正切(1MHZ) Loss tangent at 1MHZ		C-40/23/50	—	≤ 0.035	0.020
介电常数(1MHZ) Permittivity at 1MHZ		C-40/23/50	—	≤ 5.4	4.6
完善性 Pressure Vessel Method		260 $^{\circ}\text{C}$ /20S	—	不分层不起泡 Appearance pass	不分层不起泡 Appearance pass
热应力 Thermal stress	未蚀刻 Unetched	288 $^{\circ}\text{C}$ /20S	—	不分层不起泡 Appearance pass	不分层不起泡 Appearance pass

	蚀刻后 Etched	288°C/20S	—	不分层不起泡 Appearance pass	不分层不起泡 Appearance pass
燃烧性 Flammability		E-24/125+DES	—	94V-0	94V-0
尺寸稳定性 Dimensional stability	烘后 After bake	E-2/105	ppm	±300	±180
	应力实验后 After stress	E-4/150		±300	±180
弯曲强度 Flexural strength of laminate	经向 Length direction	A	N/m m ²	≥415	540
	纬向 Cross direction	A		≥345	420

◆ 介电常数 / Dielectric constant



◆ 热处理后板材经纬向尺寸变化 Dimensional change in cross and length direction after heat treatment



使用说明：不建议使用无铅焊锡制程，若有需求，客户可自行评估合适的使用温度

3) 粘结片的特点与性能表 Features and Properties List of Prepregs

特点 Features:

- Tg140°C (DSC)。
- 适合于 AOI 检测。Suit for the test of AOI
- 优良的黏结性能，作业窗口宽。Excellent varnish viscosity, excellent process ability

性能表 Properties List

玻布型号 Glass Style	RC (%)	GT (S)	RF (%)	VC (%)	固化厚度 (mm) Cure Thickness (mm)	长度 (卷) Length (roll)
1080	61±3	110±20	39±5	<0.75	0.008±0.010	1260mm×114.3m (125 码)
2113	56±3		26±5		0.100±0.010	
3313	55±3		26±5		0.100±0.015	
2116	48±3		27±5		0.094±0.010	
2116	50±3		29±5		0.097±0.010	
1506	50±3		30±5		0.147±0.010	
7628	43±3		22±5		0.180±0.015	
7628	48±3		25±5		0.185±0.015	

1.对客户的需求，我司可提供特殊的规格；

As for customer's requests, HAORONG can produce special performance materials.

2.以上数据仅供参考。

All above values are just for reference.

5) 粘接片的测试项目与方法 Items and Methods for Testing Prepreg:

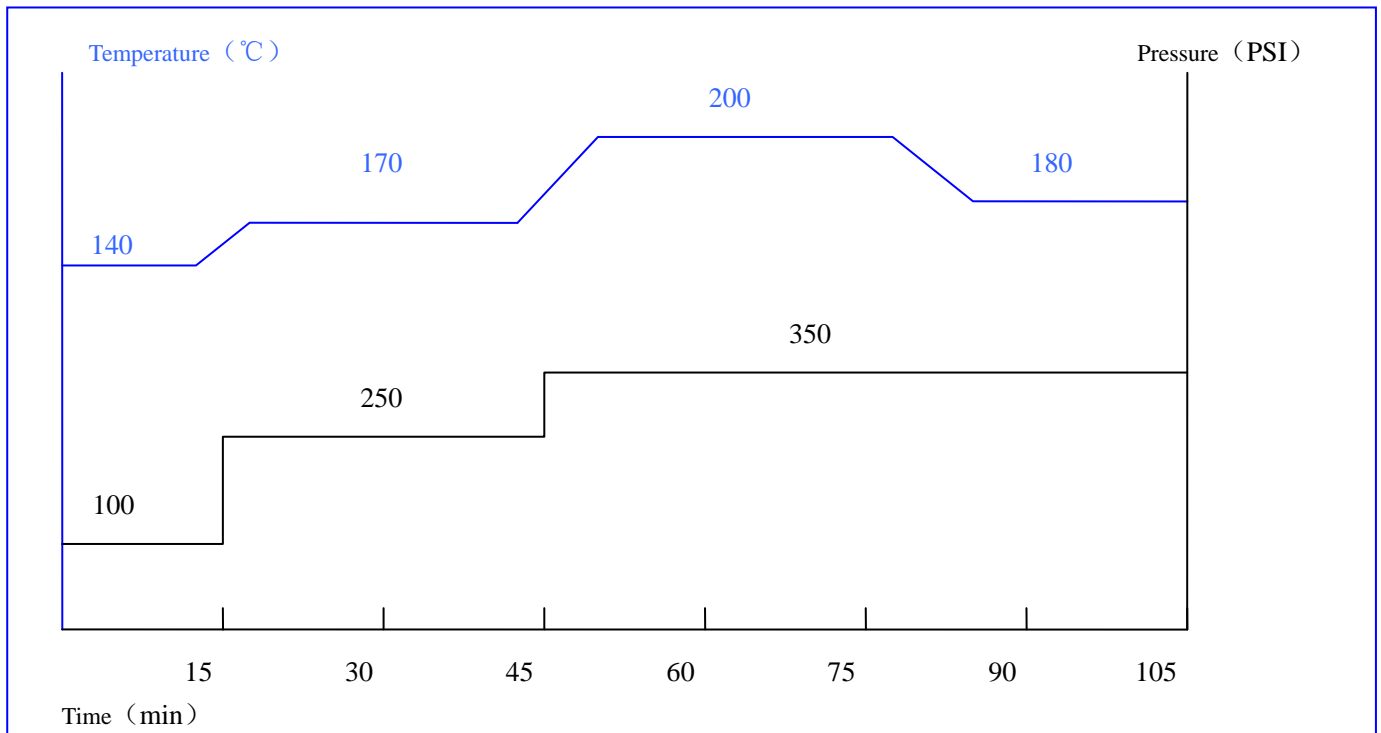
树脂含量、流动度、凝胶化时间: IPC-TM-650

R/C(%),Resin Flow(%),Gel Time(Sec): IPC-TM-650

6) 储存条件 Store condition

- 储存三个月: ≤20°C, ≤50%RH;
Storage for short time: ≤20°C, ≤50%RH, for 3 months
- 储存六个月: 低于 5°C, 使用前置于室温不少于 12h;
Storage for long time: Max 5°C, for 6 months; be set at Min 12 hours in the rooms of normal temperature before being used
- 避免紫外线和强光照射。
Avoid ultraviolet (UV) rays and violent shines

7) 建议压合程式 **Recommended Press Cycle:**



- 建议升温速率：1.5~2.5°C/min;

Recommended rate of heating: 1.5~2.5°C/min

- 温度升至 170°C 后，必须保温 30 分钟以上。

Temperature of material over 170°C must be preserved for at least 30 mins.

- 建议降温速率：≤3°C/min。

Recommended Rate of Cooling: ≤3°C/min