



福建华清电子材料科技有限公司

Fujian Huaqing Electronic Material Tech.Co.,Ltd

产品供应标准

SUPPLY SPECIFICATION

氮化铝陶瓷基板

ALMINUM NITRIDE SUBSTRATES

修订 Revised				福建华清电子材料科技有限公司 Fujian Huaqing Electronic Material Technology Co.,Ltd	
版本 Rev	日期 Date	修订 Revised	批准 Approved	日期 Date	2015-8-12 Aug 12,2015
V01	2015-11-2	吴建设		制定 Written	吴建设
V02				审核 Checked	
V03				批准 Approved	

1.适用范围 Scope

本标准适用于由福建华清电子材料有限公司提供的氮化铝陶瓷基板。

This specification is applied to AlN ceramic substrate supplied by Fujian Huaqing Electronic Material Tech.Co.,Ltd

2.产品 Product

2.1 产品名称 Product Name

氮化铝陶瓷基板（AlN 陶瓷基板） AlN ceramic substrate

2.2 产品规格 Type of Product

产品 Product	厚度 Thickness	长宽 Length*Width
氮化铝 陶瓷基板 AlN ceramic substrate	0.385mm	50.8*50.8; 76.2*76.2; 101.6*101.6; 110*110; 114.3*114.3; 120*120; 127*127
	0.5mm	
	0.635mm	
	0.75mm	
	1.0mm	
	1.2mm	
	1.5mm	

注：尺寸更大、更小，厚度更薄、更厚的产品，及其他特殊规格产品可根据客户要求要求进行激光加工或者定制产品。

Note: larger size, smaller size, thinner thickness or thicker products or other special specifications products can be customized according to customer requirements to do laser cutting process

2.3 产品公差 Tolerances for products

2.3.1 厚度公差 Thickness tolerance

公差类别 Tolerance class	要求规格 Size	标准公差 Standard tolerance
厚度公差 Thickness tolerance	$T < 1.0$	$\pm 0.03\text{mm}$
	$1.5 > T \geq 1.0$	$\pm 0.05\text{mm}$
	$T \geq 1.5$	$\pm 0.07\text{mm}$

注：氮化铝厚度公差可根据客户要求达到客户需求，但最低不能低于 ± 0.01 。

Note: Thickness tolerance of AlN can product according to customer's requirement, but not less than $\pm 0.01\text{mm}$

2.3.2 激光加工长宽公差 Length*Width tolerance of laser processing

公差类别 Tolerance class	要求规格 Size	标准公差 Standard tolerance
划线长宽公差 Tolerance of Length	$T \leq 0.635$	+ 0.15 - 0.05

and Width	$0.635 < T \leq 0.75$	+ 0.20 - 0.05
	$T > 0.75$	+ 0.25 - 0.05
孔线距公差 Tolerance of Hole and line distance	$T \leq 0.635$	+ 0.15 - 0.05
	$0.635 < T \leq 0.75$	+ 0.20 - 0.05
	$T > 0.75$	+ 0.25 - 0.05
孔直径公差 Tolerance of Hole Diameter	$< \varphi 5.0$	± 0.05
	$\geq \varphi 5.0$	± 0.1

2.4 性能指标 Materials Properties

项目 Item	单位 Unit	指标值 Value	测试标准 Test Standard
1) 颜色状态 Colour	---	灰色 Gray	3.2
2) 体积密度 Density	g/cm^3	≥ 3.33	GB/T 2413
3) 导热率 Thermal Conductivity	$20^\circ\text{C}, \text{W}/(\text{m} \cdot \text{K})$	≥ 170	GB/T 5598
4) 介电常数 Dielectric Constant	1MHz	8~10	GB/T 5594.4
5) 击穿强度 Dielectric Strength	KV/mm	≥ 17	GB/T 5593
6) 抗弯强度 Flexural Strength	MPa	≥ 450	GB/T 5593
7) 翘曲度 Camber	Length‰	$\leq 2\%$	
8) 表面粗糙度 Surface roughness Ra	μm	0.3~0.6	GB/T 6062
9) 吸水率 Water absorption	%	0	GB/T 3299-1996
10) 体积电阻率 Volume resistivity	$20^\circ\text{C}, \Omega \cdot \text{cm}$	$\geq 10^{13}$	GB/T 5594.5
11) 热膨胀系数 Thermal expansivity	$10^{-6}/^\circ\text{C}$	20~300°C	2~3
		300~800°C	2.5~3.5

3. 明细规范 Specification

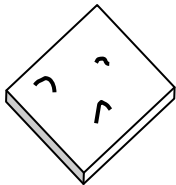
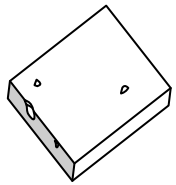
3.1 尺寸和表面粗糙度 Dimension and Surface Roughness

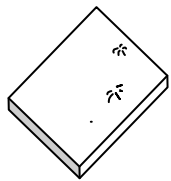
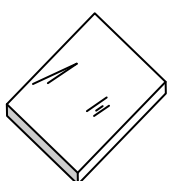
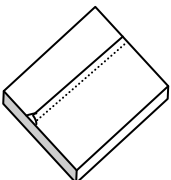
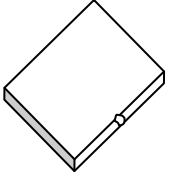
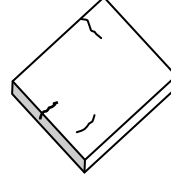
项目 Item	明细规范 specification	检测方法 Inspection Method
1) 长宽尺寸 Length and Width	按照图纸要求 In accordance with the drawing attached	游标卡尺 Vernier caliper
2) 厚度 Thickness		测厚规 Thickness gauge 千分尺 Micrometer
3) 基片弧度 Camber		数显量表 Digimatic indicator
4) 表面粗糙度 Surface Roughness	$Ra \leq 0.6 \mu m$	表面粗糙度检测仪 Surface roughness meter

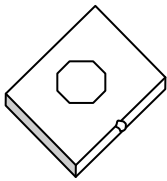
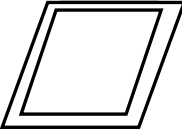
3.3 外观 Appearance

外观检测一般采用目测。

The inspection of appearance is visual inspection.

项目 Item	定义 Definition	图样 Drawing	检验分级标准 Inspection classification standard	检验方法 Inspection Method
粘粒 脏污 Clay smudgy	多余物质的碎屑, 或者粘附于瓷片表面的外来小颗粒 Excess materials, or foreign particles on the surface of the adhesive in ceramics		不允许 Not allowed	1、对比标样目测 Contrast the prototype with visual 2、使用测厚规测量粘粒高度 Thickness gauge is used to measure the height of clay
凹坑 针孔 斑点 Holes, Pits	瓷片上形成的孔洞或明显印迹 Holes or pits on the surface		不允许 Not allowed	1、对比标样目测 Contrast the prototype with visual 2、使用带刻度显微镜测量 Using the scale measuring microscope

黑点 瓷疱 Black spots Porcelain blister	气泡或包含气体破裂后在瓷片表面形成的坑、点或孔 After the bursting of bubbles or containing gas in ceramics surface pits, or holes		黑点 Black spot $\Phi \leq 0.2\text{mm}$; ≤ 1 个 /inch ²	瓷泡 Porcelain bubble 不允许 Not allowed	1、对比标样目测 Contrast the prototype visual 2、使用带刻度显微镜测量 Using a scale measuring microscope 3、使用测厚规测量高度 Thickness gauge is used to measure
划痕 伤痕 scratch	瓷片表面相对较长、窄、浅的凹痕 Ceramics surface relatively long, narrow and shallow grooves		$\text{长度} \leq 0.02\text{mm}$ $\text{length} \leq 0.02\text{mm}$	1、对照标样目测 Contrast the prototype visual 2、使用带刻度显微镜测量 Using a scale measuring microscope	
凸脊(点) Convex ridge	瓷片表面狭长的突点(楞) Ceramics surface narrow metal dots		不允许 Not allowed	1、对比标样目测 Contrast the prototype visual 2、使用带刻度显微镜测量 Using a scale measuring microscope 3、使用测厚规测量高度 Thickness gauge is used to measure the height	
缺损 Defect	瓷片沿边或角破损 Ceramics border or Angle of breakage		不允许 Not allowed	1、对照标样目测 Contrast the prototype visual 2、使用带刻度显微镜测量 Using a scale measuring microscope	
裂纹 Cracks	线性破裂, 但未导致瓷片分离 Linear rupture, but did not lead to ceramics separation		不允许 Not allowed	1、在适合的光源下目测 Under the suitable light visual 2、浸品红后目测 Visual inspection after immersion magenta	

未磨到 Not grinded	经过研磨后的产品表面区域有未磨 After grinding, the product surface area is not grinding		不允许 Not allowed	在适合的光源下目测 Under the suitable light visual
白边 White lace	由于烧结挡坯影响产品边缘有白色区域 Because of the influence of sintering when the batch of products have white area edge		不允许 Not allowed	对照标准尺寸产品 Reference standard size product

4.批号的定义 Definition of lot

批号的组成包括同一批次的生批号及同一批次打孔的生批号

A lot consist of identical green sheet lot and identical punching of green sheet batch

5.抽样检验 Inspection

每个批次都要做抽验检查 Inspection will be done for every lot.

项目 Item	检验水平 Inspection level		
1) 外观 Appearance	全检 All		
2) 长宽尺寸 Length and width size	批量 (片/批) quantity (pcs/lot)	抽样数 No Sampling	判定 Judgment
3) 厚度尺寸 Thickness size	≤500	13 片	Ac=0 ^{*1}
4) 基片弧度 Camber	501~1200	20 片	Ac=0
	≥1201	32 片	Ac=0
5) 表面粗糙度 Surface roughness	n=3, Ac=0		
5) 体积密度 Density	n=1, Ac=0		

※1.Ac: 可接受的不符合标准产品的数量

Ac: Acceptable quantity of inferior goods

6. 检验报告 Certificate of inspection

检验报告的内容包括以下的信息和其他备注信息。The certificate of inspection includes the following information and is attached to the products.

- 1) 产品名称 (品名) Product name
- 2) 生产批次 Lot No.
- 3) 检验日期 Inspection date
- 4) 检验结果 Inspection results
- 5) 检验判定结论 Judgment

7. 包装 Packing

产品包装纸箱必须防潮，没有破损。

The products are to be packed protected against moisture absorption and damage.

在包装外箱显示以下信息：

The following information is shown on the outside of package.

- 1) 产品名称 Product name
- 2) 尺寸信息 Size information
- 3) 数量 Quantities
- 4) 生产批次 Lot number

8. 保质期 Shelf life

不拆封可保质一年。

A year after shipment unless opened.

9. 法规监督 Regulatory information

应按照国家或地区的法律法规尽到自己的责任。

Should according to the laws and regulations of the country or region done his duty.

10. 其他 Others

交货后产品发生的任何问题应该通过与福建华清电子材料科技有限公司商讨解决。

Any problems occurring with products after delivery should be solved with Fujian Huaqing Material Technology Co., Ltd