PowerLand 正特光电

CONFIDENTIAL

Document Number：ZT-PN30I 65
Revision Number： 01

Product Specification

产品规格书

Part Number(产品编号）： PN30I 65
Part name(产品名称）：LED-TV透镜

Receipt Signature

接受签名： Date：

We receipted this specification.
我们接受本规格书的内容

宁波正特光学电器有限公司
Ningbo Zhengte Optical Electric Appliance Co., Ltd
Quality Assurance Dept. 品质保证部门 Engineering and R&D Dept. 研发部

核准	日期

批准	日期

Please note that if we do not receive any reply within a month, we will essume that you received this Product Specification.
如果一个月内我们没有收到回签文件，我们将视为您已经收到本品规格书。
This Product Specification shall be executed in English and in Chinese, but in the event of any inconsistency or difference between the two versions of this specification, Chinese Language shall prevail in all respects.
本产品规格书使用中文和英文，如有不一致之处以中文为标准。

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REVISION HISTORY 修改履历

Revision NO.	Date	Details of Revision 修改内容	Issued by	Engineering	QA

1. Range of application 适用

Inc This specification is applied to the Light Enhancer Cap(PN30I 65) for TV backlight.
本规格书仅适用于正特光电所设计生产的电视机背光透镜（PN30I 65）。

2. Operating/Storage temperature使用/保存温度范围

Please use and store this product in the following temperature range.
请在以下温度使用和存放产品。

Items 项目	Specification 规格	Remarks 备注
Operating Tempertature 使用温度	-10degrees C------+75degress C	No Condensation 无冷凝
Storage Temperature 保存温度范围	-30degrees C------+45degress C	No Condensation 无冷凝

3. Specification of products 物品指定

	Customer	Zhengte photoelectric
Product Name	N/A	Light Enhancer Cap
Product Number	N/A	PN30I 65

4. UL FILE list UL 参数

Material 材质	Grade Name 等级名称	UL FILE No. 黄卡号	Flame Resistance 阻燃性	Manufacturer 材料生产商
PMMA	VH001	E256044	UL-94-HB	Misubishi Rayon Co.,Ltd

We can be customer specified materials production.
我们可以按客户指定材料生产。

5. Part Configuration(ZT) 使用说明

This part suppresses luminescent spots generated by LED and improves umiformity of lighting of multiple LEDs. The conditions under which this function is effective are recommended.
本产品可以改变LED的光强分布，以在近距离平面上提供均匀的辉度分布。

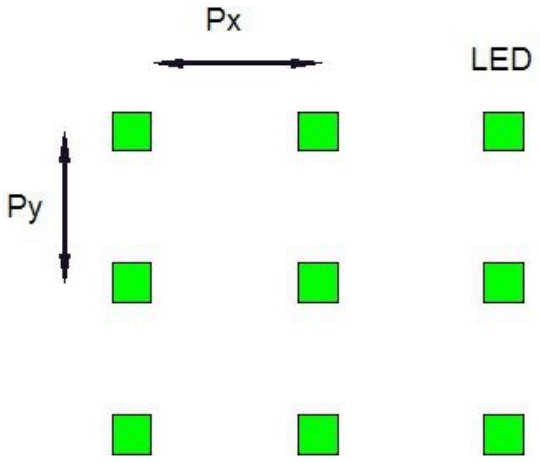
5-1 Example Light Source(LED) 推荐光源

LED type	Remks
3030	LED高度0.52mm

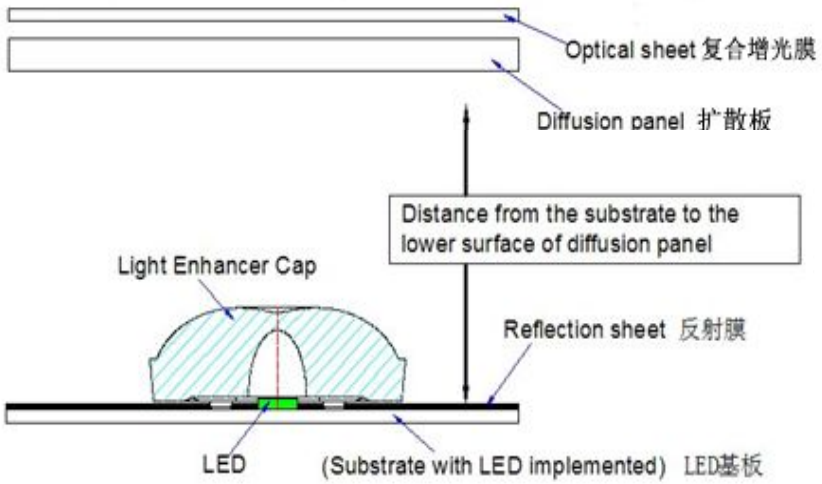
5-2 Backlinght Configuration(Example of reference) 背光设定（参考范例）

Recommend the following configuration when the Light Enhancer Cap is used.
Light Enhancer Cap 使用时推荐下列表格参数

LED pitch in tervals	LED间距	Px:80~130mm Py:90~160mm
LED layout (Figure5-2-1)	LED配置	Lattice Layout 格子配置
Distance from the substrate to the lower suface of diffusion panel (Figure5-2-2) PCB到扩散板的高度距离		Optical Gap：25~40mm 光学距离：25~40mm
Reflection Sheet	反射膜	N/A
Diffusion Panel	扩散板	N/A
Optical Sheet(Prism Sheet)	复合增光膜	N/A



(Figure 5-2-1) LED Layout
LED配置图

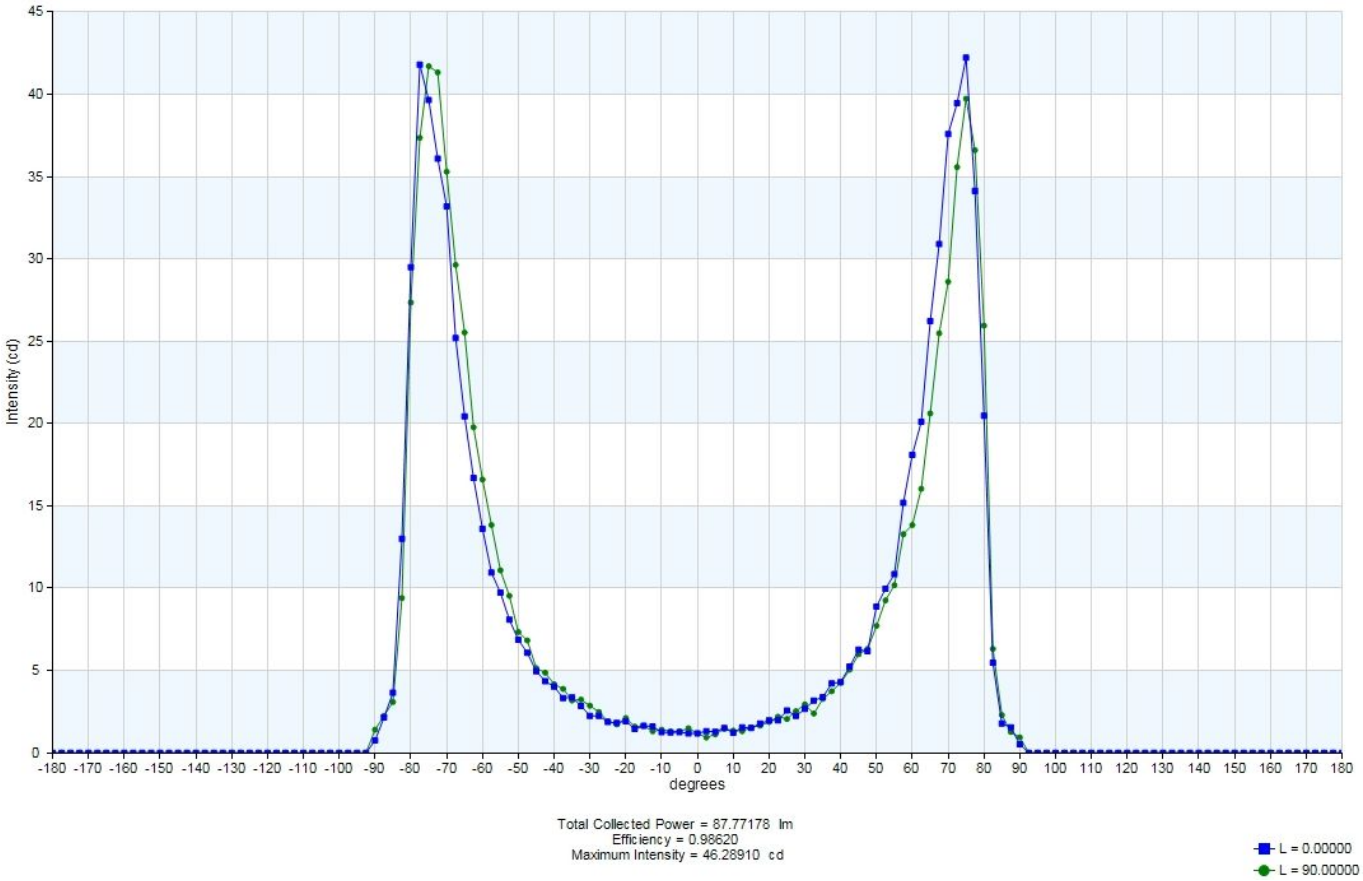


*Reference Plane The substrate surface 参考面是在基板的上表面
(Figure 5-2-2) Parts Configuration
背光组件构成图

6. Optical Characteristics光学特性

6-1 Light intensity distribution 光强分布

Measuring equipment ： SIG-400(Made in Radiant Zemax)



6-2 Light through efficiency 光透过率

Light through efficiency ： >95% 光透过率大于95%

7. Dimensional Characteristics 寸法特性

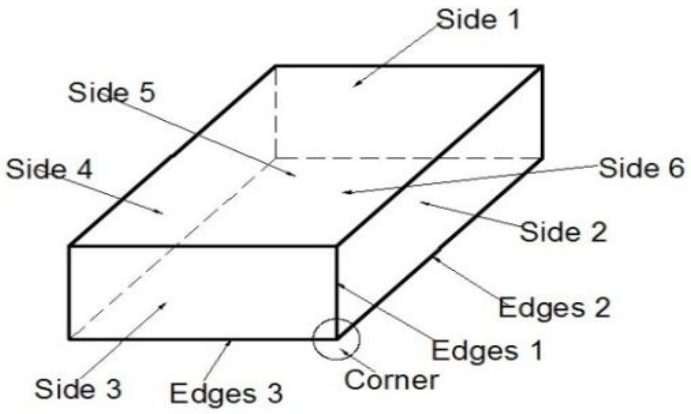
Dimensions and Appearancs	Refer part drawing 寸法管控规格值以《产品图》为准
Product Weight 制品重量	1±0.1g
Measurement Conditions 测定条件	Must be made measurement affer leaving the sample in the environment of 23℃±10℃ and 50±30% RH for 2 hours or Longer. 23℃±10 ℃与50±30% RH 环境下放置2小时或者更长时间后测试。

8. Reliability Tests Specifications 可靠性试验

8-1 Conditions of Reliabillity Tests 可靠性试验条件

After the following tests and item 8.2 must be satisfied. 试验能满足8-2项

NO	Test items (试验项目)	Test Conditions(测试条件)
1	Pakaging Drop Tset 包装及跌落试验	Dropping Height 落下高度：40cm Locations 落下方式：1 corner ,3 edges ,and 6 surfaces(see figure 8-1-1)



(Figure 8-1-1) Configuration of Drop Test

Note 1: The reliability tests shall be done on a Light Enhancer Cap only.
本可靠性试验仅适用于Light Enhancer Cap 产品。

Note 2: After the reliability tests , take the sample under the measurement condition specified in 23° C±2° C and 50±10%RH and promptly perform the evaluation.
可靠性试验后应立即将样品置于23℃±2℃，±10%RH 的测定环境并立即评估。

Note 3: The packing tests shall be done with the packaging specifications specified in item 11.1.
包装试验应进行11.1项所规定的测试。

8-2 Judgment Criteria 判定条件

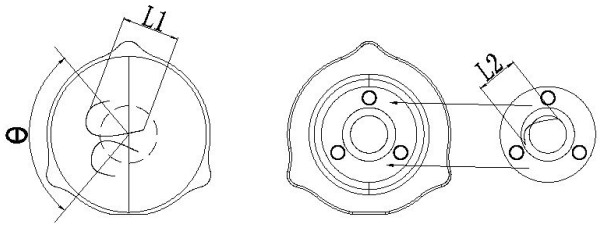
.There must be no cracks, chipping chaps, or other significant flaws that damage optical characteristics.
没有明显的开裂，剥落，裂纹等损害光学性能的特征。

9. Visual Appearance Specification 外观检验

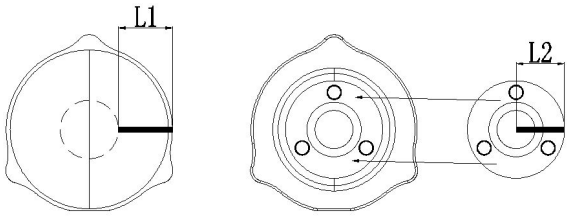
(1)The following specifications are spplied if there any problems in the optical functions in the configuration specified in item 5.2 . Moreover, if any questions arise, they shall be discussed separately 5.2

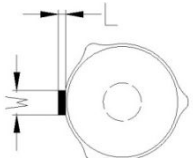
(2)The specifications of NO.1 and 2 are applied to dirt and foreign substances that cannot be removed as well.说明：一项及二项所描述的灰尘及异物无法完全清除。

<table>
<tr><th>NO.</th><th>Item and specifications 检验项目</th></tr>
<tr><td>1
污点
（内部及表面异物）</td><td>Black/White spot(Internal/External foreign substances)
<table>
<tr><th>Location(mm)</th><th>Size(mm)</th><th>Quantity</th><th>Judgment</th></tr>
<tr><td>Inside of ¢2</td><td>D＞0.3,D≤0.3</td><td>N≥1,N≥3</td><td>NG</td></tr>
<tr><td>Between ¢2 and ¢6</td><td>D＞0.4,D≤0.4</td><td>N≥1,N≥3</td><td>NG</td></tr>
<tr><td>Qutside of ¢6</td><td>D＞0.8,D≤0.8</td><td>N≥1,N≥3</td><td>NG</td></tr>
</table>
The contaminations less that ¢0.1 are anything OK.</td></tr>
<tr><td>2
线型异物
（内部及表面异物）</td><td>Linear contamination(Internal foreign substance),Scratche
<table>
<tr><th>Width W(mm)</th><th>Length ,L(mm)</th><th>Quantity</th><th>Judgment</th></tr>
<tr><td>W＞0.4</td><td>L＞8.0</td><td>N＞1</td><td>NG</td></tr>
</table></td></tr>
<tr><td>3
流痕1
（位置1,2,3）</td><td>Weld 1(Fow mark 1,2)
On the front lens
Weld 1(Fow mark 3)
On the rear lens

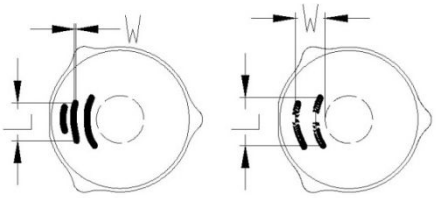
Judged by the limit sample
判定参照限度样品
 

<table>
<tr><th></th><th>Area θ(°)or Length(mm)</th><th>Width,W(mm)</th><th>Judgment</th></tr>
<tr><td>Weld 1(Flow mark1)</td><td>θ＞160</td><td>W＞0.2</td><td>NG</td></tr>
<tr><td>Weld 1(Flow mark2)</td><td>L1＞8.0</td><td>W＞0.2</td><td>NG</td></tr>
<tr><td>Weld 1(Flow mark3)</td><td>L2＞8.0</td><td>W＞0.2</td><td>NG</td></tr>
</table></td></tr>
<tr><td>4
流痕2
（位置1,2）</td><td>Weld 1(Fow mark 1,2)
On the front lens
Weld 1(Fow mark 3)
On the rear lens

Judged by the limit sample
判定参照限度样品
 

<table>
<tr><th></th><th>Length ,L(mm)</th><th>Width,W(mm)</th><th>Judgment</th></tr>
<tr><td>Weld 2(Flow Line1)</td><td>L1>6.0</td><td>W>0.2</td><td>NG</td></tr>
<tr><td>Weld 2(Flow Line2)</td><td>L2>3.5</td><td>W>0.2</td><td>NG</td></tr>
</table></td></tr>
<tr><td>5
水口残留</td><td>Gate Burr
 

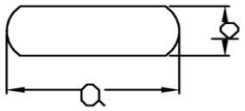
<table>
<tr><th>Width,W(mm)</th><th>Convex ,L(mm)</th><th>Judgment</th></tr>
<tr><td>W>3.5</td><td>L>0.4</td><td>NG</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>NO.</th><th>Item and specifications 检验项目</th></tr>
<tr><td>6
透镜表面划痕</td><td>Scratches
 

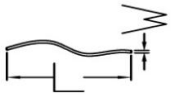
<table>
<tr><th>Width,W(mm)</th><th>Length ,L(mm)</th><th>Quantity</th><th>Judgment</th></tr>
<tr><td>W>0.6</td><td>L>7.0</td><td>N>3</td><td>NG</td></tr>
<tr><td>W>3.5</td><td>L>6.0</td><td>N>1</td><td>NG</td></tr>
</table>
Judged by the limit sample.判定参照限度样品。</td></tr>
<tr><td>7
气泡</td><td>Void(Bubble)
Judged by the limit sample.判定参照限度样品。</td></tr>
<tr><td>8
发黄（变色）</td><td>Yellowing
No yelllowing harmful to the optical characteristics allowed.
无黄变及影响光学特性的变。</td></tr>
<tr><td>9
浮动异物
（除去可能异物）</td><td>Floating contaminations
Contaminations removable by air blow are OK judgment.
确定通过吹气去除浮尘及其他可脱落异物。</td></tr>
</table>

※W和L和N所以规格之外的判定为NG。（W>∞ AND L>∞ AND N>∞ THEN NG).
Judges NG when all of W, L, and N are the outside of spec.

Definition of maximum diameter D(D=a)
最大直径定义（长径a 定义为最大值）



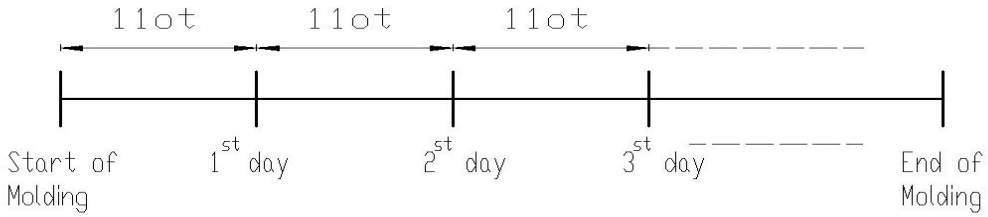
Definition of Width(W) and Length(L)
宽度(W)和长度（L)的定义



10. Inspection Instructions （检查规定）

10-1 Definition of Lots 限度样品的确定

In principle , products made on the same molding date, at the same loction, and from the same mold are handled as 1 lot.
选择原则：同一日，同一模具，同一参数及同一时段生产（2t)。



10-2 Lot Inspection and Judgment Criteria 限度样品

A final inspection is conducted for each lot, Pass/fail is judged according to the criteria in the following table,Moreover, an inspection result form is attached to each lot.
所有的限度样品必须通过下列表格的检验项目才可以选入。

Items 项目	Inspection standard 检查基准	Quantity to inspect 检查数目
Dimension 尺寸	According to the dimensions specified to item 8 SPEC 记载的8个项目	Inspect 1 shot per lot for critical dimensions. The lot can be shipped only if there are no defects. 所有重要尺寸必须每一穴全部测量，不合格不得进入限度样品。
Visual Appearance 外观	According to the visual appearance specified in item 9 SPEC 记载9个项目	Inspect 1 shot per lot . The lot can be shipped only if there are no defects. 检查每一穴，不合格不得进入限度样品。
Optical Characteristics 光学特性	According to the optical specifications specified in item 6 SPEC 记载6个项目	Inspect 1 shot per lot . The lot can be shipped only if there are no defects. 检查每一穴，不合格不得进入限度样品。

11. Packaging and Description Specifications 包装

11-1 Packaging Specification 包装样

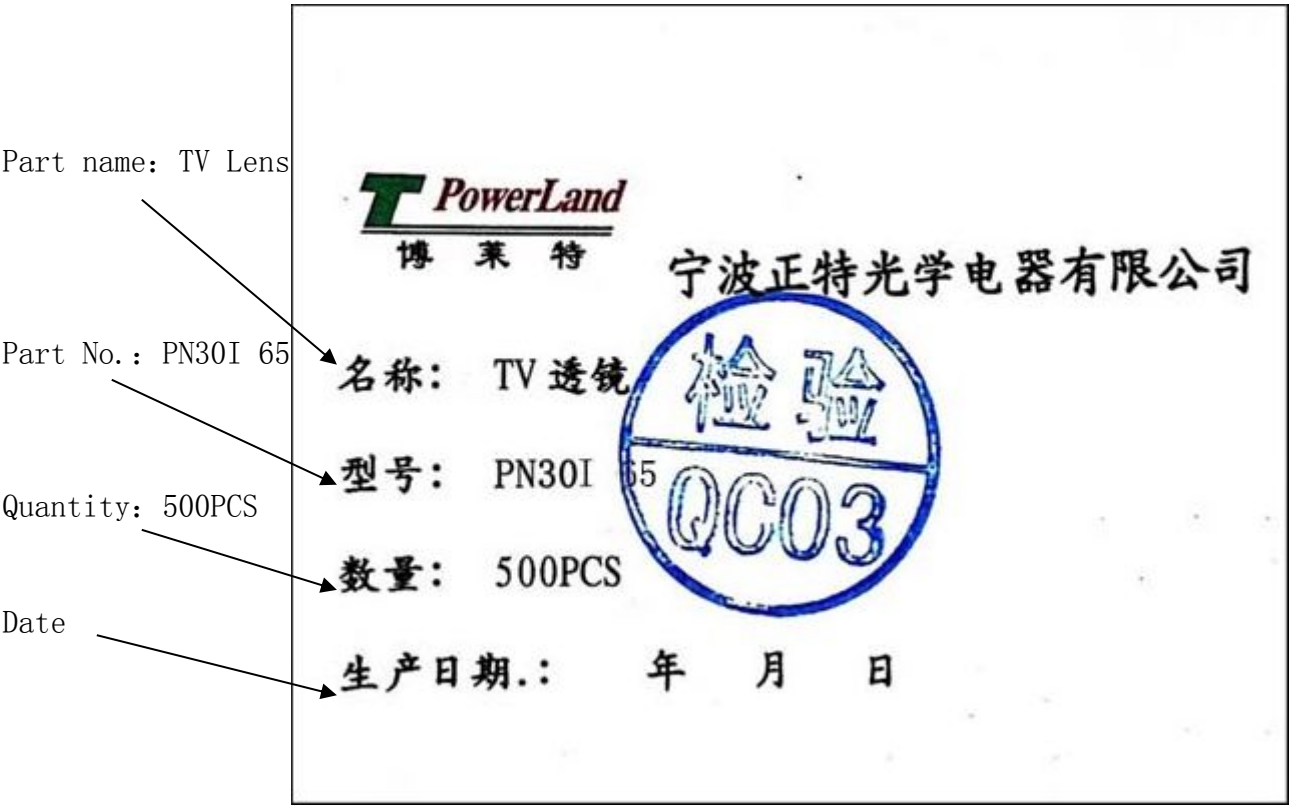
500 PCS IN

2500 PCS IN
26.5cm*12.5cm*15.5cm

10000 PCS IN

53cm*28cm*17cm

11-2 Lot Card Description 出货标签



11-3 Definition of Lot No. 生产批号定义

Lot number are discribed in the method shown below.
生产批号定义如下：

15	4	3 10
Last digit of	Month	Day of the
calendar year	alphabetical order	month
生产年份	生产月份	生产日期/时间

12. Quality Assurance Period 品质保证时间

The quality warranty period for delivered products shall be 6months after the delivery if stored in the delivered form as it is (only optical functions are guaranteed. Dimension changes cannot be guaranteed).
在指定白保存状态下保存期限为6个月。（由于保存不当而导致尺寸变化而影响到光学性能的不在保证范围内）
Please note, however, that the dimensions may change up to 0.4% in completely saturated conditions at 60℃ and 90% RH. Please avoid storing the products in high temperature and high humidity and do not subject them direct sunlight.
在饱和状态下，60℃以及90%RH条件下，尺寸会有0.4%的变化。请不要在高温和高湿度下保存，避免阳光照射。
We recommend storage in -10 to 40℃ and 80% RH or less.
我们建议在-10℃~+40℃、80%RH以下保存。
If accident or disordered function is caused due to any our production problem, we guarantee products by replacing or fixing products.
如果因本品的质量问题导致的功能不良，我们负责修复或者更换新的产品。

13. Others 其他

If any questions arise in this specification, they shall be discussed separately.
如果对本规格书有任何异议，我们可以与您单独协商讨论。
In case of the specification change, we have prior approval from the customer.
如果需要变更本规格书，请事先联络并批准变更。

13-1 Precautions 注意事项

a) Do not use the product in incorrect applications where human lives can be endangered (e.g. by accidental ingestion).
本产品应在不影响人身安全的场合使用。（例如，意外摄入口中）
b) This product has protruding parts; please handle with care.
本产品突出部分，请小心处理。
c) This product is made of plastic and is easily damaged. Do not drop or subject to strong impact.
本产品为精密塑料制品，容易摔坏，请勿摔落或者强烈冲击。
d) Do not use toluene, acetone, chloroform or similar chemicals when handling the product.
不得使用甲苯，丙酮，氯化物及类似化工产品处理本产品。
e) Do not pile packages more than 5 stacks high when storing.
保存时堆码层数少于5层。

13-2 Industry Property Right 知识产权

We will decide dealing of patents in a supply and purchase agreement which will be entered into separately.
关于知识产权我们会通过与您签订的采购协议协商约束。

13-3 Requirements to Each Regulation 各种法规要求

a) Ozone depleting substance 破坏臭氧层
This product does not include ozone depleting substances specified in Appendixe A and B of the Montreal Protocol.Such substances are not used in the production processes either.
我们在制造过程中不使用破坏臭氧层的物质。

b) Brominated flame retardants 溴化阻燃剂
Brominated flame retardants are not used.
不使用溴化阻 燃剂。

c) Export Trade Control Ordinance 贸易输出管制条例
This product has no relevance to (1) Wassenaar Arrangement, (2) chemical/atomic weaponry,(3) hazardous materials, drug materials, etc.
① 瓦森纳协议 ② 化学兵器 、核兵器 ③ 有害物质或者药品原料。本产品不属于上述规定内的禁用品。
If the part falls under various regulations in China and international other than above (including environmental regulations), we shall examine and report on the details and actions to be taken as soon as they are brought on our attention.

13-4 Mold Guarantee Cycle 模具寿命保证

1 million shots are guaranteed.
单套模具保证100万模次的使用寿命。

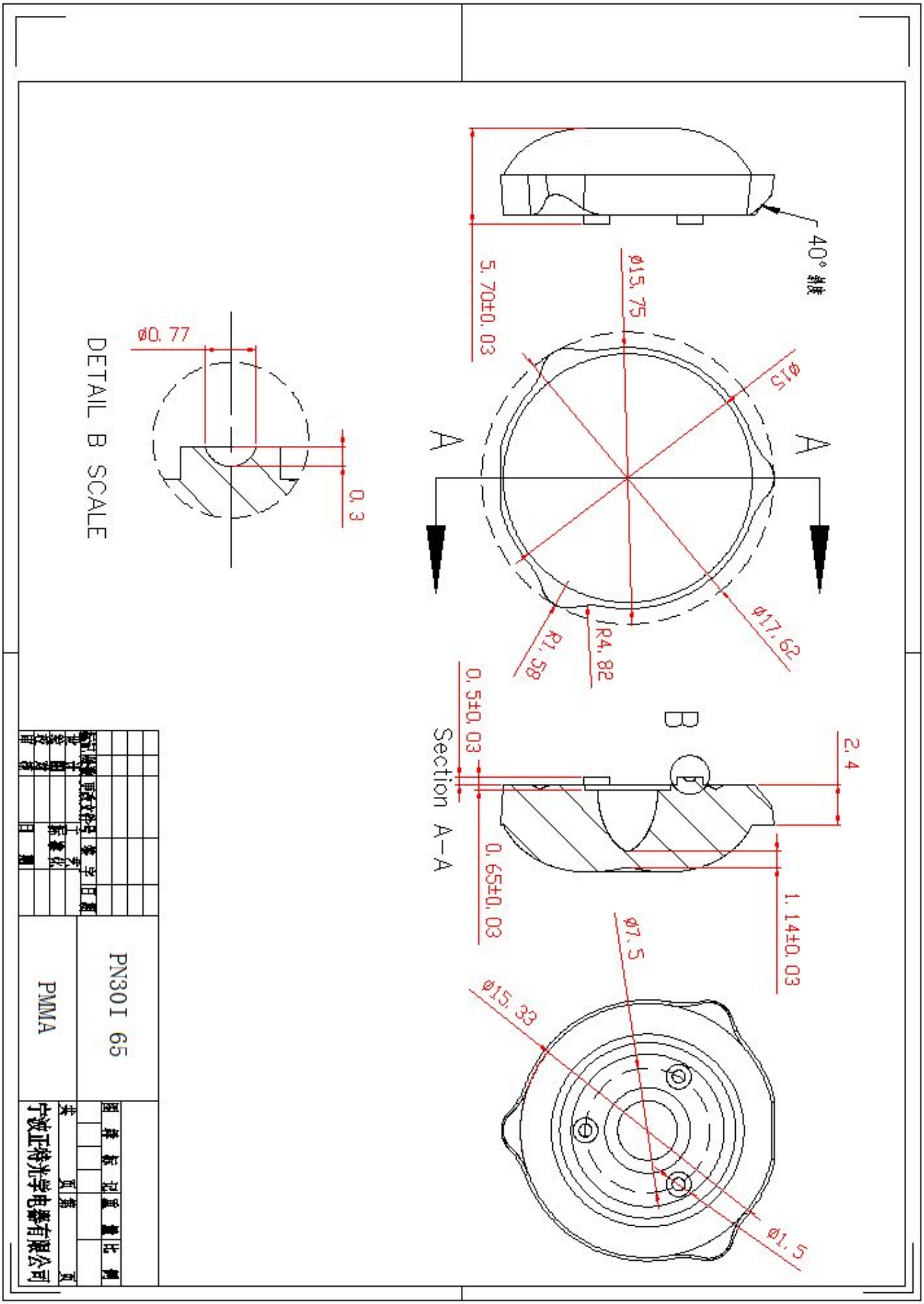
13-5 Mold Manufacturer 模具制作商

Ningbo Zhengte Optical Electric Appliance Co.,Ltd
宁波正特光学电器有限公司

Attached Data 附加资料

Attachment 1, Part Drawing
产品图
Attachment 2, QC Process Flow Chart
QC工程图
Attachment 3, Material Analysis Data by the RoHS Directive.(SGS Report)
SGS报告

VH001_SGS


40°
5.70±0.03
ø15.75
ø15
A
A
ø17.62
R4.82
R1.58
ø0.77
0.3
DETAIL B SCALE
B
Section A-A
0.5±0.03
0.65±0.03
2.4
1.14±0.03
ø7.5
ø15.33
ø1.5
PN30I 65
PMMA
宁波正特光学电器有限公司

QC Process Flow Chart
QC流程图

产品名称	LED-TV透镜(PN30I 65)	型号	LTVL-0D30	核准		制表		文件编号		版本	V0
工程项目		管理方式								备注	

工序	工程名称	检验方式	管制重点	仪器设备	检验频率	执行单位			作业依据	记录表单	
						制造	品管	仓管			
1	物料进厂	目视	品名 型号 颜色 数量 质感 包装	——	1次1批		◎		进料管制办法		
2	烘料	依材料特性设定	时间 稳定 水分	干燥机	1次1批	◎			干燥管理办法	原料烘烤记录表	
3	注塑成型	目视	压力 温度 时间	注塑成型机	1次2H	◎			1.成型条件参数 2.注塑机操作指导书	成型条件参数	
4	切割水口	目视	光强 速度 水箱	切割机	1次4H	◎			激光切割机作业规范	切割机作业规范表	
5	首件	目视	脏污 气泡 收缩	——	1PCS/每穴		◎		首件管理规范	1.尺寸检验记录表 2.光学检验记录表	
		卡尺	重点管控尺寸	卡尺							
		高度计	重点管控尺寸	高度计							
		影像仪	重点管控尺寸	影像仪							
6	制程检验	目视	脏污 气泡 收缩 缺料	——	1模/2H	◎	◎		过程及产品检测管理程序		自检100%
		卡尺	重点管控尺寸	卡尺	2PCS/4H		◎			1.尺寸检验记录表 2.光学检验记录表	制造检验测量规范
		高度计	重点管控尺寸	高度计							
		影像仪	重点管控尺寸	影像仪							
7	FQC终检	目视	脏污 气泡 收缩		100%全检		◎		制程检验测量规范	测量记录表	
8	包装	目视	确认物品正确 异物排除 标签标识 数量	——	100%全检		◎		1.出货单 2.包装标准作业指导书	确认 盖PASS章	
9	入库	目视	数量 品名	——	100%全检			◎	——	更新库存电子档(ERP)	
10	出货检验	目视	脏污 气泡 收缩 缺料	——	AQL=0.4 AQL=0.65		◎		制程检验测量规范	出货检验报告	库存时间在90天以下可以用制程检验数据超90天按万分之5抽检
		卡尺	重点管控尺寸	卡尺			◎				
		高度计	重点管控尺寸	高度计							
		影像仪	重点管控尺寸	影像仪							
11	出货	——	运输方式 数量	——				◎	出货单	出货单	