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**NATIONSTAR**  
— SINCE 1969 —

**LEDs** FOR DISPLAY

**FOSHAN NATIONSTAR OPTOELECTRONICS CO.,LTD**

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**2018**

World-Class Advanced LED Encapsulation Manufacturer

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FM Series06

Fine Pixel Pitch

FC-C0606RGBT-HF

NEW

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FC-B0808RGBT-HF

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FC-B1010RGBT-HG

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Indoor

FM-B1515RGBA-HF

NEW

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Outdoor

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FM-3510RGBA-SH

NEW

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NH-Z3535RGBW-SG-----12





### NATIONSTAR Headquarters

Land Area: 60,600m<sup>2</sup>

Building Area: 139,000 m<sup>2</sup>

FOSHAN NATIONSTAR OPTOELECTRONICS CO., LTD is a high-tech enterprise with integrated supply-chain capability in developing and manufacturing LED components and LED application products. It is one of the largest LED manufacturers in China and the first IPO in LED industry. It ranks TOP 10 of Packaged LEDs 2017 Revenue in the world ( IHS Markit ) .

NATIONSTAR has leading LED packaging technology and devices, including high-speed die bonding, wire bonding, phosphor coating, precise color testing and bin-sorting machines, and etc. Its RGB LED leads the global industry.

NATIONSTAR will adhere to the spirit of innovation and technology, enhance its competitive ability through senior human resource, advanced management and excellent corporate culture to become a globally leading enterprise in LED industry.

### Distribution Network

NATIONSTAR's main customers are located in many countries and areas. With sincere communication and cooperation, win-win partnership between NationStar and customers will push forward LED industry and technology.



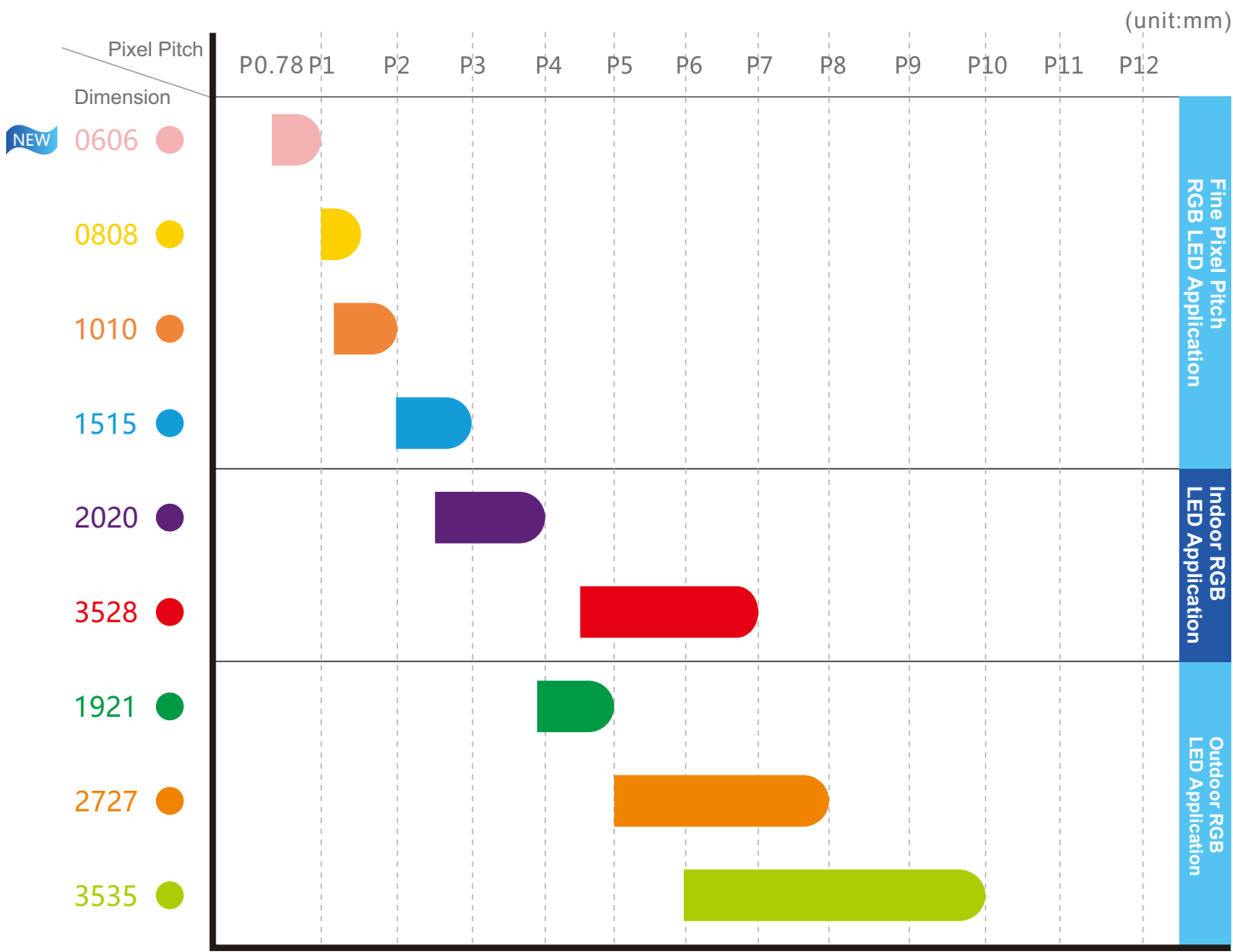
### Sales Volume

NATIONSTAR achieved averagely 23% annual revenue growth in the last ten years. In 2016, its sales revenue is 356 million US dollars, increased by 31%. The first 3 quarters of 2017, its sales revenue reached 390 million US dollars, increased by 54.10%.



NATIONSTAR Recommended Application

NATIONSTAR has various RGB LEDs by 9 dimensions, from 0606 to 3535, with different brightness and pixel pitch levels.



About FM Series

FM series has launched out more than 10 years for mid-to-high market. It is consisted of 4 parts, Fine pixel pitch, indoor, outdoor and side view products. With more than 2 years' guaranty, FM series is mainly applied for fixed and rental yield, which can meet the demand of indoor and outdoor solution by various dimensions. Utilized by qualified material and unique encapsulation, FM series has advantages of good reliability, high contrast, low luminous decay and good consistency, can fulfill requirement of high refresh rate, high grey scale and nature color.

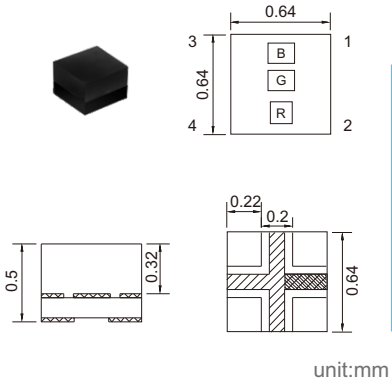




Fine Pixel Pitch Products of FM Series

NEW FC-C0606RGBT-HF (common cathode design)

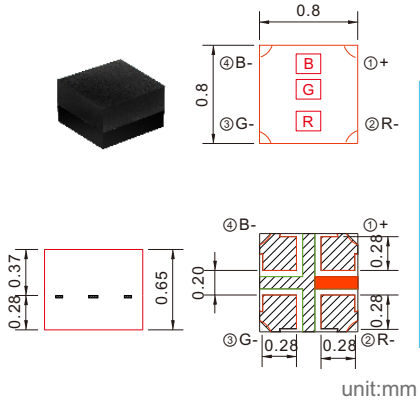
0.64×0.64×0.5mm



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	5	620	15	2.0	120
Green	2	530	20	2.6	120
Blue	2	470	4	2.7	120

FC-B0808RGBT-HF

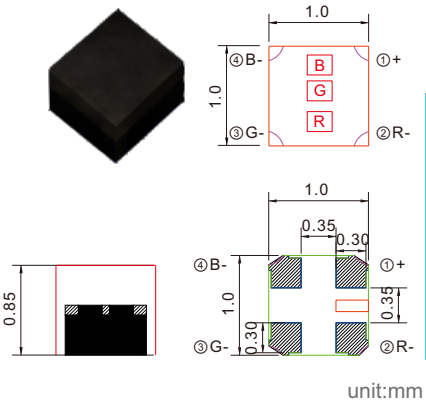
0.8×0.8×0.65mm



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	5	622	15	1.9	120
Green	2	530	20	2.5	120
Blue	2	472	4	2.6	120

FC-B1010RGBT-HG

1.0×1.0×0.9mm

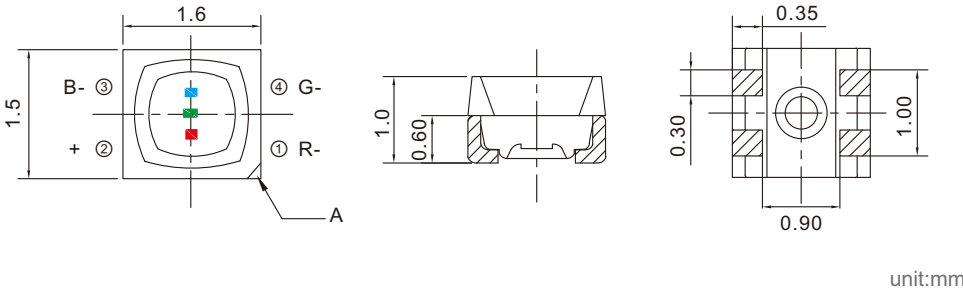
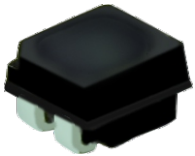


Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	5	622	20	2.0	120
Green	2	535	30	2.6	120
Blue	2	470	5	2.7	120

Indoor Products of FM Series

NEW FM-B1515RGBA-HF

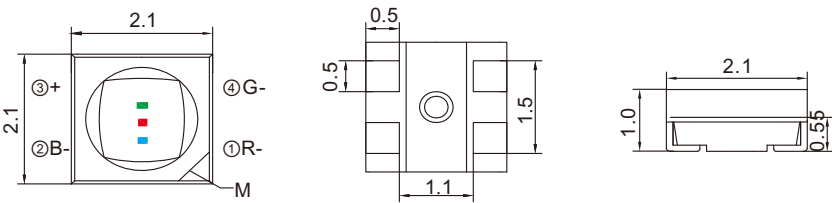
1.6×1.5×1.0mm



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	8	622	45	2.0	110
Green	5	528	145	3.0	110
Blue	3	470	18	3.0	110

FM-B2020RGBA-HG

2.1×2.1×1.0mm

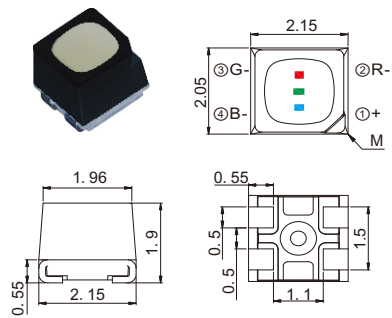


Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	8	622	55	2.0	110
Green	5	525	150	3.0	110
Blue	3	470	22	3.0	110

Outdoor Products of FM Series

FM-Z1921RGBA-SH

2.15×2.05×1.9mm

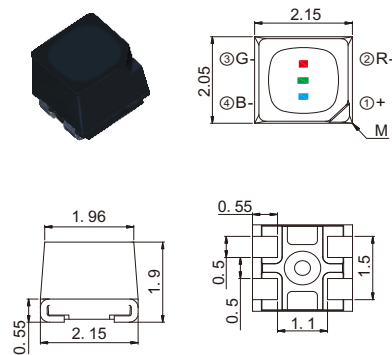


Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	15	622	450	2.0	110
Green	8	522	730	3.0	110
Blue	5	472	105	3.0	110

unit:mm

FM-B1921RGBA-SH

2.15×2.05×1.9mm

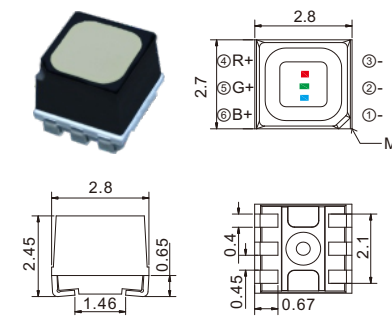


Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	15	622	250	2.0	110
Green	8	525	400	3.0	110
Blue	5	475	60	3.0	110

unit:mm

FM-Z2727RGBA-SH

2.8×2.7×2.45mm



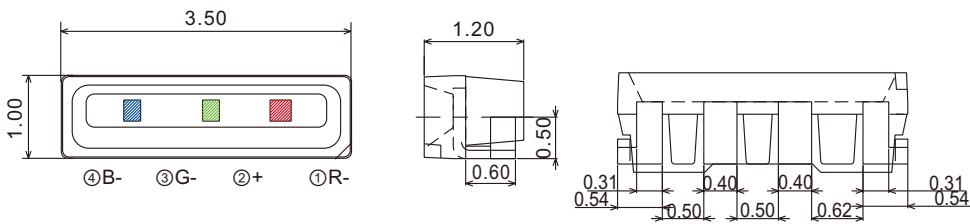
Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	15	622	470	2.0	110
Green	8	525	750	3.0	110
Blue	5	470	120	3.0	110

unit:mm

Side View Products of FM Series

NEW FM-3510RGBA-SH

3.5×1.0×1.2mm



unit:mm

Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	15	622	500	2.0	110
Green	8	527	850	3.0	110
Blue	5	470	125	3.0	110

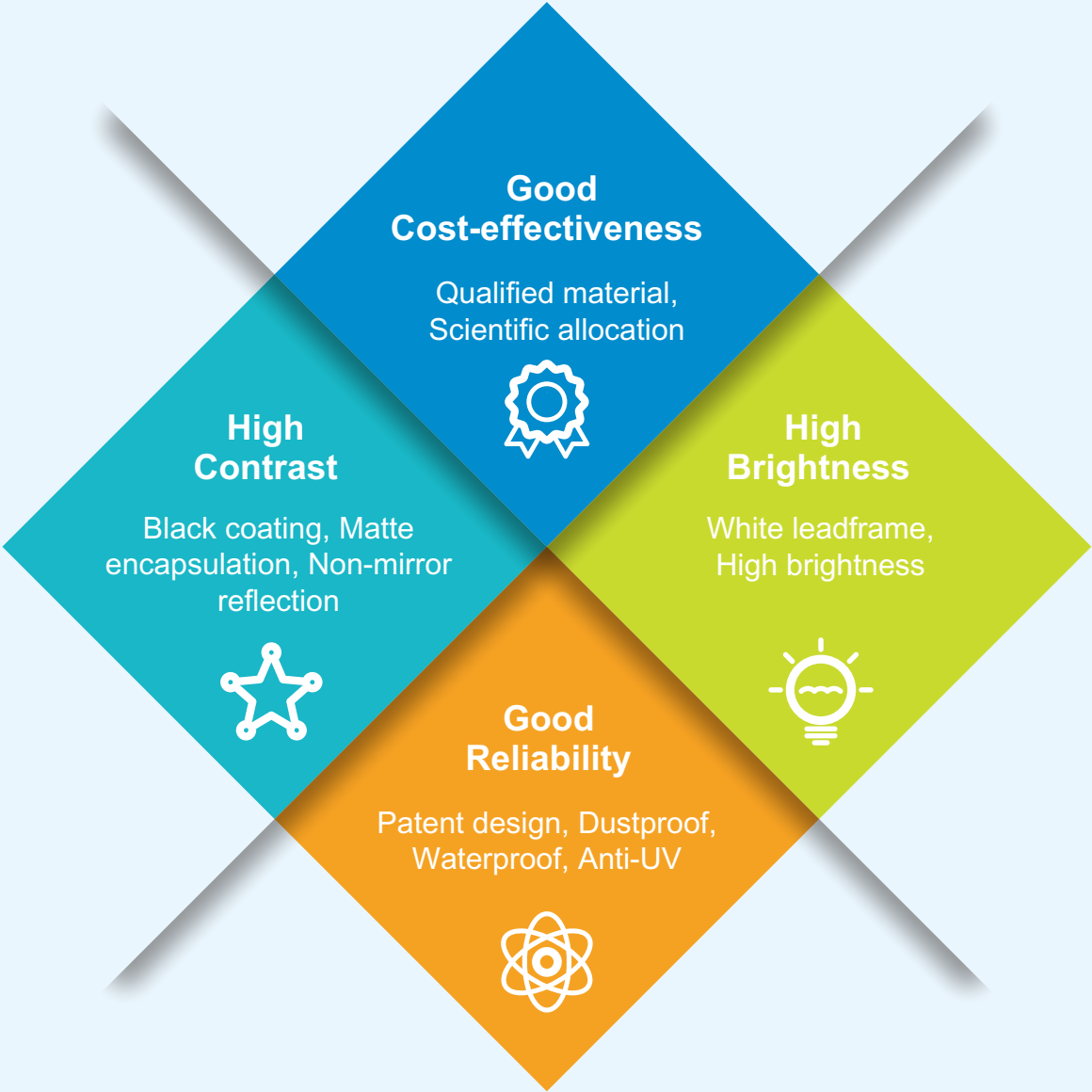
3510 is the new item that will be launched out in 2018 and applied for transparent displays.



About NH Series

Products of NH Series

NH series was launched out in 2015 and mainly applied for retail market. NATIONSTAR redefined retail yield though over 10 years' technology deposition on NH series. NH series has features of high reliability, high contrast, dust resistance, water resistance and UV resistance by good matching material and optimal design, which is aimed to become the high-end series in retail market.



Application	Part No.	Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Indoor	<b>NH-B1010RGBT-HF</b> 1.0×1.0×0.85mm 		5	620	20	2.0	120
			2	530	30	2.6	120
			2	470	5	2.7	120
	<b>NH-B2020RGBA-HF</b> 2.1×2.1×1.0mm 		8	622	45	2.0	110
			5	525	160	2.8	110
			3	470	25	2.8	110
	<b>NH-3528RGBA-HF</b> 3.5×2.8×1.9mm 		20	622	245	2.0	110
			12	522	650	3.0	110
			12	468	150	3.0	110
Outdoor	<b>NH-Z1921RGBA-SG</b> 2.15×2.05×1.9mm 		15	622	350	2.0	110
			8	530	620	3.0	110
			5	472	95	3.0	110
	<b>NH-Z2727RGBA-SG</b> 2.8×2.7×2.45mm 		15	622	450	2.2	110
			8	530	680	3.0	110
			5	472	100	3.0	110
	<b>NH-Z3535RGBW-SG</b> 3.7×3.5×2.8mm 		20	622	600	2.0	110
			20	520	1350	3.2	110
			20	470	280	3.3	110



Application Cases



Guangzhou Auto Exhibition – Lamborghini stage (1010)



First Flight of Domestic Made Airplane C919 Live Broadcast (1921)



BOAO Forum (1515)



Samsung New Arrival Press Conference (2020)

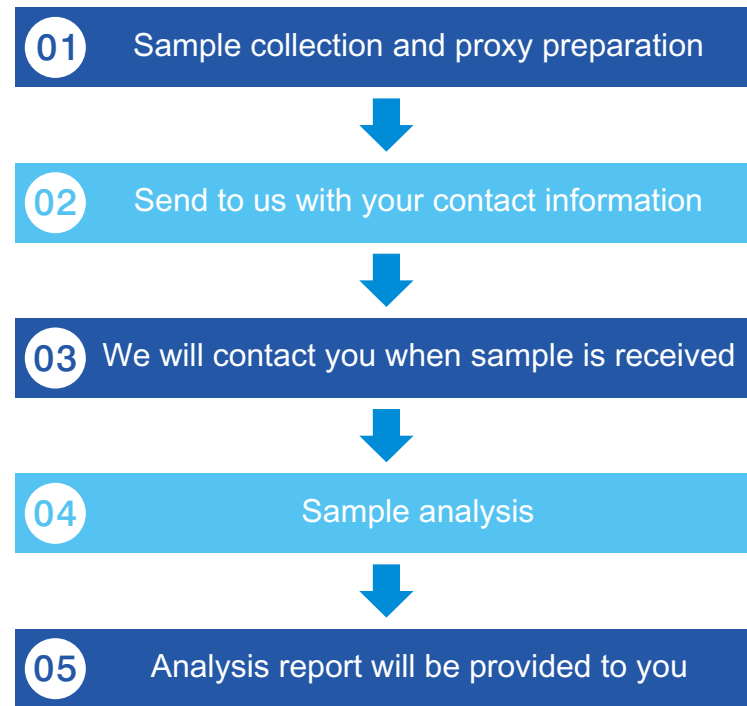


Largest Mercedes-Benz Store, South Sanlitun, Beijing (3528)




## R&D Institutions

NATIONSTAR RGB R&D center guarantees that sample verification is free of charge and the analysis report will be sent to you within 7 working days after receiving your sample.



NATIONSTAR laboratory has gained approval by CNAS

## Testing report



国星光电  
NATIONSTAR  
LED OPTOELECTRONICS

## 样品检测委托书

委托单位		委托日期	
联系人		联系方式	
联系地址			
样品型号		样品数量	
样品供应商			
检测内容			
检测目的			
检测报告	报告形式: <input type="checkbox"/> 数据报告 <input type="checkbox"/> 文字报告		
	交付方式: <input type="checkbox"/> 自取 <input type="checkbox"/> 邮寄 <input type="checkbox"/> E-mail		
委托单位 签章			

年 月 日

					
LED 器件检验报告					
样品信息	委托人 		委托时间	2017-12-04	
	委托要求 整灯返样模造(一块) 是否有属于固定正品灯。				
检测项目	2020	鉴定人员	朱世勇	鉴定日期	2017-12-11
检测项目	■ 黄			温度 (℃)	湿度 (%)
				22℃	55%RH
检测内容	<div style="display: flex; justify-content: space-around;">    </div>				
检测	<p>经鉴定, 受检样品不为国星光电产品。</p> <div style="text-align: center;">  <p>■ 受检样品 不为国星光电产品</p> </div>				
判定	许世强	审核	3-18号	批准	张金
<p><b>免责声明:</b></p> <p>1. 本所出具的鉴定报告仅依据委托人提供样品, 并不对委托人提供受检产品提供任何保证或担保, 且本所不承担因委托人提供样品不真实或不完整而导致的不准确性, 如委托人未提供足够信息致使本所无法做出准确判断或委托人提供样品与实际情况不符, 国星光电将不承担责任。</p> <p>2. 本所出具的鉴定报告仅依据委托人提供样品, 并不对委托人提供受检产品提供任何保证或担保, 且本所不承担因委托人提供样品不真实或不完整而导致的不准确性, 如委托人未提供足够信息致使本所无法做出准确判断或委托人提供样品与实际情况不符, 国星光电将不承担责任。</p> <p>3. 国星光电不承担因委托人提供样品不真实或不完整而导致的不准确性, 如委托人未提供足够信息致使本所无法做出准确判断或委托人提供样品与实际情况不符, 国星光电将不承担责任。</p> <p>4. 本所出具的鉴定报告仅依据委托人提供样品, 并不对委托人提供受检产品提供任何保证或担保, 且本所不承担因委托人提供样品不真实或不完整而导致的不准确性, 如委托人未提供足够信息致使本所无法做出准确判断或委托人提供样品与实际情况不符, 国星光电将不承担责任。</p>					
国星光电 (集团) 有限公司 地址: 广东省佛山市南海区西樵镇山仔下村 电话: 0757-86111111 传真: 0757-86111111 邮编: 528463 网址: www.gs-electronics.com					

## R&D Team

15P

150P

13P

>700P

Patents Achievements

By December 2017, NATIONSTAR had applied for 422 patents, including 86 patents for inventions, 31 overseas patents. There are 357 patents issued patents, including 49 patents for inventions.



Company Honors



- Global TOP 10 LED Encapsulation Manufacture in Q2 2017(HIS Markit)
- National Science and Technology Progress Award
- National high-tech enterprise
- Key high-tech enterprise of National Torch Plan
- LED famous brand in China
- TOP 10 international competitiveness of Chinese LED enterprises
- One of 500 manufacture enterprises in Guangdong province
- International standard certification utilization