



#### 佛山市国星光电股份有限公司

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组件业务:

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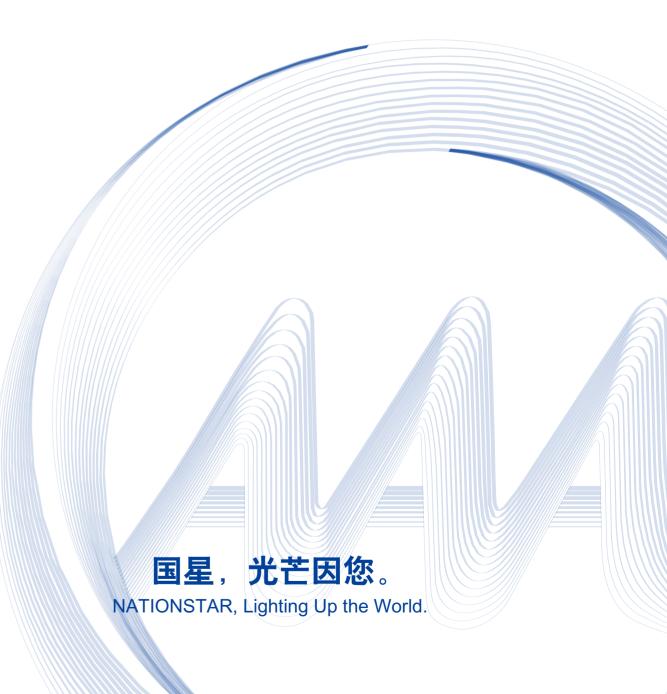
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## 粲然而生 一路向前

48年前,从一颗微小的单晶硅晶体 开始,到LED器件封装,国星是中 国大陆最早涉足LED的企业之一。

48年后,伴随着中国电子制造业日新月异的发展,国星成长为LED产业链垂直一体化的高新技术上市公司,以行业龙头的地位在中国迸发光彩,在世界崭露头角。

近半个世纪以来,国星专注于 LED及其应用产品,始终坚守着超 高的品质工艺,以生生不息的科技 创新力,实现了许许多多开创行业 先河的技术突破和产品创新,闪耀 着中国LED行业引领者的魅力!

矢志创新,不断突破, 只为完美极致的光体验!

不忘初心,大步向前, "星"光璀璨邀您一同见证!

## As Bright As You Are

48 years ago, from monocrystalline silicon to LED packaging,
NATIONSTAR was one of the earliest Chinese manufacturers to produce LED. Now, with the rapid growth of Chinese electronic manufacturing industry,
NATIONSTAR has been grown to an outstanding high-tech enterprise, leading in China and rising in the world.

For decades, NATIONSTAR has been devoted to LEDs and LED application, achieved a lot of technology and product breakthroughs, adhering to high production technology, continuous innovation and technology.

NATIONSTAR is committed to innovation, only for perfect light.

NATIONSTAR shines you striding forward to a brighter future.



NATIONSTAR is a National level key high-tech enterprise with professional capability in manufacturing LED components and LED application products. She was founded in 1969 and started LED production in 1976. NATIONSTAR was one of the first Chinese manufacturers to produce LED.

Current production bases cover total area is 92,600m², while workshops and offices building area is 199,000m². With advantages on capital, distribution channels, R&D, and management, it has been ranked in the list of the famous LED brands.

NATIONSTAR has about 700 engineers and technicians, including 15 PhD holders and 150 Master degree holders. They have made outstanding contribution to the promotion of the company's Research & Development capability.

As a leading LED manufacturer, NATIONSTAR owns nearly 330 authorized patents, including 43 invention patents. NATIONSTAR has won multiple awards such as The Key High-Tech Enterprise of National Torch Program, National High-Tech Enterprise, the National Science and Technology Progress Award, etc.

NATIONSTAR formed a full supply chain development mode, doing diversified LED business involving epitaxy and chips, packaging, backlight, and general lighting. In 2015, NATIONSTAR was authorized the white LED patents by Toyota Gosei; NATIONSTAR's Germen subsidiary and American subsidiary were established.

NATIONSTAR has strictly implemented international quality control system such as ISO9001, ISO14001, TS16949 and OHSAS18001, and improved process management continuously. Its high quality products have passed many domestic and overseas certification tests, such as CE, TUV, UL, ETL, CQC, 3C and so on. The advanced technology and scientific research capability motivate the vigorous development of its LED business.

佛山市国星光电股份有限公司是广东广晟旗下专业从事研发、生产、销售LED及LED应用产品的国家高新技术企业、国家火炬计划重点高新技术企业。公司占地面积9.26万平方米,厂房面积19.9万平方米。公司建于1969年,1976年开始涉足LED封装,是国内最早生产LED的企业之一。经过四十多年的发展,公司凭借技术、人才和管理等方面的优势成为中国LED行业的龙头企业。

创新推动发展,科技引领未来。公司内部设有博士后科研工作站(国家人力资源和社会保障部批准成立)、半导体照明材料及器件国家地方联合工程实验室(国家发改委批准筹办)、广东省企业技术中心、广东省光电子工程技术研究开发中心、广东省半导体照明材料及器件工程实验室。2016年,公司实验室获CNAS认可,检测能力与国际接轨。

公司现有博士15名,硕士150多名,本科及以上技术人员700多名。公司先后承担了国家"863"计划项目、国家"863"计划引导项目、国家火炬计划项目等国家级科研项目20多项,省部级项目80多项。公司产品多次获国家级、省级重点产品称号,2016年,公司荣获国务院授予的国家科技进步二等奖。

国星光电在做大做强LED封装主营业务的同时,兼顾上游LED芯片、下游LED照明产品的发展,建立完善的LED全产业链,实现垂直一体化。未来,国星光电将继续坚持科技兴企、创新发展,保持人才领先、管理规范、文化优秀,以"技术的高精尖化"市场的国际化,生产的规模化"为战略目标,全面强化行业领先的优势地位,致力于成为中国乃至世界一流的LED企业。

### 计划经济时代的国营工厂

A State Owned Factory in the Planned Economy Era

# 1969

公司成立 , 是一家小型的国营工厂。 NATIONSTAR, a state owned factory, was founded.

# 1976

LED投产,公司是国内最早生产LED的企业之一。 LED were put into production. NATIONSTAR was one of the first Chinese manufacturers to produce LED.

### 改革开放时代的代工型企业

An OEM Manufacturer in the Reform and Opening Era

# 1981

公司开始与日本三洋公司合作生产LED产品。 NATIONSTAR started cooperation with Sanyo(Japan) to produce LED.

# 1995

国星光电作为全国最大光电器件生产与出口加工企业 荣列"1949 – 1995中华之最"之林。 NATIONSTAR was certified as the largest optoelectronic manufacturer and OEM exporter in China mainland.

## 新世纪的民营自主创新型企业

An Independent innovation Private Enterprise in the New Century

# 2000

公司设立研发中心,开始了自主创新的道路。 NATIONSTAR set up the R&D Center and enhanced its focus on innovation and LED technology research.

# 2002

公司完成转制,成为民营企业。 NATIONSTAR transformed from a state-owned company to a private enterprise.

## 产业链融合的高科技上市公司

A High-tech Listed Company in the Integration of LED Industry Chain

# 2010

公司首次发行股票并在深圳证交所上市。
The active development and fruitful achievements made NATIONSTAR succeed in IPO.

# 2014

广东省属大型国有骨干企业广晟公司入资, 国星光电成为混合所有制模式的实践者。

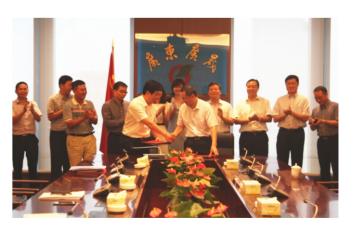
Guangdong Rising Assets Management Co., a big state-owned corporation, invested in NATIONSTAR.

# 2016

国星光电荣获国务院授予的国家科技进步二等奖。 NATIONSTAR was awarded the National Science and Technology Progress Award by the State Council.





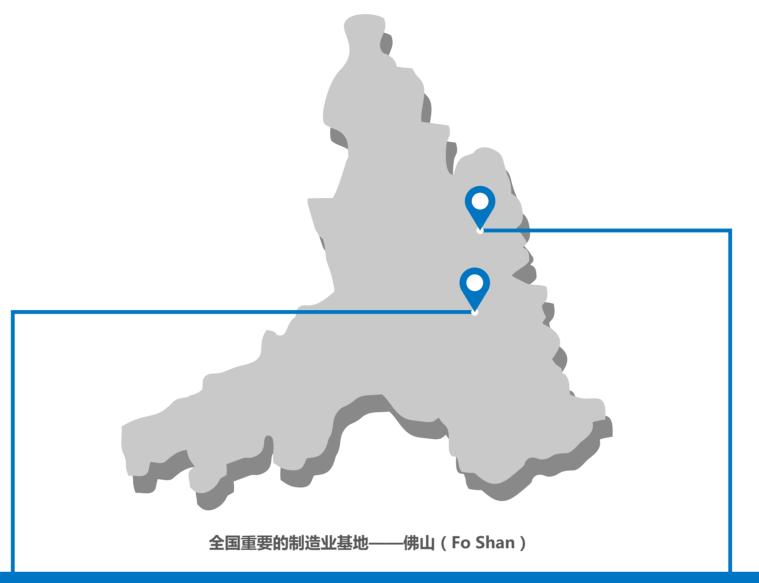


03 / NATIONSTAR

# 生产基地 PRODUCTION BASE

## 国星光电总部 The Production Base of LEDs and LED Lightings

占地面积: 60,600平方米 Land Area: 60,600m² 建筑面积: 139,000平方米 Building Area: 139,000m²

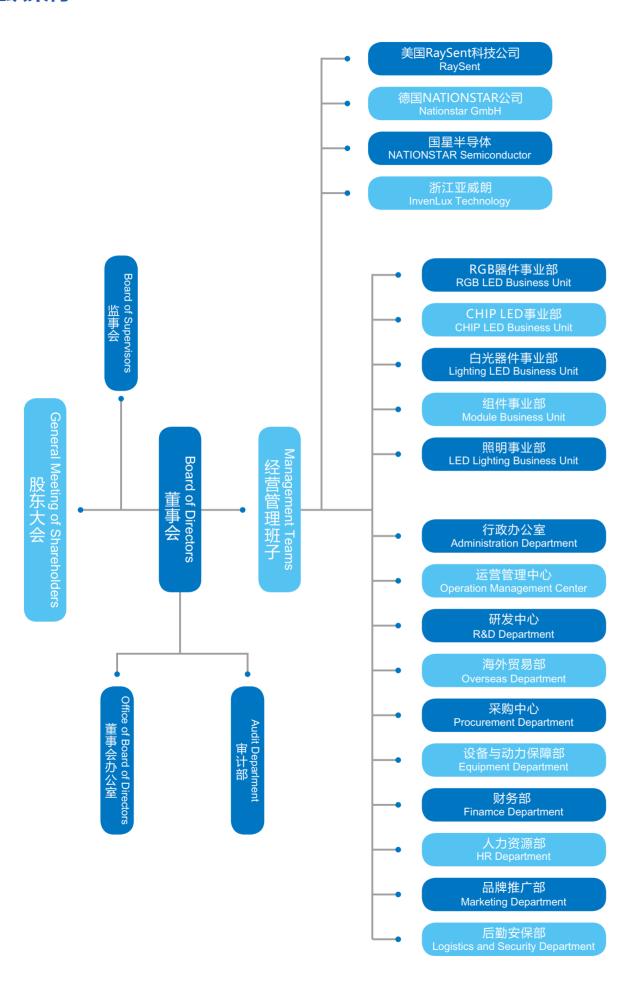


## 全资子公司:国星半导体 The Production Base of LED Chips

占地面积: 32,000平方米 Land Area: 32,000m² 建筑面积: 60,000平方米 Building Area: 60,000m²







2008年,时任中央政治局常委、国务院 总理温家宝及省市领导一行莅临国星光 电考察。

Wen Jiabao, the Politburo Standing Committee, the Premier of the State Council, visited NATIONSTAR, in 2008.



2012年,中央政治局常委、十二届全国 人大常委会委员长张德江, 中央政治局委 员、国务院副总经理汪洋及省市领导一 行莅临国星光电视察。

Zhang Dejiang, the Politburo Standing Committee, the Twelfth NPC Standing Committee Chairman, and Wang Yang, the Vice Premier, visited NATIONSTAR, in 2012.





2015年,中央政治局委员、广东省委书 记胡春华及省市领导一行莅临国星光电 考察。

Hu Chunhua, Member of the Political Bureau of the CPC Central Committee, Guangdong Provincial Party Secretary visited NATIONSTAR, in 2015.







2015年,广东省政协主席王荣莅临国星 光电考察。

Wang Rong, the Chairman of Guangdong Provincial Committee of the CPPCC, visited NATIONSTAR, in 2015.





2015年, 佛山市委副书记、市长朱伟莅 临国星光电考察。

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Zhu Wei, the Deputy Secretary of Foshan Municipal Committee, the Mayor of Foshan, visited NATIONSTAR. in 2015.



国家科学技术进步奖

证书

为表彰国家科学技术进步奖获得者,



## 企业理念

#### **Corporate Values**

以真诚地工作增进个人、家庭和社会的福祉, 创造公司的永远繁荣

Work with sincere faith to enhance the well-being of individuals, families and society, and to create the ever prosperty of the company

## 血 经营理念

#### **Management Concept**

用户至上,创新制胜,以人为本,科学管理

The customer is supreme, innovation to success, human-orientation, scientific management



#### **Work Principles**

求同存异、团结互助的团队精神

从严要求、一丝不苟的认真精神

爱厂爱家、勇担责任的负责精神

脚踏实地、真抓实干的务实精神

尊重科学、敢于实践的创新精神

Teamwork, Earnest, Responsibility, Pragmatic, Innovation



Well-known Brand in LED Industry

The Top 10 International Competitiveness

Adopting International Stardard Product Marking Certificate



#### 规划人力资源战略, 广纳人才。

Inviting kinds of specialized talented persons



# 完善培训体系建设, 育人以专。

Training with professional knowledge



Ensure the right person in the right position





#### 创建和谐企业文化, 情感留人。

Attract and retain the personnel with culture











守法经营,依法纳税

Pay taxes lawfully



绿色产品,保护环境

Produce environment-friendly



解决就业,保障和谐

Solve the problem of employment



安全生产,提质增效

Ensure safe production



关爱员工,愉快工作

Care for employees



团结友爱,互帮互助

Staffs help each other



扶贫济困,情暖万家

Help the poor and the week



奉献爱心,无偿献血

Blood donation voluntarily

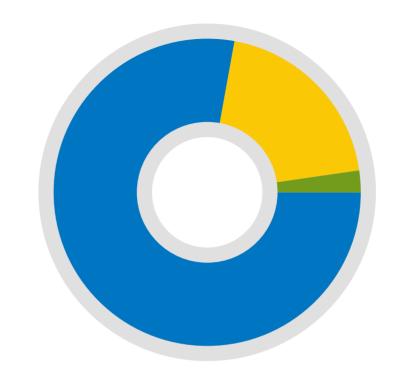
# 研发机构 R&D INSTITUTIONS











博士(后) PhD Holders 15名 硕士 150 多名 Master Degree Holders

本科以上技术人员

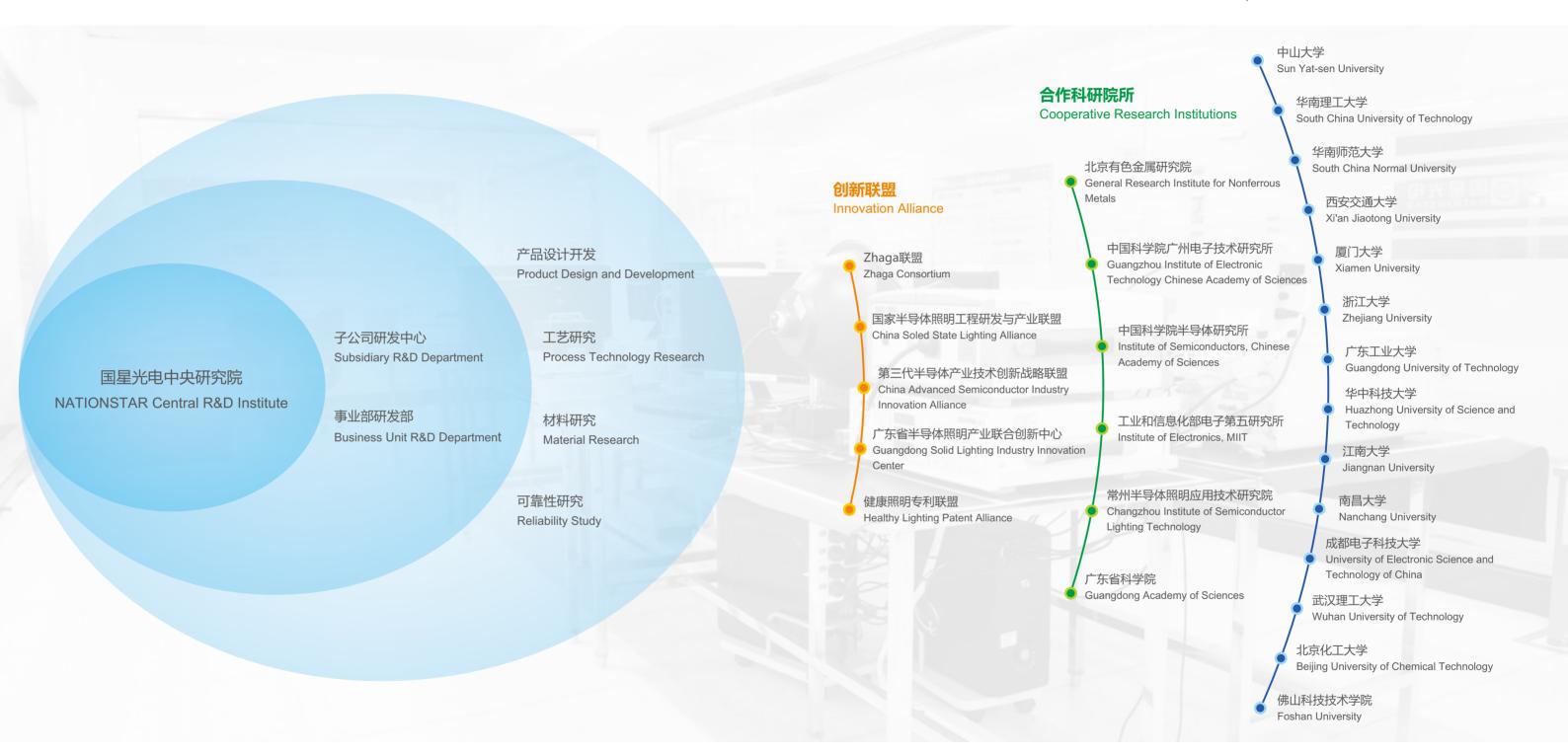
Engineers and Technicians 700 多名







#### **合作院校** Cooperative Universities



**内部研发体系** Internal R&D system

## 外部产学研体系

External industry-university-research cooperation

目

截至2017年3月,国星光电已申请专利达398项,其中发明专利71项,国外专利20项,已授权专利达330项,其中发明专利43项。

By Mar 2017, NATIONSTAR had applied for 398 patents, including 71 patents for inventions, 20 overseas patents. There are 330 issued patents, including 43 patents for inventions.





- 国家"863"计划项目及"863"计划引导项目 9项
   9 projects from the National High Technology Research and Development Program ("863" Program) of China
- 国家火炬计划项目 5项5 project from the National Torch Plan
- 国家"十二五"科技支撑计划项目 1项 1 project from the Science & Technology Support for National 12th Five Plan
- 国家高技术产业升级和结构调整项目 1项1 project from the National Hi-Tech Industry Upgrading Project
- 国家"十五"科技攻关项目 2项 2 projects from the National Key Technologies R&D Program for 10th Five-Year Plan
- 国家中小企业创新基金项目 1项1 project from Nation-Funded Small&Medium Enterprises Innovation Project
- 国家级电子信息产业发展基金项目 3项 3 projects from Nation-Funded E-commerce
- 国家重点研发计划项目 1项1 projects from National Key R&D Program
- 粤港关键领域重点突破项目 7项7 projects from Guangdong-HongKong Key Fields
- 广东省重大科技专项 9项 9 projects from Main Science & Technology Projects of Guangdong Province
- 省部产学研结合项目 4项 4 project from Academy-Enterprise Cooperation Project Supported by Province & Ministry
- 其他省市区级各类项目 80项 80 projects from others

### 质量管控 QUALITY ASSURANCE

国星光电始终贯彻"全员参与,质量第一,持续改进,为顾客提供满意的产品和服务"的质量方针,全面推行国际质量体系和完善的标准化流程管理,通过了 ISO9001、ISO14001、TS16949、OHSAS18001、ISO/IEC17025、计量体系等六大体系认证。

NATIONSTAR has been strictly implementing international quality control system such as ISO9001, ISO14001, TS16949, OHSAS18001, ISO/IEC17025 and Certificate of Measurement System, improved process management continuously.















# PRODUCT CERTIFICATION 产品认证































#### 先进技术 ADVANCED TECHNOLOGY



防水气结构设计技术 

Moisture-resistance structure design technology

 模块化光学仿真与配光设计技术 Modularized optical simulation and light distribution technology

模块化

集成技术

Modular Integration





荧光结构设计技术 

Phosphor structure design technology



透镜结构设计技术 

Lens structure design technology



高可靠性固晶技术 
● High reliable die bonding technology



高可靠性引线键合技术 

High reliable wire bonding technology



精密高效模压塑封技术 
Precise and efficient molding technology



精密点胶技术 

Precise dispensing technology





微-纳米材料掺杂和分散技术 
Micro/nano material doping and dispersing technology



微-纳米材料控光技术 
Micro/nano material lighting control technology

器件封装

工艺技术

**Device Packaging** 

Technology

器件结构 设计技术

Device Structure Design Technology

微-纳米

材料技术

Micro/nano Material

模块化 设计技术

Modularization Design Technology

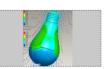
可靠性测试及

应用技术

Reliability Testing and Applied Technology

Modularized fluid simulation and thermal management technology

模块化流体仿真与热管理技术



无线与智能控制技术
 Wireless & intelligent control technology



高速自动贴片技术 High speed SMT technology



AOI及ICT检测技术
 AOI & ICT detection technology



可靠性测试技术 Reliability testing technology



外观工业设计技术 Appearance industrial design technology



光环境与照明、显示场景设计技术 Light environment design technology



#### 产业链整合 INTEGRATION OF LED INDUSTRY CHAIN

国星光电坚持"做大做强LED封装主营业务,兼顾上游LED芯片、下游LED照明产品的发展,建立完善的LED全产业链,实现垂直一体化"的发展战略。

NATIONSTAR's development strategy is: Based on the main business of LED packaging, balancing the upstream of LED chips and downstream of LED lightings to achieve vertical integration in LED industrial chain.







LED封装为国星光电主业,产品主要包括SMD LED和Lamp LED,由RGB器件事业部、白光器件事业部、CHIP LED事业部负责显示屏器件、照明器件和指示器件业务。目前,公司SMD LED的产能已突破7100KK/月,位列全国前三。

Majoring in LED package industry, NATIONSTAR has SMD LED and Lamp LED. Now NATIONSTAR achieved SMD LED package capacity 7100 million pieces per month, ranked top three in mainland China.

#### 下游应用 Downstream-LED Application

国星组件产品主要包括LED显示模组、背光源和背光光条,产品应用于各类家电的显示面板以及背光。

国星照明专注于商业照明、办公照明和户外亮 化工程,目前,国内分销网点突破1000家, 产品远销20多个国家和地区。

NATIONSTAR has LED display modules, backlights, light bars, commercial and office lightings. Its products have been sold to more than 20 countries all over the world.

#### 上游芯片 Upstream-Chips

佛山市国星半导体技术有限公司为国星光电全资子公司,专注于研发、生产、销售可用于照明、显示、背光的LED外延材料和芯片。公司注册资本6亿元,目前已引进20条MOCVD生产线及相应的芯片生产设备,年产外延240万片、芯片420亿颗。

Foshan NationStar Semiconductor Technology Co.,Ltd, a subsidiary of NationStar, with a registered capital of RMB 600 million, is specialized in fabricating GaN LED chips for lighting, display and backlight.

# LED芯片 LED Chips











倒装4545 4545 VLED



倒装6060 6060 VLED



0.5W1224



0.5W1735

## RGB器件 Components for Display •



RS系列 RS Series



小间距系列 Fine Pitch Application



户内系列 Indoor Application



户外系列 Outdoor Application

## 白光器件 Components for Lighting •



通用照明器件 General Lighting LED



COB/灯丝 COB and Filament



背光器件 Backlighting LED



闪光灯 Flashlight LED

## 特种器件 Components for Special Application



车用器件 Vehicle LED



植物照明器件 Plant Lighting LED



紫外器件 UV LED



红外器件 IR LED

### 指示器件 Components for Indicating











CHIP侧发光 CHIP Side View

CHIP指示 CHIP Indicator

CHIP红外光敏 CHIP Infrared and Photo Transistor

CHIP车载 CHIP Vehicle

LAMP

### **LED组件** LED Modules



背光 Backlight



灯条 Light Bar



显示模块 Display Module

#### **LED照明** LED Lightings



面板灯 Panel Light



灯管 / 支架 Tube / Batten



天花灯/筒灯 Downlight



轨道射灯 Track Light



柔性灯条 Flex Strip

#### 产品应用 PRODUCTS APPLICATION

# 01

#### 户内外显示屏 LED Display

国星LED全彩器件是显示屏的核心发光器件,其具有亮度高、对比度高、可靠性高等特点,可为各类户内外显示屏提供高清、绚丽、卓越的显示效果。随着人们对高清显示的需求越来越高,未来LED显示屏将朝更小点间距方向发展。

# 02

#### 通用照明 General Lighting

随着LED照明的渗透率不断提高,通用照明仍是LED应用市场的最大领域。国星LED白光器件可为LED灯管、筒灯、面板灯等通用照明产品提供核心发光器件,产品具有亮度高、光效高、寿命长等特点。

此外,国星照明灯具产品具有高品质、高性价比等特点,主要应用于商超、办公及户外亮化等领域。



# 03

#### 植物照明

LED光源的波长丰富,其可通过特定波长的光调节植物开花、结果,甚至可以控制株高和植物的营养成分,对现代农业的发展具有重要意义。

国星LED植物照明器件可为LED植物生长灯提供核心发光元器



# 04

#### 汽车照明 Automotive Lighting

LED光源具有快响应、高亮度、低能耗及智能化等特性,其正逐步渗透汽车照明市场,并有望成为汽车照明的主流光源之一。 国星LED汽车照明器件具有散热好、亮度高、可靠性高等特点,适用于前照灯、转向灯、阅读灯、刹车灯等车内外照明。



# 05

#### 家用电器 Household Appliances

国星光电的显示模块主要应用于空调、洗衣机、微波炉、热水器等家用电器的显示面板,而大尺寸背光源则主要为电脑显示器、LED电视等提供背光。作为配件,国星组件产品跟随家用电器走进干家万户,为消费者带来清晰、明快的使用体验。



# 06

#### 信号指示 Signal Indication

国星CHIP LED器件具有尺寸小、光效高、寿命长和性能稳定等特点,可做成各种形式的轻薄短小产品,可广泛应用于信号标识、显示面板、仪器仪表等方面的指示。



## )7

#### 电子设备 Electronic Equipment

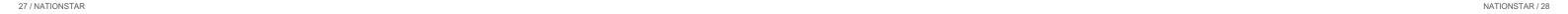
国星小尺寸背光源可为电子设备提供持续稳定、亮度均匀的背光效果,随着电子智能化的不断发展,目前已被广泛应用于手机、平板电脑、智能手表、电子阅读器等电子设备中。



08

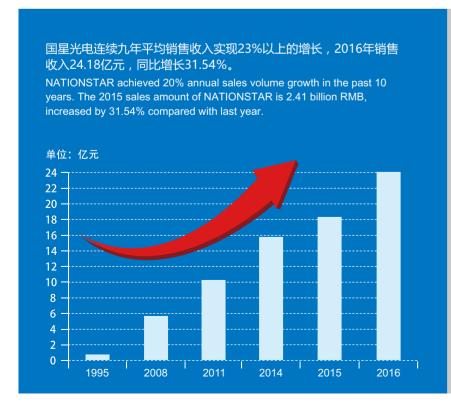
#### 紫**外/红外应用** UV/Infrared Application

LED紫外/红外应用是LED应用的新兴市场,国星光电LED紫外器件系列完善,可应用于紫外检测、杀菌消毒、空气净化、工业固态等领域。LED红外器件主要应用于安全监控等领域。









## 合作伙伴 MAJOR CUSTOMERS





















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①兰博基尼展台显示屏 LED Display for Lamborghini's Show

②天安门抗战纪念70周年大阅兵显示屏 LED Display for Large-scale Military Parade for 70th Anniversary of Anti-Japanese War in Tian'anmen squre

③三星新品发布会显示屏 LED Display for Samsung New-product Event

④2017博鳌亚洲论坛显示屏 LED Display for Boao Forum for Asia



LED Display for Davos World

①全球最大的奔驰体验店显示屏

②2016里约奥运会赛场显示屏

③巴西世界杯开幕式显示屏

Ceremony in Brazil

④达沃斯论坛显示屏

LED Display for Mercedes me in Beijing

LED Display for Rio Olympic Games

LED Display for World Cup Opening









①太原南站西广场亮化工程 Taiyuan-Shopping Mall

②青岛火车北站亮化工程 Qindao-North Railway Station

③山东舜和国际酒店照明项目 Shandong-Shunhe Hotel

④青岛国际机场室内照明项目 Qingdao-Airport











①兰州永冠印象1号店超市照明工程 Lanzhou-Supermarket

②成都仁和春天百货照明工程 Chengdu-Shopping Mall

③杭州国际城堡酒店照明工程 Hangzhou-Hotel

④广东宾度服饰专卖店照明工程 Guangdong-J.Benato

⑤科勒卫浴专卖店照明工程 Yancheng-Kohler Bathroom



国星光电将继续坚持科技兴企、创新发展,保持人才领先、管理规范、文化优秀,以"技术的高精尖化,市场的国际化,生产的规模化"为战略目标,全面强化行业领先的优势地位,致力于成为中国乃至世界一流的LED企业。

NATIONSTAR will adhere to the spirit of innovation and technology, enhance its competitive ability through professional human resource, advanced management and excellent corporate culture. She will also devote herself to be the top LED enterprise in China and make her attractive in worldwide.