

Feb.2019



REESTAR

2019

FOSHAN NATIONSTAR OPTOELECTRONICS CO.,LTD

Add: No.18 South Huabao Road, Chancheng District, Foshan,Guangdong,P.R.China

Tel: 86-(0)757-82100238 ext. 8387, 83985605

Fax: 0086-757-82109319

P.C: 528000

Web: www.nationstar.com

E-Mail: ledsales@nationstar.com

Redefine the global high-end full color SMD LEDs



REESTAR

CONTENTS

◆ About NATIONSTAR and its RGB Division	02
◆ RGB LED Division Introduction	04
◆ RGB LED Division History	05
◆ Product Advantages	07
◆ Manufacture Advantages	08
◆ Rental Display Introduction	10
◆ Fixed Display Introduction	12
◆ Product Identification	18
◆ Product Development	19
◆ Patents Achievements	20
◆ Company Honors	21

Redefine the global high-end full color SMD LEDs

NATIONSTAR Sets up the Strategically-Controlled RGB Division which is commonly called as RGB Super Division.



On October 30, NATIONSTAR held the Inaugural Meeting of Strategically-Controlled RGB Division, with the attendance of all the directors, supervisors, top leaders and senior managers of the company which totaled up to over 80. At the meeting, it was announced that the Strategically-Controlled RGB Division was officially established.

About NATIONSTAR and its RGB Division

According to the IHS Markit's market tracking reports on LEDs supply and demand in Q2, 2018, the operating revenue of NATIONSTAR for LED packages ranking the 8th globally in the list of operating revenue and market shares, two places surpassing that in the same period in 2017.

Looking back at the history, NATIONSTAR has been at the forefront of reform and opening up. Established in 1969, it has gone through such reforms as the "state-owned factories in the era of planned economy", "OEM enterprises in the era of reform and opening up", and "private enterprises based on independent innovation in the new century". With the investment and holding of Guangdong Rising Assets Management Co., Ltd. since 2014, NATIONSTAR has ushered in a new era of high-speed growth at a rate of over 20% per year.

RGB Division, the largest in NATIONSTAR, is mainly engaged in RGB display components. Its management team is dynamic, passionate, and rich in industry experience, with its members aged 32.4 on average, of whom, however, the average length of service is over 10 years. With the implementation of Division system in NATIONSTAR since October 2013, the RGB Division has realized rapid growth per year for five consecutive years, and has ranked the first globally in terms of sales revenue in SMD RGB LEDs and market share of Narrow Pixel Pitch LEDs. In addition, the RGB Division has undertaken several major international projects, such as supplying RGB LEDs to build "the displays for Tian'anmen military parade ceremony", "72 pcs large displays for Rio Olympics Arena", "displays for Boao Forum for Asia for three consecutive years" and "displays for Russian World Cup stadiums".

This upgrading will certainly vitalize the development of the Division to continue to hold on to a favorable position in the LED packages industry. What's more, it will mobilize the initiative of the Division's management team, releasing vitality and liberating productive forces, and it will bring a splendid future for LED display packages industry.

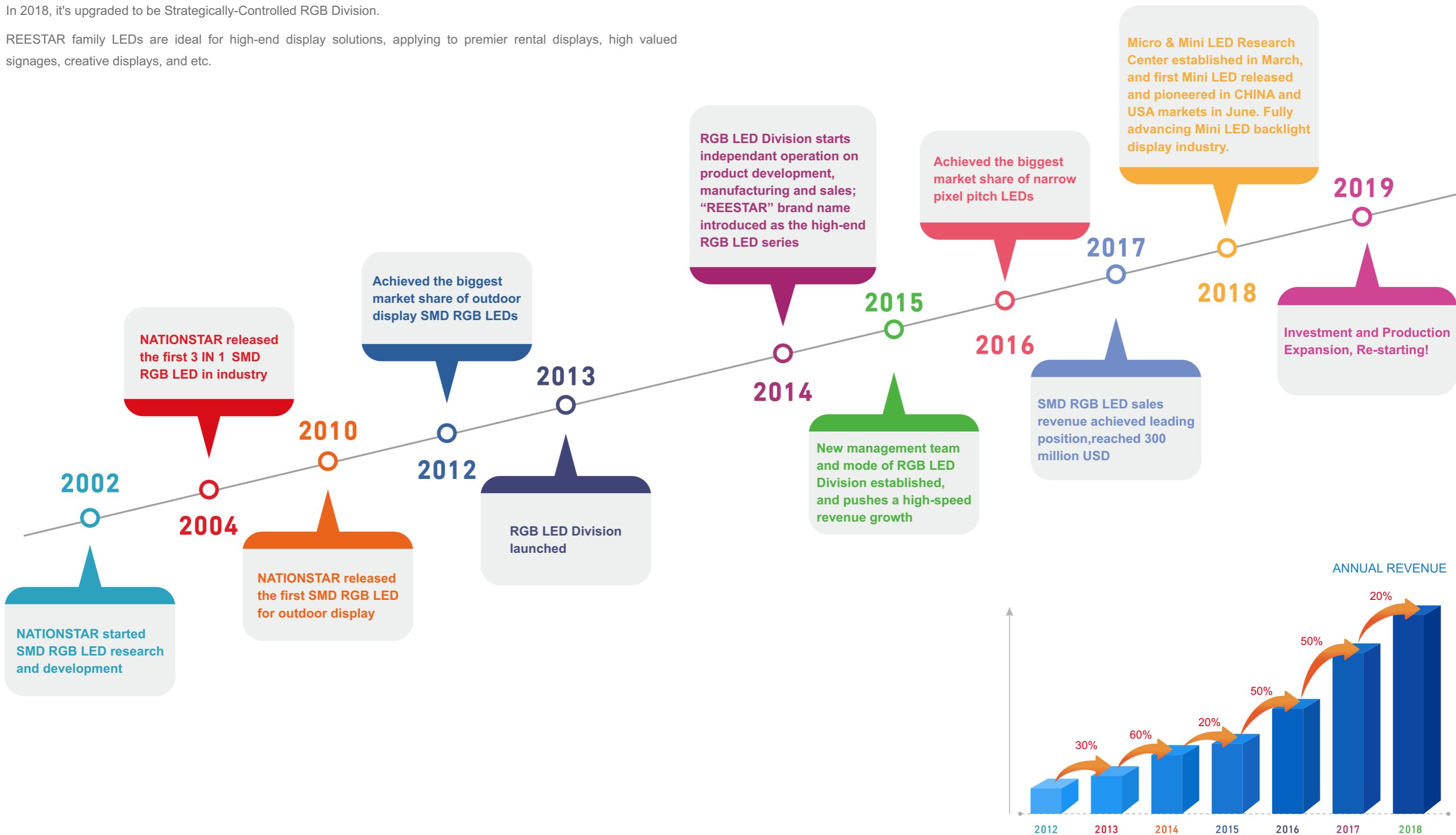
RGB LED DIVISION INTRODUCTION

RGB LED Division is the biggest revenue Division in Foshan NATIONSTAR Optoelectronics Co., Ltd.

In 2018, it's upgraded to be Strategically-Controlled RGB Division.

REESTAR family LEDs are ideal for high-end display solutions, applying to premier rental displays, high valued signages, creative displays, and etc.

RGB LED DIVISION HISTORY





REESTAR

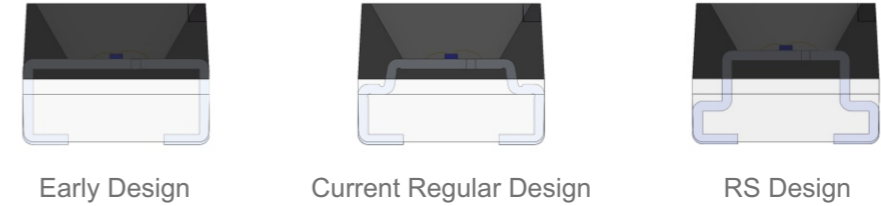


Redefine the global high-end full color SMD LEDs

To provide high quality, high standard and customized products for high-end display application to global customers.

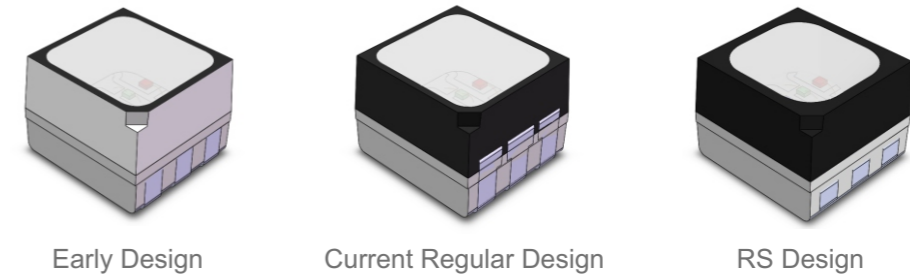
PRODUCT ADVANTAGES

STRUCTURE Low pins high frame patent technique^{※1}



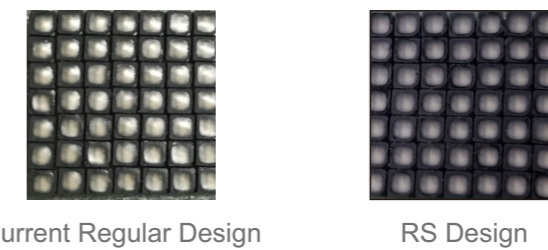
- Advantages:**
- High frame: 0.7mm (Leading in the industry)
 - Low pins: Easy for potting
 - Triple waterproof: Reliability improvement

CONTRAST Full black encapsulation patent technique^{※2}



- Advantages:**
- Blackness on all sides: white PPA exposure solution
 - Blackness on surface: Contrast increase
 - Square frame with four corners in arc shape: Wider view angel and better consistency

MATTE Secondary spray



- Advantages:**
- It makes epoxy resin on LED surface become smoothness which solves display viewing in wide angle (>170°)
 - Matte encapsulation can solve picture distortion problem which is caused by light reflection

※1 : Patent no.: ZL201110365452.6 ※2 : Patent no.: ZL201220685543.8

MANUFACTURE ADVANTAGES

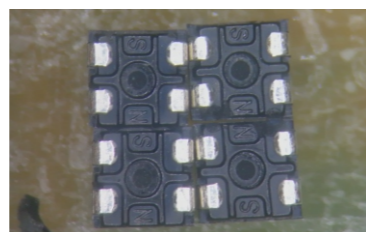
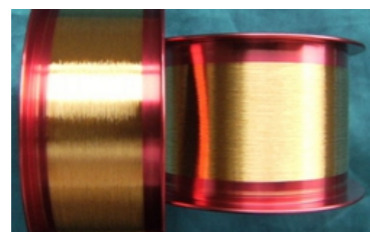
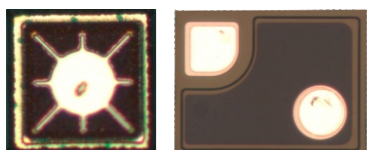
R&D CENTER > 800+ engineers, > 300 authorized patents



EQUIPMENT First-class level in the world



MATERIAL Imported materials, Better quality



Famous die suppliers all over the world 99.99% pure gold wire

Pure copper leadframe

QUALITY Automotive quality management IATF16949
Automotive grade discrete semiconductors (AEC-Q101)
SMT failure rate<10PPM

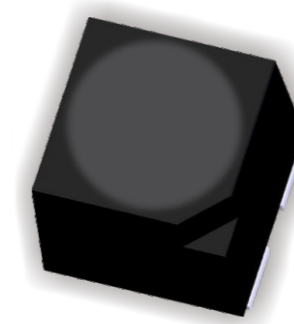


WORKSHOP Ten thousand level clean workshop

First Appearance In The World

RS-C1415

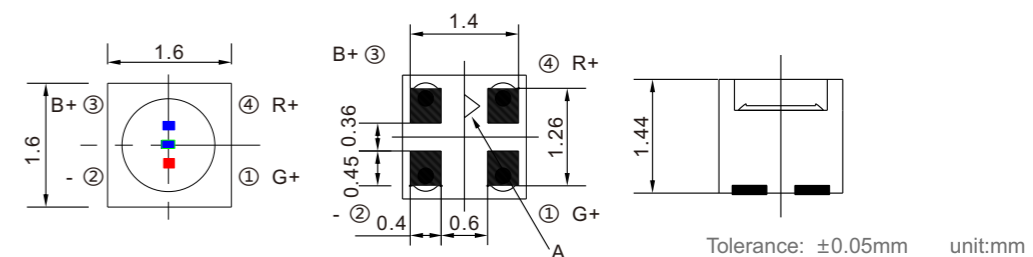
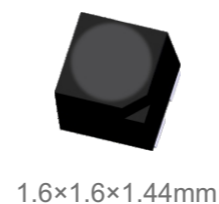
Smallest dimension outdoor RGB LED in the world



P3 Outdoor high definition application

RS-C1415MBAR NEW

Type: Outdoor
Strength: Greatly improve color reduction by introducing wide color gamut standard products
Application field: High-end rental displays for auto show, product launch conference etc., broadcasting industry, cinema and other professional fields



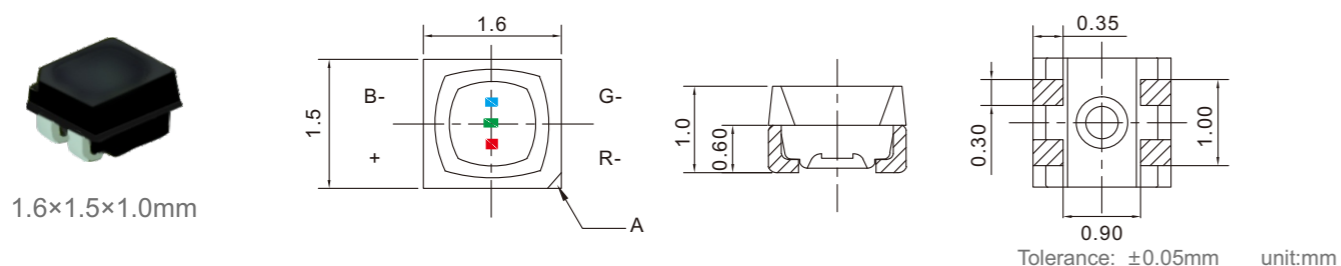
Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
●	15	622	330	2.1	110
●	8	528	380	2.6	110
●	5	470	60	2.7	110

RENTAL DISPLAY PRODUCTS

High brightness, High contrast, All black matte encapsulation, Good consistency in low grey scale, Effective view angle is up to 170°.

RS-1515MBAM

Type: Indoor
 Strength: Greatly improve color reduction by introducing wide color gamut standard products
 Application field: High-end rental displays for auto show, product launch conference etc., broadcasting industry, cinema and other professional fields



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	528	170	2.6	110
Blue	3	468	17	2.6	110



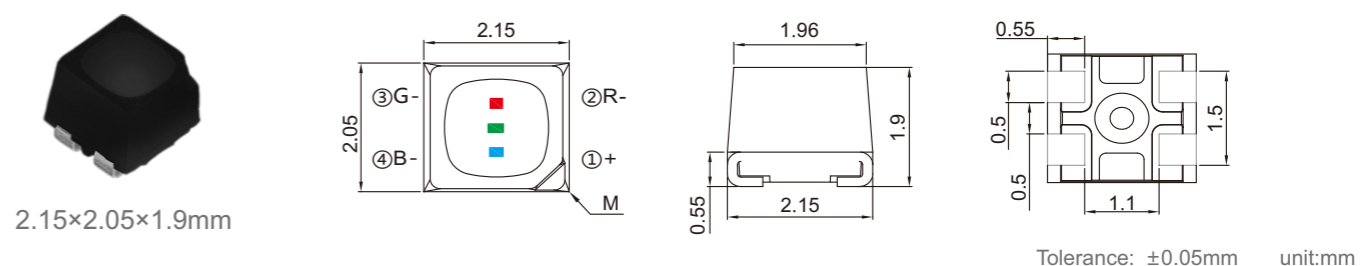
LED display for BRICS Business Forum

RENTAL DISPLAY PRODUCTS

High brightness, High contrast, All black matte encapsulation, Good consistency in low grey scale, Effective view angle is up to 160°.

RS-1921MBAR

Type: Outdoor
 Strength: Whole display brightness≥4500nit
 Application field: High-end rental displays for outdoor stage, stadium and fine pixel pitch displays in airport, hotel, etc



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	15	622	350	2.0	110
Green	8	527	500	2.7	110
Blue	5	472	52	2.7	110



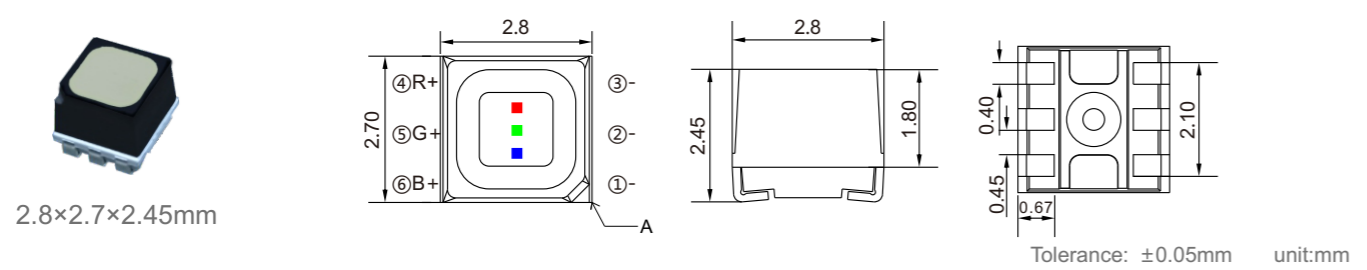
Biggest Car display in the world witness France won the championship in Eiffel Tower

FIXED DISPLAY PRODUCTS

High brightness, Long lifespan, Long warranty period.

RS-2727MWAS

Flagship version, focuses outdoor display
 Excellent reliability with 5 year limited warranty
 High brightness, achieving 7000nit and up
 Pixel Pitch: 4mm to 8mm
 Target market: High-end rental and fixed
 Application: Sports, landmark project, brand advertising signage, architectural exterior lighting decoration, and etc.



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	20	622	860	2.0	110
Green	15	528	1810	2.8	110
Blue	10	474	300	2.8	110



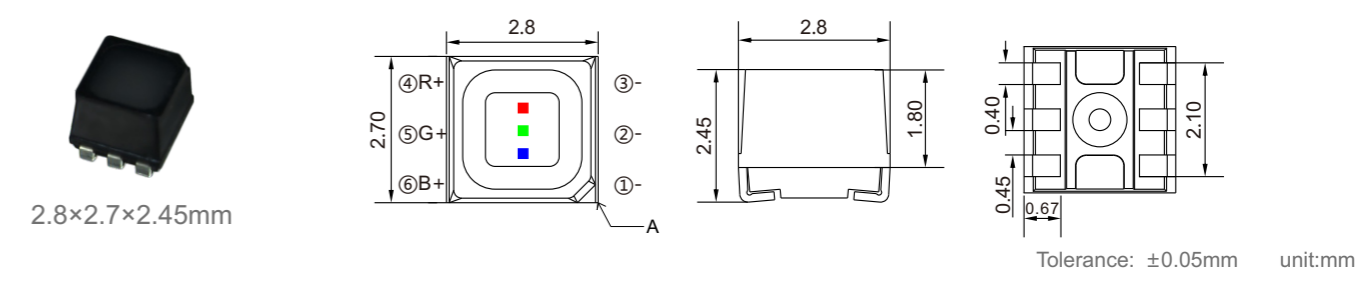
LED display for 2018 Russia World Cup in five host cities

FIXED DISPLAY PRODUCTS

High brightness, Long lifespan, Long warranty period.

RS-2727MBAR

Exclusively black LEDs for outdoor display, highest contrast.
 Pixel Pitch: 4mm to 8mm
 Target market: High-end rental and fixed
 Application: Sports, broadcast, stage, brand advertising signage, and etc.



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	20	622	480	2.0	110
Green	15	530	810	2.8	110
Blue	10	474	115	2.8	110



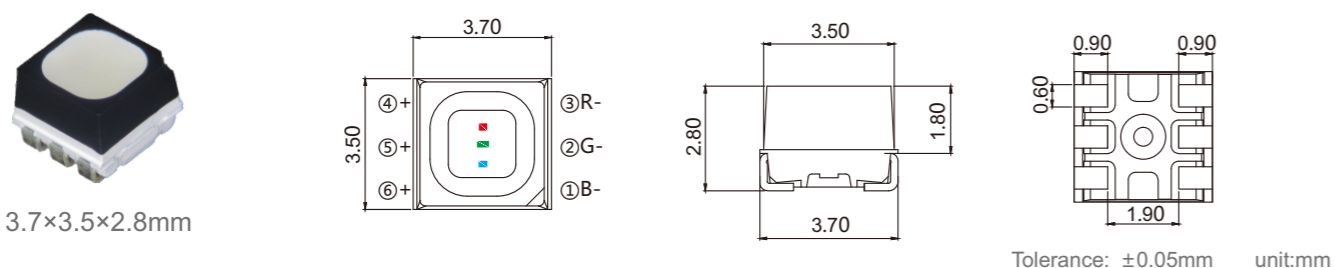
LED display for 2018 Russia World Cup in five host cities

FIXED DISPLAY PRODUCTS

High brightness, Long lifespan, Long warranty period.

RS-3535MWAM

Type: Outdoor
 Strength: Whole display brightness > 5000nit
 Application field: Stadium, airport, station, etc



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	15	622	520	2.0	110
Green	8	525	850	2.7	110
Blue	5	470	115	2.7	110



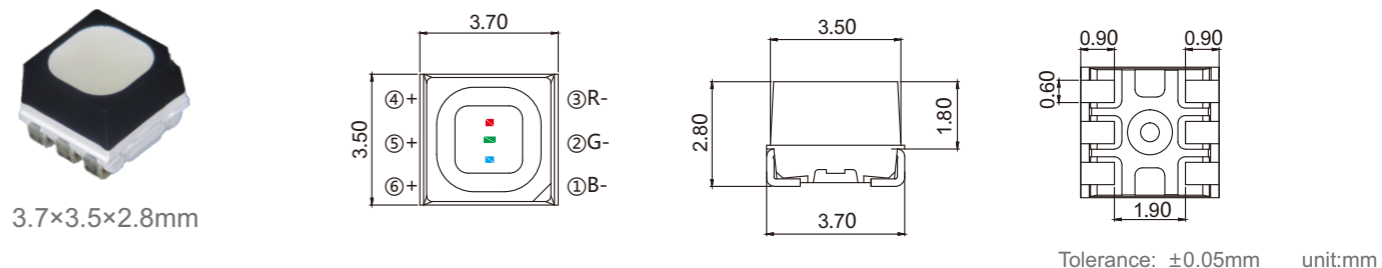
2016 Rio Olympics LED outdoor display

FIXED DISPLAY PRODUCTS

High brightness, Long lifespan, Long warranty period.

RS-3535MWAP

Type: Outdoor
 Strength: Cree die, RS encapsulation, Whole display brightness > 5000nit
 Application field: Landmarks project, government project, etc



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	20	622	670	2.0	110
Green	20	532	1300	3.2	110
Blue	20	470	300	3.2	110



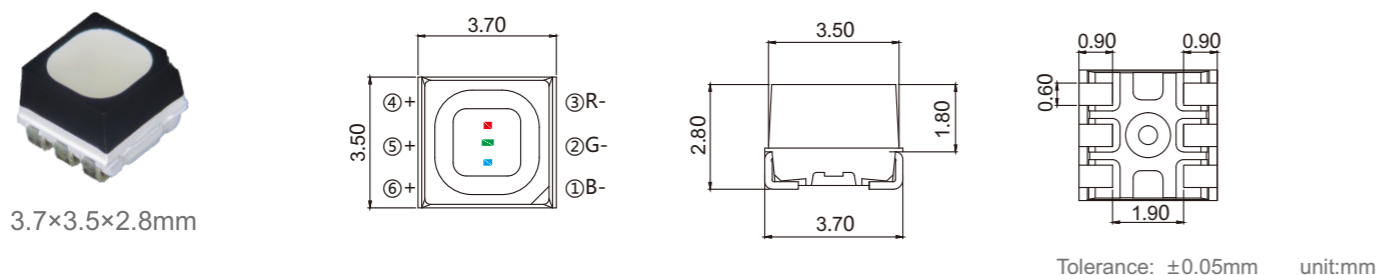
Biggest size outdoor LED display in Malaysia

FIXED DISPLAY PRODUCTS

High brightness, Long lifespan, Long warranty period.

RS-3535MWAR

Type: Outdoor
 Strength: Whole display brightness > 7000nit, Low power consumption
 Application field: Long-distance areas such as outdoor advertisement, building lighting project, sky screen, etc



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	20	622	850	2.0	110
Green	20	527	2200	2.9	110
Blue	20	471	450	2.9	110



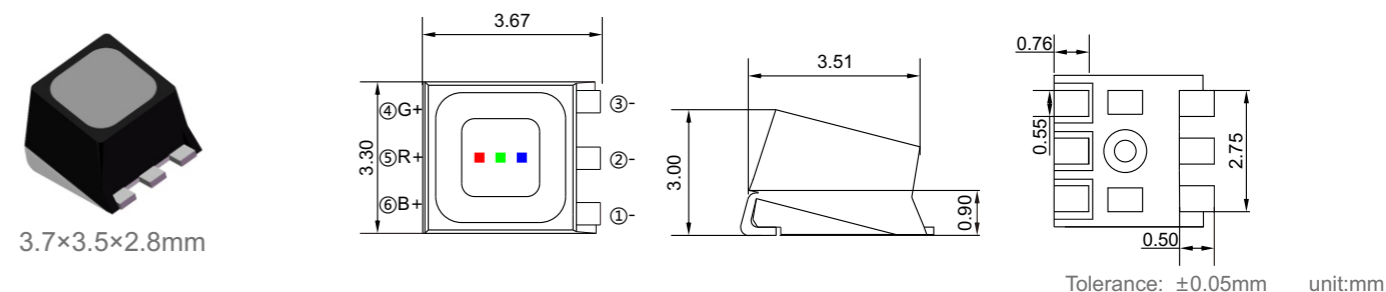
P80 Outdoor LED display decorating the Ferris wheel at Mohe city, north boarder of China

FIXED DISPLAY PRODUCTS

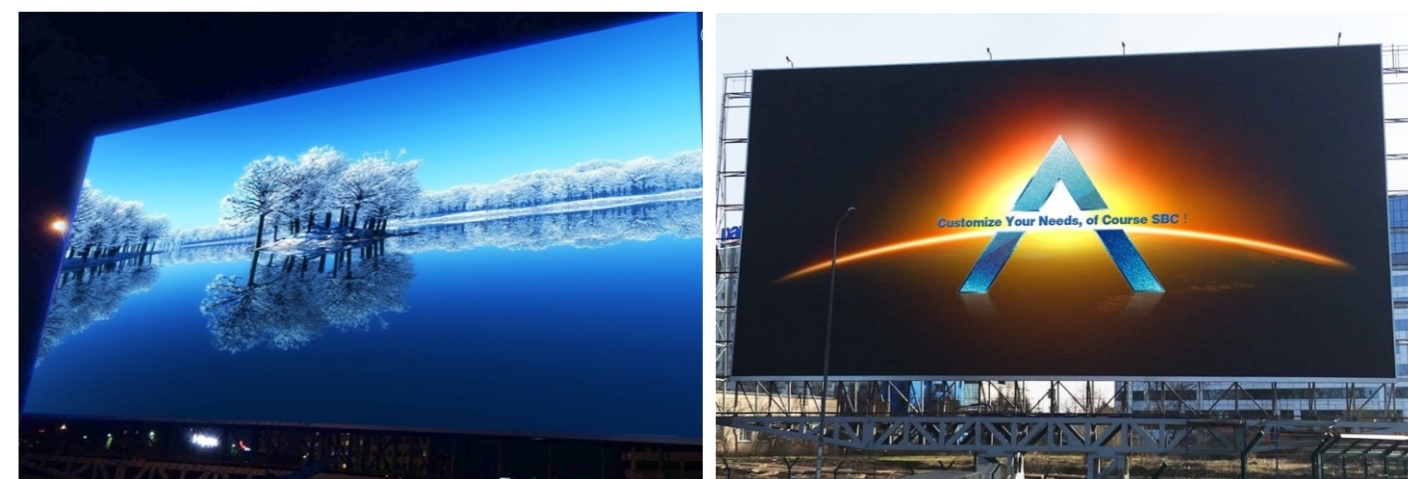
High brightness, Long lifespan, Long warranty period.

RS-D3535MWAQ NEW

Target market: High-end outdoor video signage
 Application: Business center, city downtown, building exterior signage, and etc.



Color	IF(mA) TEST	λD(nm) Typ.	IV(mcd) Typ.	VF(V) Typ.	View angle de
Red	20	622	900	2.0	110
Green	20	528	1800	3.2	110
Blue	20	470	330	3.2	110

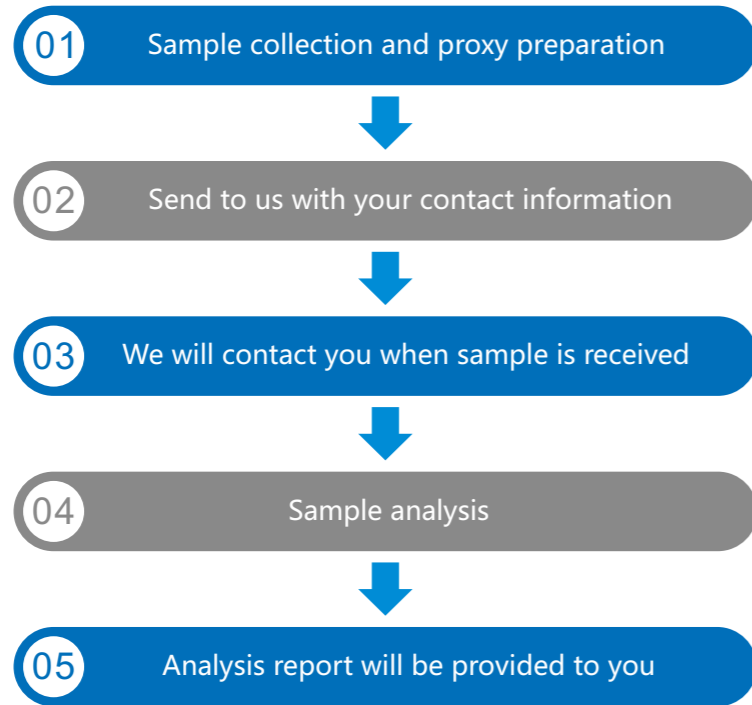


Outdoor LED display at Moscow international airport

PRODUCT IDENTIFICATION

We adhere to fight against counterfeit NATIONSTAR products in the market and ensure our customers have a pleasure experience by using our products.

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.



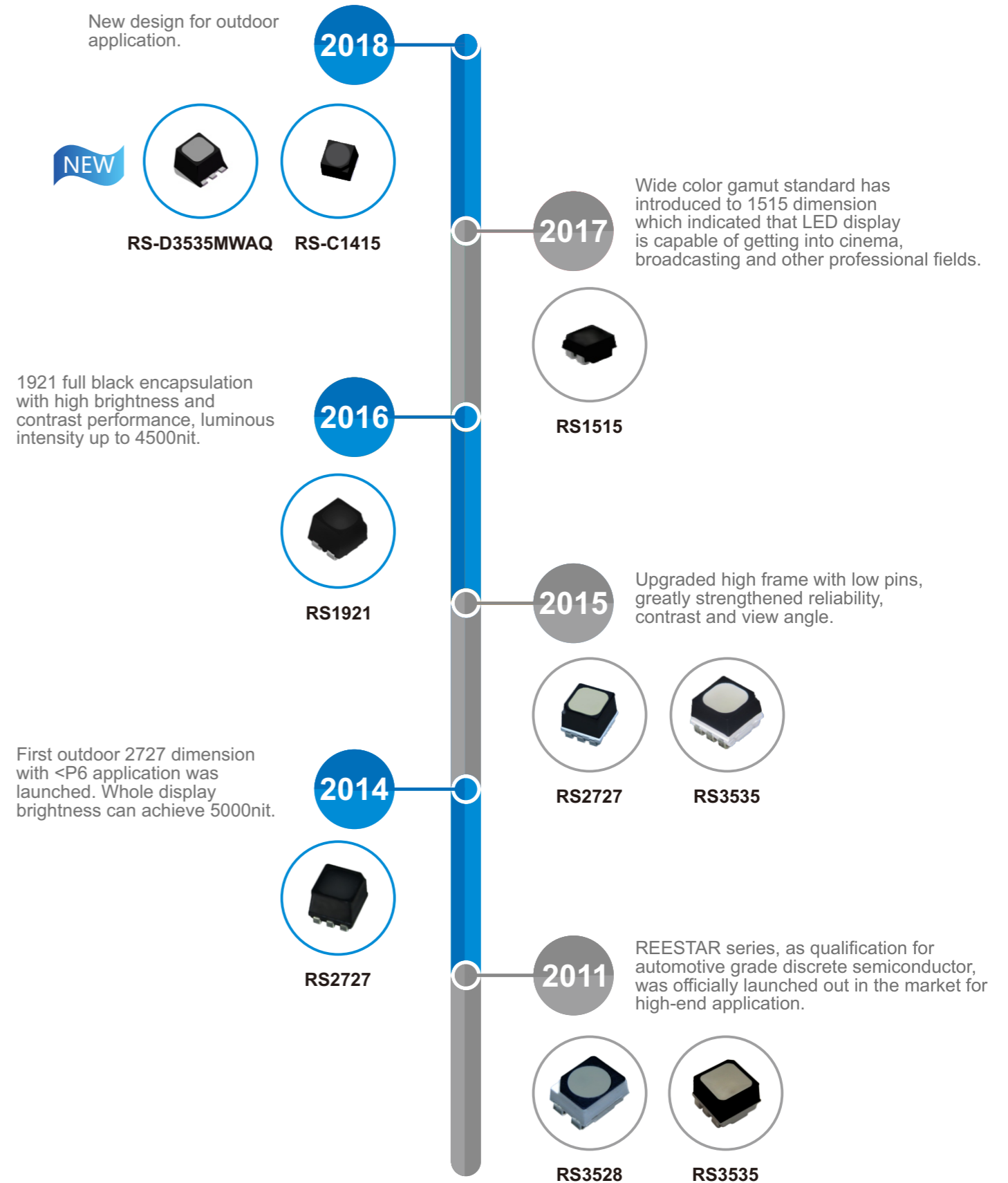
Sample testing proxy

Sample Test Proxy			
Client		Date	
Contact Person		Method	
Address			
Item		Quantity	
Sample Supplier			
Test Content			
Test Intention			
Test Report Method: <input type="checkbox"/> Data Report <input type="checkbox"/> Written Report			
Delivery Method: <input type="checkbox"/> Self pick-up <input type="checkbox"/> Mail <input type="checkbox"/> E-mail			
Client Sign and Stamp			
YY/MM/DD			

Testing report

Tel : 0086-757-82100238-8188 E-mail : RGByanfa@nationstar.com

PRODUCT DEVELOPMENT



Patents Achievements

By December 2018, NATIONSTAR had applied for 560 patents, including 132 patents for inventions, 45 overseas patents. There are 380 patents issued patents, including 52 patents for inventions.



Company Honors



- Global TOP 8 LED Encapsulation Manufacture in Q2 2018(IHS 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