

DATA SHEET

**ES-2835-052V-L1-RXXX
(RED)**

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ES-2835-052V-L1-RXXX Datasheet

Red Color

This 2835 LED Light Source is a high performance energy efficient device which can handle high thermal and high driving current. The small package outline and high intensity make it an ideal choice for Color LED panel light, LED bulb light, LED tube light, backlighting and etc.

These Low Power Color LED is available in the various colors like Red, Amber, Pink, Green, Blue. This part has a foot print that is compatible to most of the same size LED in the market today.



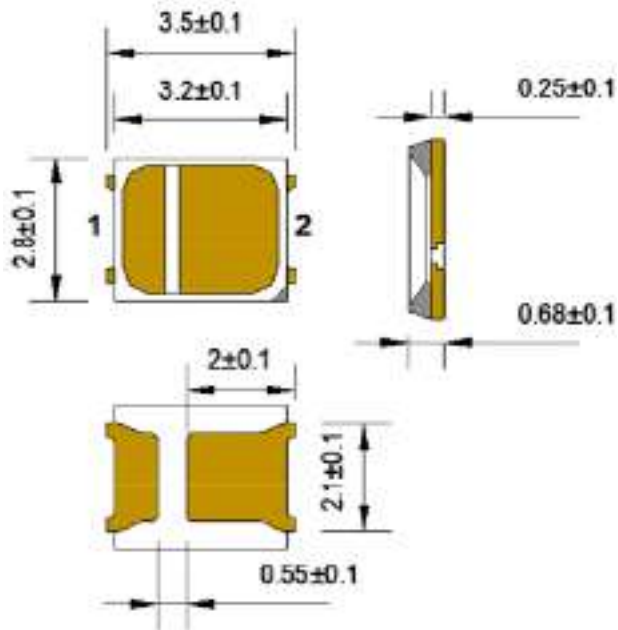
FEATURES

- Available in various colors like Red, Amber, Pink, Green & Blue.
- Compatible industry standard 2835 pkg
- Low voltage operation, Instant light
- Small package with high efficiency
- Long operation life
- Lead free product
- RoHS compliant

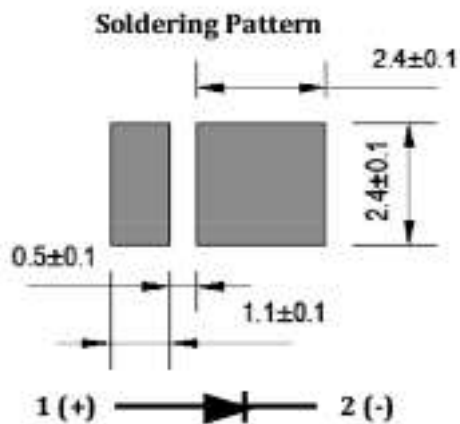
APPLICATIONS

- Flat panel light
- Backlighting
- LED tube light
- LED bulb light
- Decorative and landscape lighting
- Signage and channel letter
- Reading lamp
- Decorating and entertainment lighting
- Architectural lighting

PACKAGE DIMENSIONS



Recommended Solder Pad Design



Notes:

1. All dimensions in millimeters.
2. Thickness tolerance of copper plate is ± 0.02 mm.
3. Thickness tolerance of product is ± 0.05 mm.
4. Tolerance is ± 0.1 mm unless otherwise noted.

ABSOLUTE MAXIMUM RATINGS (TA=25 ±5°C)

Item	Symbol	Absolute Maximum Rating	Unit
Forward current	I _F	150	mA
Pulse Forward Current	I _{FP}	240	mA
Reverse Voltage	V _R	5	V
Power Dissipation	P _d	500	lm/W
Operating Temperature	T _{opr}	-40~+85	°C
Storage Temperature	T _{stg}	-40~+100	°C
Soldering Temperature	T _{slid}	Reflow Soldering:260°C Hand Soldering:300°C	For 10 sec For 30 sec

Note: Test Temperature = 25°C

CHARACTERISTICS (Tj=25°C)

Item	Symbol	Condition	Min	Typ	Max	Unit
Viewing Angle	2θ _{1/2}	I _F =150mA	--	120	--	deg.
Luminous efficacy	Φ _v	I _F =150mA	30	--	60	lm/W
Junction temperature	T _j	I _F =150mA	--	--	115	°C
Reverse Current	I _r	V _r =5V			10	uA
Antistatic ability	ESD			2000		V

Notes:

1. Luminous flux is measured with an accuracy of ± 10%.
2. Chromaticity coordinate bins are measured with an accuracy of ± 0.01.
3. CRI is measured with an accuracy of ± 2.
4. Some color and CRI bins may have limited availability, please contact us before ordering.
5. All measurements were made under the standardized environment of Everstar

COLOR COORDINATE COMPARISON

Product Code	Forward Voltage	Power	Current	Wavelength range	Lumens
ES-2835-052V-L1-R620-12	2.0-2.6V	0.5W	150mA	620-625 nm	10-20 lm
ES-2835-052V-L1-R625-12	2.0-2.6V	0.5W	150mA	625-630 nm	10-20 lm
ES-2835-052V-L1-R630-12	2.0-2.6V	0.5W	150mA	630-635 nm	10-20 lm
ES-2835-052V-L1-R635-12	2.0-2.6V	0.5W	150mA	635-640 nm	10-20 lm

Note: Luminous intensity(LM) 10% and Forward Voltage (VF)0.05V

TYPICAL OPTICAL CHARACTERISTICS CURVES

Fig 1. Forward Current vs. Forward Voltage

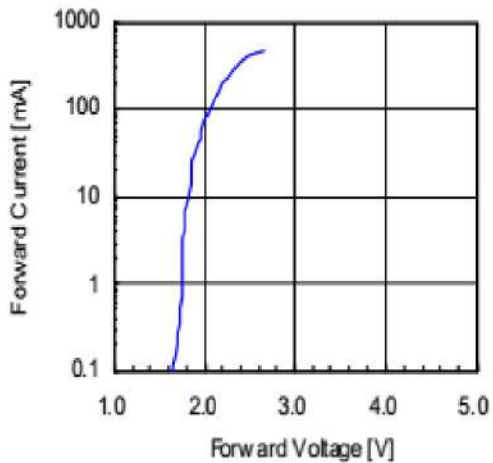


Fig 2. Relative Intensity vs. Forward Current

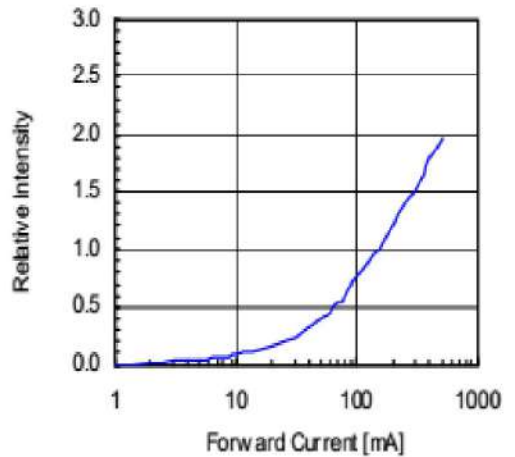


Fig 3. Forward Voltage vs. Temperature

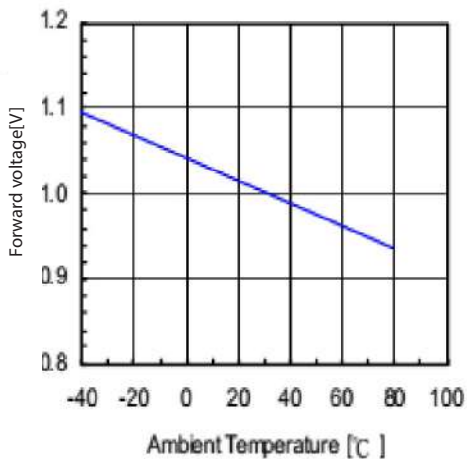
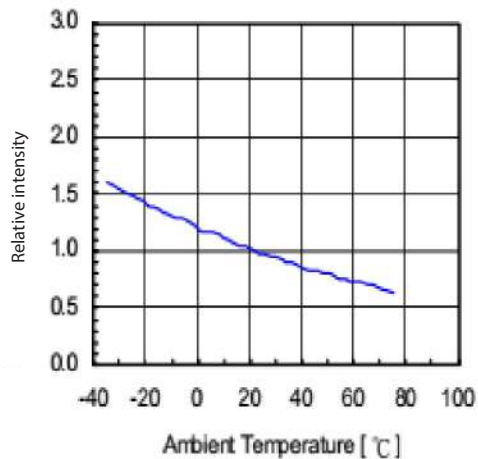
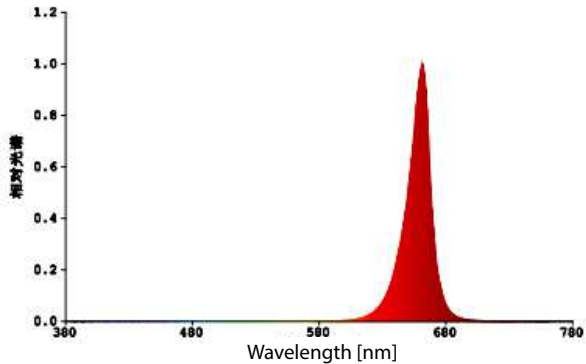


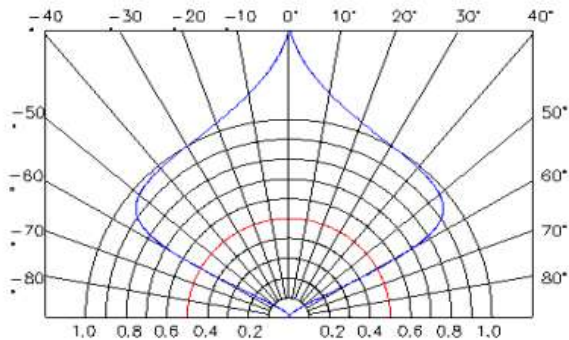
Fig 4. Relative Intensity vs. Temperature



Relative Spectral Distribution



Typical Spectral Distribution



REFLOW SOLDERING CHARACTERISTICS

Preheating : 140°C~160°C±5°C,within 2 minutes.
 Operation heating : 260°C(Max.) within 10 seconds.(Max)
 Gradual Cooling (Avoid quenching).

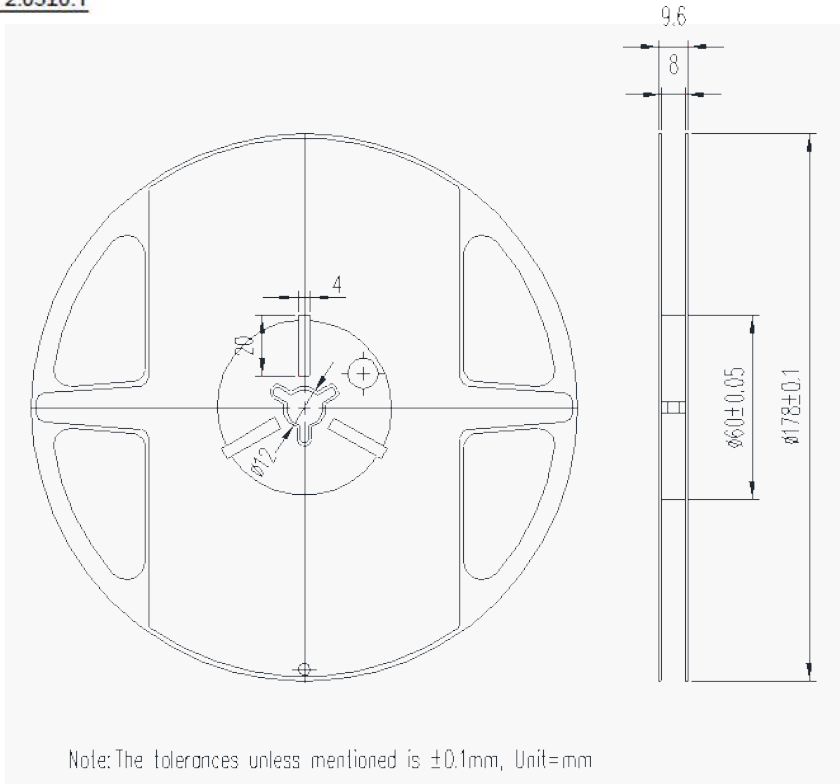
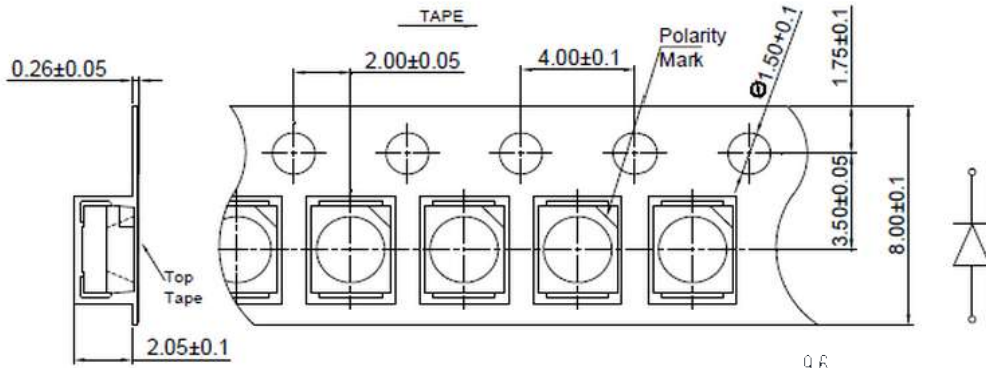
Lead solder		Lead-free solder	
Pre-heat	120-150°C	Pre-heat	150-200°C
Pre-heat time	120 sec.Max.	Pre-heat time	120 sec.Max.
Peak Temperature	240°C Max.	Peak Temperature	260°C Max.
Soldering time condition	10 sec.Max.	Soldering time condition	10 sec.Max.

<p style="text-align: center;">Lead Solder</p>	<p style="text-align: center;">Lead-free Solder</p>
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Notes:

The encapsulated material of the LEDs is silicone . Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

TAPE AND REEL

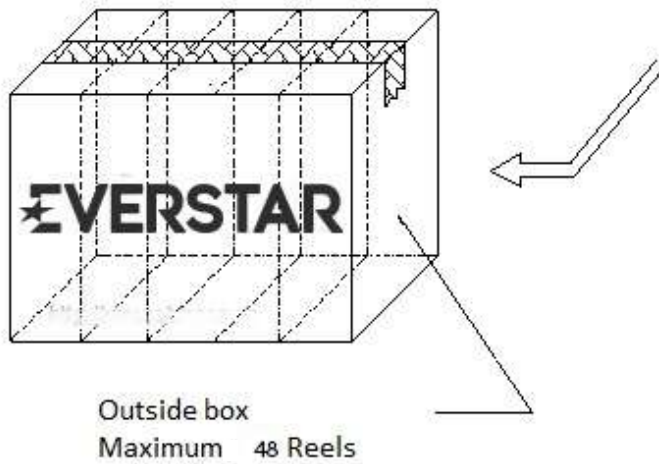
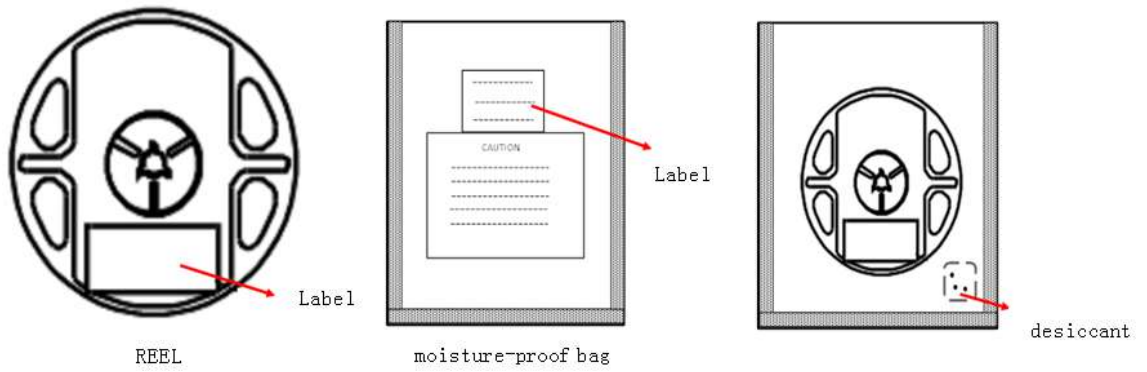


Notes:

- (1) Quantity : 4,000pcs/Reel
- (2) Cumulative Tolerance : Cumulative Tolerance/10 pitches to be $\pm 0.2\text{mm}$
- (3) Adhesion Strength of Cover Tape : Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10° to the carrier tape
- (4) Package : P/N, Manufacturing data Code No. and quantity to be indicated on a damp proof Package.



PACKAGING



Test items and results of reliability

Test Items	Test Conditions	Duration/Cycle	Number of Damage	Reference
Temperature	-40°C 30min ▲▼ 25°C (2min) 100°C 30min	100	0/100	JEITA ED-4701 300 303
Thermal Shock	-40°C 30min ▲▼ 5 sec 110°C 30min	100	0/100	JEITA ED-4701 200 303
High Temperature Storage	Ta=100°C	100	0/100	EIAJED-4701 200 201
Humidity Heat Storage	Ta=85°C RH=85%	100	0/100	EIAJED-4701 100 103
Low Temperature Storage	Ta=-40°C	100	0/100	EIAJED-4701 200 202
Life Test	Ta=25°C If=150mA	100	0/100	Tested with Runlite standard
High Humidity Heat Life Test	60°C RH=90% If=150mA	100	0/100	Tested with Runlite standard
Low Temperature Life Test	Ta=-40°C If=150mA	100	0/100	Tested with Runlite standard
ESD(HBM)	1KV at 1.5KΩ; 100pF	3	0/100	MIL-STD-883D

Criteria for judging the Damage

Item	Symbol	Test Condition	Criteria for Judgment	
			Min.	Max.
Forward Voltage	VF	If=150mA	---	USL*1x1.1
Luminous Intensity	Iv	If=150mA	LSL*2x0.7	---

PRECAUTION FOR USE

1. This device should not be used in any type of fluid such as water, oil, organic solvent, etc. When washing is required, IPA should be used.
2. When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.
3. LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3 months or more after being shipped from EVERSTAR, a sealed container with a nitrogen atmosphere should be used for storage.
4. The LEDs must be used within seven days after opening the moisture proof packing. Repack unused Products with anti-moisture packing, fold to close any opening and then store in a dry place.
5. The appearance and specifications of the product may be modified for improvement without notice.
6. This LED is sensitive to the static electricity and surge. It is recommended to use a wrist Band or anti-electrostatic glove when handling the LEDs.
7. On manual soldering, a solder tip must be needed as grounded for usage. If over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage LEDs and result in destruction. Damaged LEDs will show some unusual characteristics such as leak current increase remarkably, turn-on voltage becomes lower and the LEDs get unlighted at low current.