

## C3535VC-H40

3.5x3.5mm, Super Bright Red LED  
Ceramic Package Top View LED Indicator



### Technical Data Sheet

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#### Features:

- Small SMT ceramic package with high efficiency.
- Low thermal resistance as low as 4°C/W.
- Soldering method: SMT.
- Binning Parameters: Brightness, Forward.
- Voltage, Wavelength and Chromaticity.
- Moisture Sensitivity Level: 1.
- Matches ANSI binning.
- Reliability testing conforms to IESNA LM80.
- Reflow soldering with JEDEC JSTD-020C compatible.
- The product itself will remain within RoHS compliant Version.

#### Descriptions:

- The C3535 series is a surface-mount high-power device featuring high brightness combined with a compact size that is suitable for all kinds of lighting applications such as general illumination, flash, spot, signal, industrial and commercial lighting. The thermal pad of this device is electrically isolated providing convenience in thermal and electrical design.
- The C3535 series is one of the most promising devices in LuckyLight's high power product offering and is ready to face the challenges of today's Solid-State Lighting requirements.

#### Applications:

- General Lighting.
- General luminaire.
- Decorative and Entertainment Lighting.
- Signal and Symbol Luminaries for orientation marker lights (e.g. steps, exit ways, etc.).
- Exterior and Interior Automotive.
- Illumination.
- Agriculture Lighting.
- Bulb.
- Downlight.

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Spec No.: C3535

Issue No.: G-Rev-4

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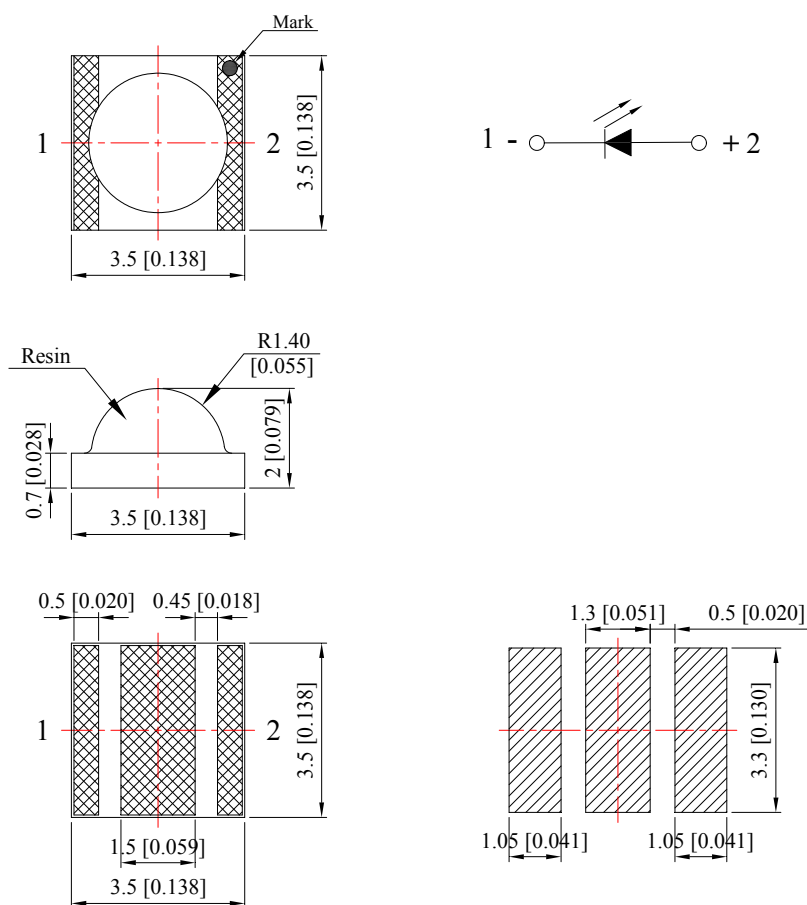
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## Technical Data Sheet

Part No.	Emitting Color	Lens Color
C3535VC-H40	Super Bright Red	Water Clear

### Package Dimension:



### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25$  mm (.010") unless otherwise noted.

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#### Absolute Maximum Ratings at Ta=25°C

Parameters	Symbol	Max	Unit
Power Dissipation	Pd	1-3	W
Peak Forward Current <sup>(a)</sup>	IFP	1000	mA
DC Forward Current <sup>(b)</sup>	IF	700	mA
Reverse Voltage	VR	5	V
Electrostatic Discharge (HBM)	ESD	4000	V
LED Junction Temperature	Tj	120	°C
Operating Temperature Range	Topr	-40°C to +80°C	
Storage Temperature Range	Tstg	-40°C to +85°C	
Soldering Temperature	Tsld	260°C for 5 Seconds	

Notes:

- Derate linearly as shown in derating curve.
- Duty Factor = 10%, Frequency = 1 kHz

#### Electrical Optical Characteristics at Ta=25°C

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Flux <sup>(a)</sup>	$\Phi_v$	40	50	---	lm	IF=350mA
		60	70	---	lm	IF=700mA
Viewing Angle <sup>(b)</sup>	2 $\theta$ 1/2	---	120	---	Deg	IF=350mA
Peak Emission Wavelength	$\lambda_p$	---	632	---	nm	IF=350mA
Dominant Wavelength <sup>(c)</sup>	$\lambda_d$	---	624	---	nm	IF=350mA
Spectral Line Half-Width	$\Delta\lambda$	---	20	---	nm	IF=350mA
Forward Voltage	VF	1.80	2.20	2.60	V	IF=350mA
Thermal Resistance	Rth j-s	---	10	---	°C/W	IF=350mA
Reverse Current	IR	---	---	50	$\mu$ A	VR=5V

Notes:

- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
- 2 $\theta$ 1/2 is the  $\theta$ -axis angle where the luminous intensity is 1/2 the peak intensity
- The dominant wavelength ( $\lambda_d$ ) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

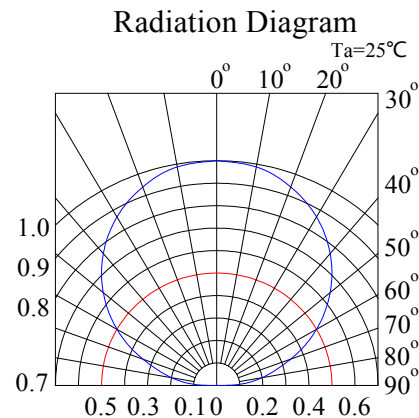
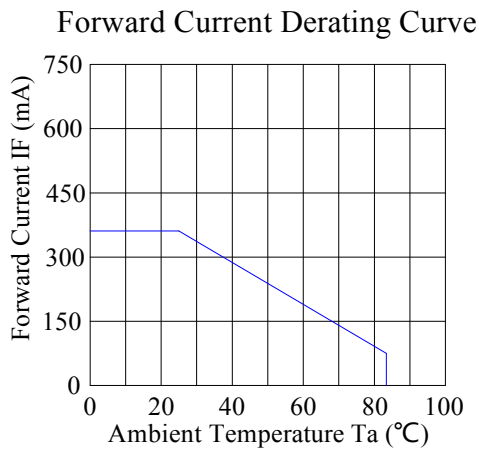
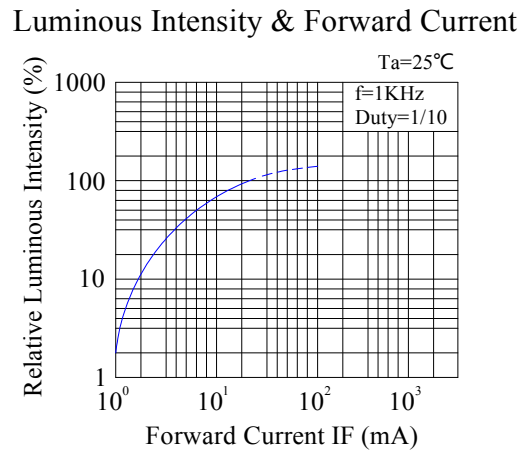
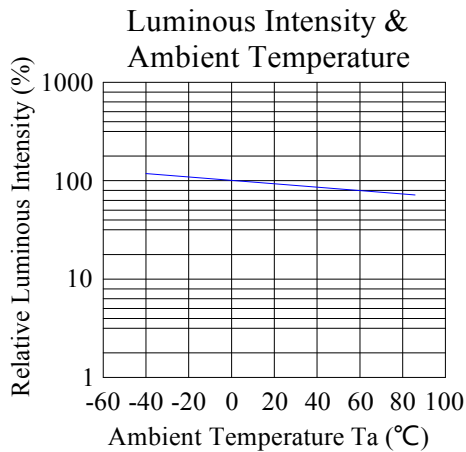
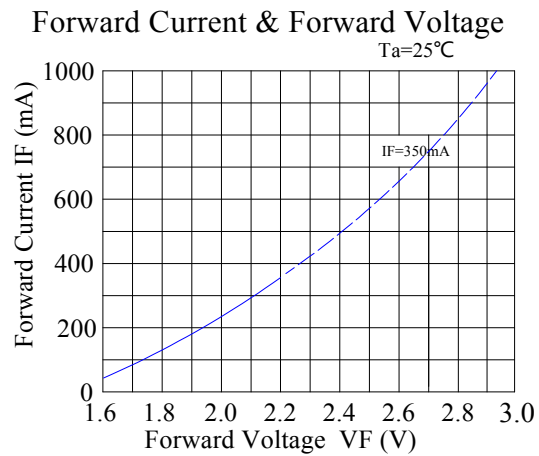
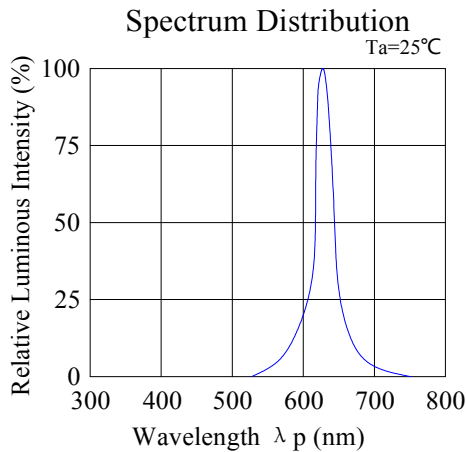
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### Typical Electrical / Optical Characteristics Curves (25°C Ambient Temperature Unless Otherwise Noted)



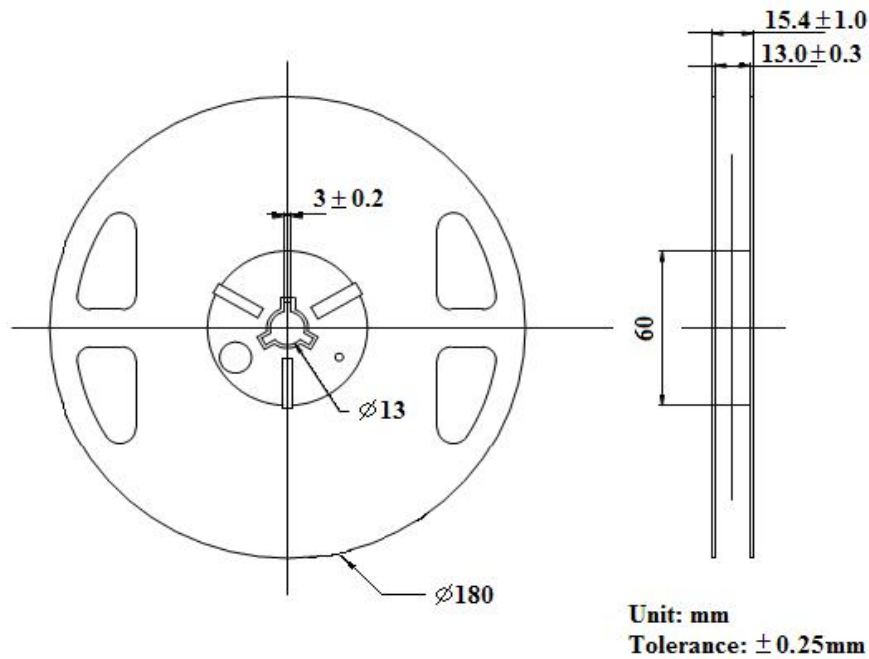
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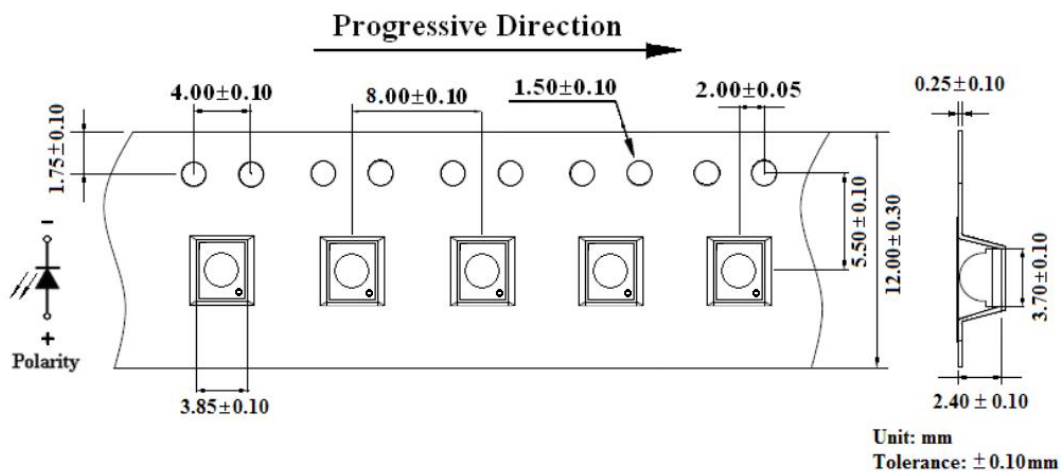
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#### Reel Dimensions:



#### Carrier Tape Dimensions:

Loaded quantity 1000 pcs per reel.



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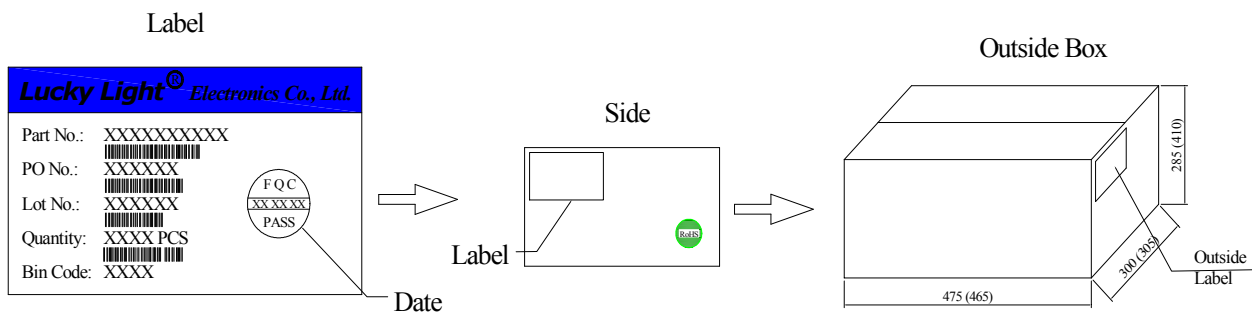
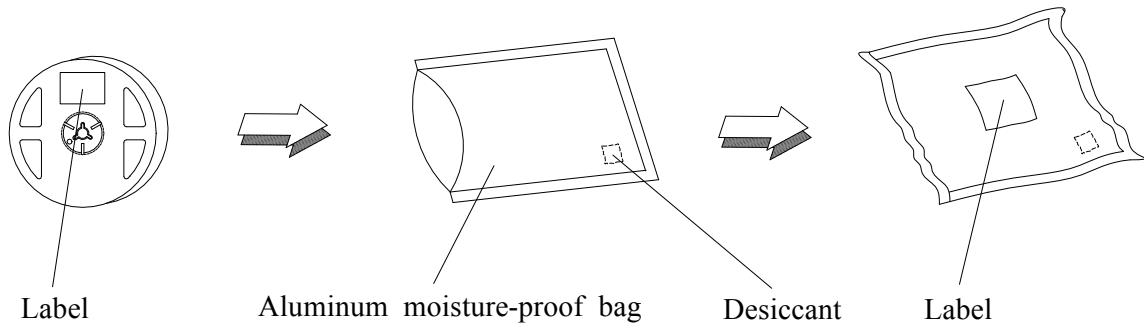
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### Packing & Label Specifications:

Moisture Resistant Packaging:



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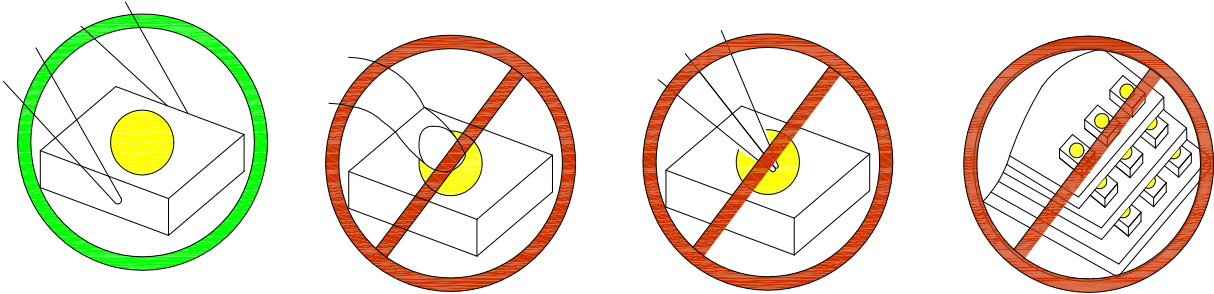
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#### CAUTIONS

##### 1. Handling Precautions:

- 1.1. Handle the component along the side surfaces by using forceps or appropriate tools.
- 1.2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.
- 1.3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

##### 2. Storage

- 2.1. Do not open moisture proof bag before the products are ready to use.
- 2.2. Before opening the package, the LEDs should be kept at 30°C or less and 60%RH or less.
- 2.3. The LEDs should be used within a year.
- 2.4. After opening the package, the LEDs should be kept at 30°C or less and 60%RH or less.
- 2.5. The LEDs should be used within 24 hours after opening the package.
- 2.6. If the moisture adsorbent material has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 65±5°C for 24 hours

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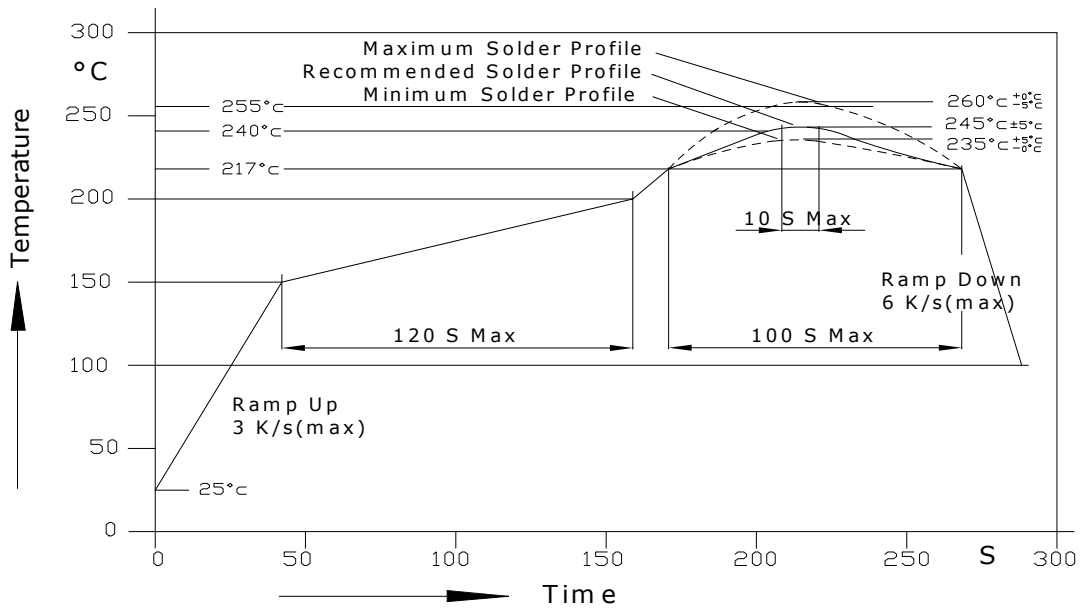
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### 3. Soldering Condition

#### 3.1. Pb-free solder temperature profile



3.2. Reflow soldering should not be done more than two times.

3.3. When soldering, do not put stress on the LEDs during heating.

3.4. After soldering, do not warp the circuit board.

3.5. Recommended soldering conditions:

Reflow soldering		Soldering iron	
Pre-heat	150~200°C	Temperature	300°C Max.
Pre-heat time	120 sec. Max.	Soldering time	3 sec. Max.
Peak temperature	260°C Max.		(one time only)
Soldering time	10 sec. Max.(Max. two times)		

3.6. Because different board designs use different number and types of devices, solder pastes, reflow ovens, and circuit boards, no single temperature profile works for all possible combinations.



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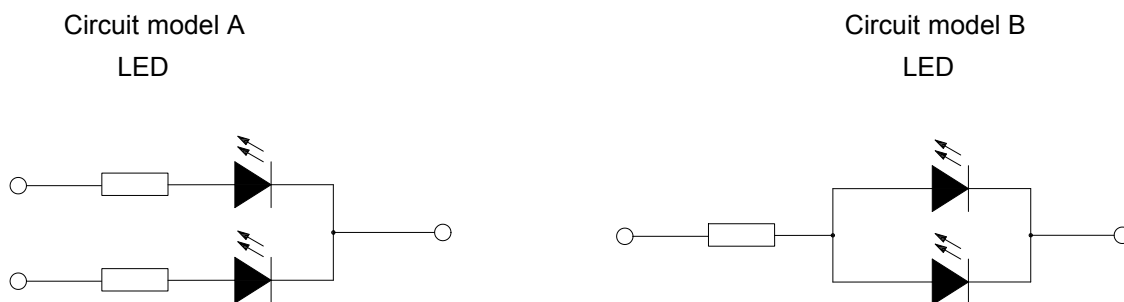
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However, you can successfully mount your packages to the PCB by following the proper guidelines and PCB-specific characterization.

#### 4. Drive Method

4.1. An LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.



a. Recommended circuit.

b. The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

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