

S192BC-B4-1AG

1.6 x 0.8mm 0603 Blue SMD LED

Top Mount Chip LED Indicator

LuckyLight

Technical Data Sheet

Features

- Compact 0603 package with 1.6 x 0.8 mm footprint
- Blue emission with water-clear lens
- Wide 130° viewing angle
- Suitable for automatic SMT placement
- Compatible with lead-free reflow soldering
- Tape and reel packaging for automated assembly
- RoHS and REACH compliant

Descriptions

The S192BC-B4-1AG is a compact 0603 blue surface mount chip LED designed for status indication, backlighting, and space-constrained PCB applications. This top-mount SMD LED features a 1.6 x 0.8 mm package with a water-clear lens and provides stable optical performance for automated surface mount assembly.

Applications

- Industrial control panels and equipment
- Status and function indicators
- Switch and keypad backlighting
- Display and backlighting
- Consumer and communication electronics
- General PCB indication

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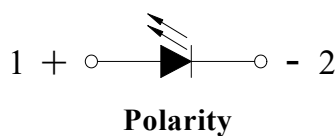
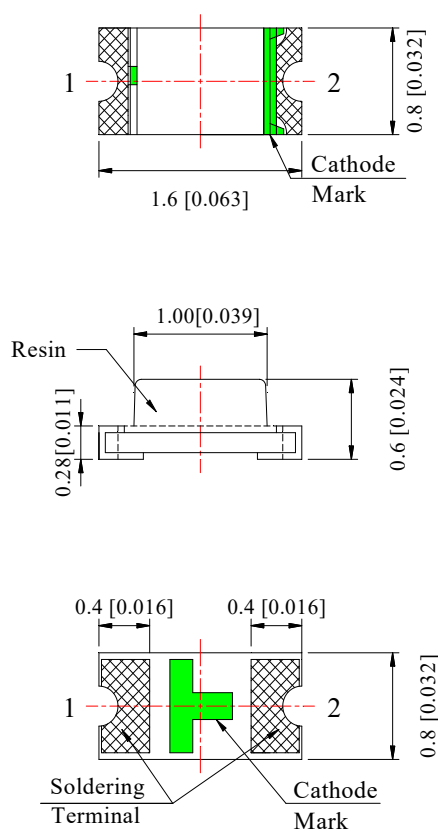
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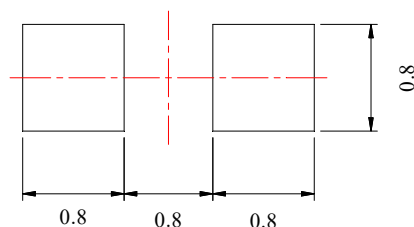
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Part No.	Emitting Color	Lens Color
S192BC-B4-1AG	Blue	Water Clear

Package Dimension



Recommended Soldering Pad Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 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	85	mW
Peak Forward Current ^(a)	IFP	100	mA
DC Forward Current ^(b)	IF	25	mA
Reverse Voltage	VR	5	V
Electrostatic Discharge (HBM)	ESD	1000	V
Operating Temperature Range	Topr	-40°C to +85°C	
Storage Temperature Range	Tstg	-40°C to +85°C	
Soldering Temperature	Tsld	260°C for 5 Seconds	

Notes:

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

Electrical Optical Characteristics at Ta=25°C

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity ^(a)	IV	80	120	---	mcd	IF=10mA
		130	200	---	mcd	IF=20mA
Viewing Angle	2θ1/2	---	130	---	deg	IF=20mA
Peak Emission Wavelength	λp	---	468	---	nm	IF=20mA
Dominant Wavelength ^(b)	λd	---	470	---	nm	IF=20mA
Spectral Line Half-Width	Δλ	---	20	---	nm	IF=20mA
Forward Voltage ^(c)	VF	2.60	3.10	3.40	V	IF=20mA
Reverse Current	IR	---	---	10	μA	VR=5V

Notes:

- a. Luminous Intensity measurement tolerance: ±10%.
- b. Wavelength measurement tolerance: ±1nm
- c. Forward voltage measurement tolerance: ±0.1V

Spec No.: S192

Issue No.: G-Rev-5

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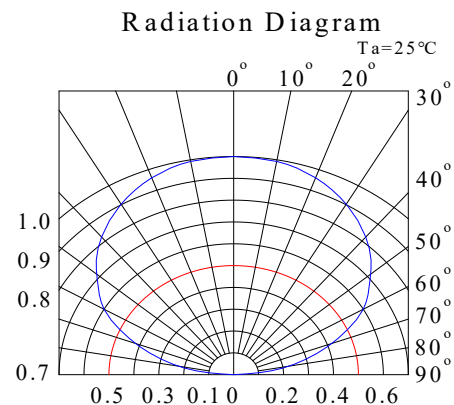
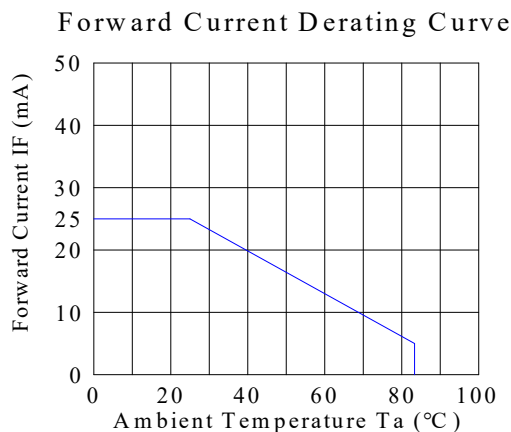
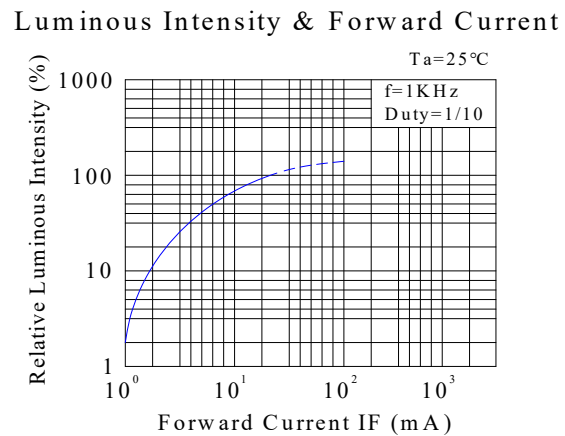
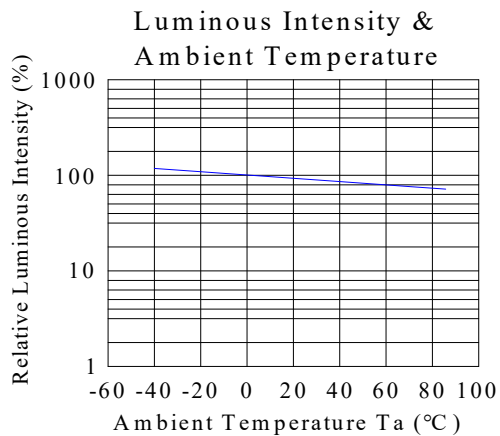
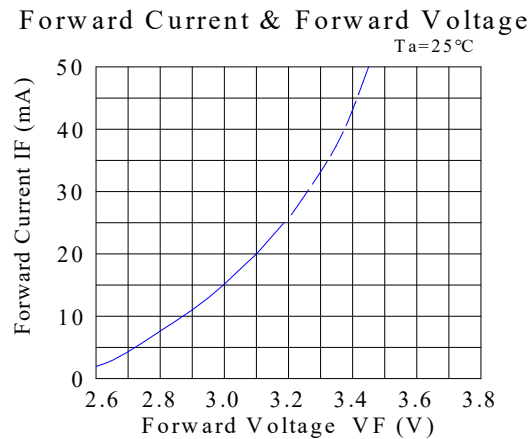
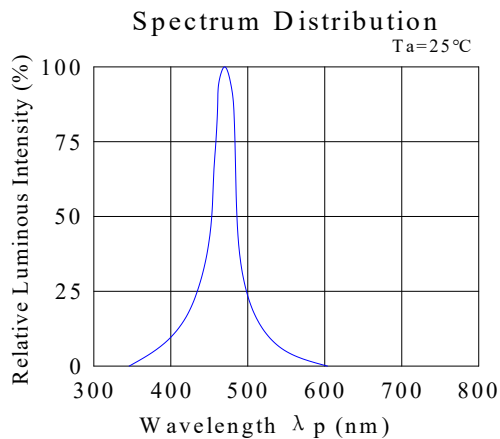
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Typical Electrical / Optical Characteristics Curves (25°C Ambient Temperature Unless Otherwise Noted)



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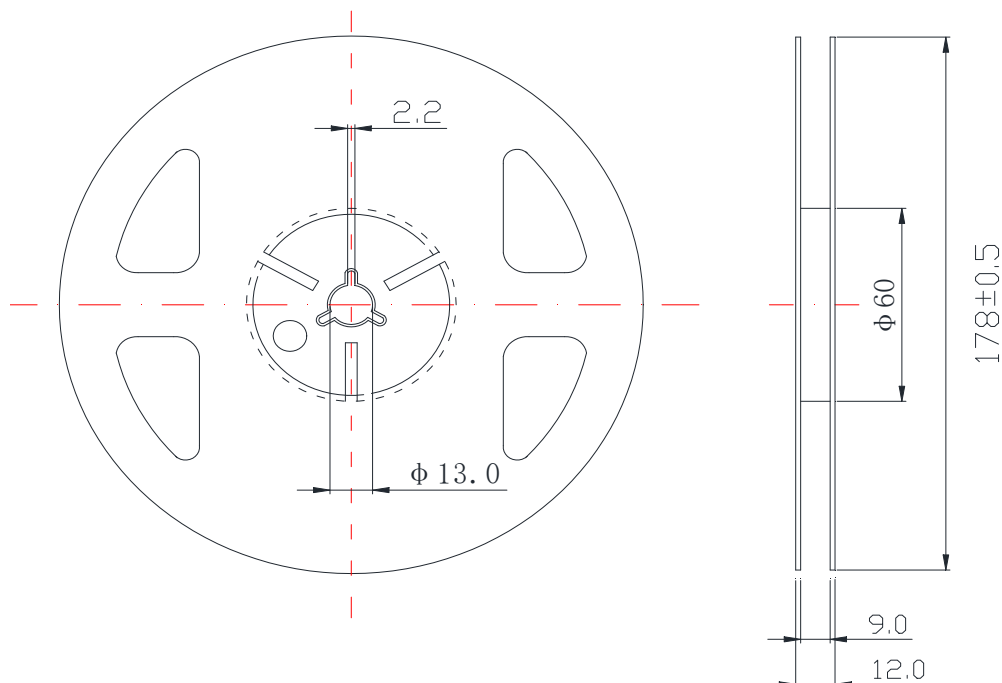
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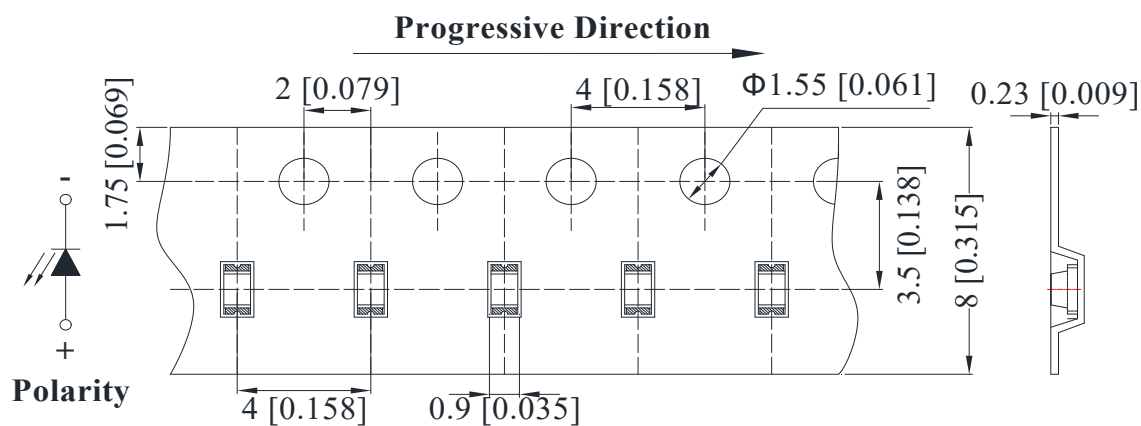
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Reel Dimensions



Carrier Tape Dimensions

Loaded quantity 4000 pcs per reel.



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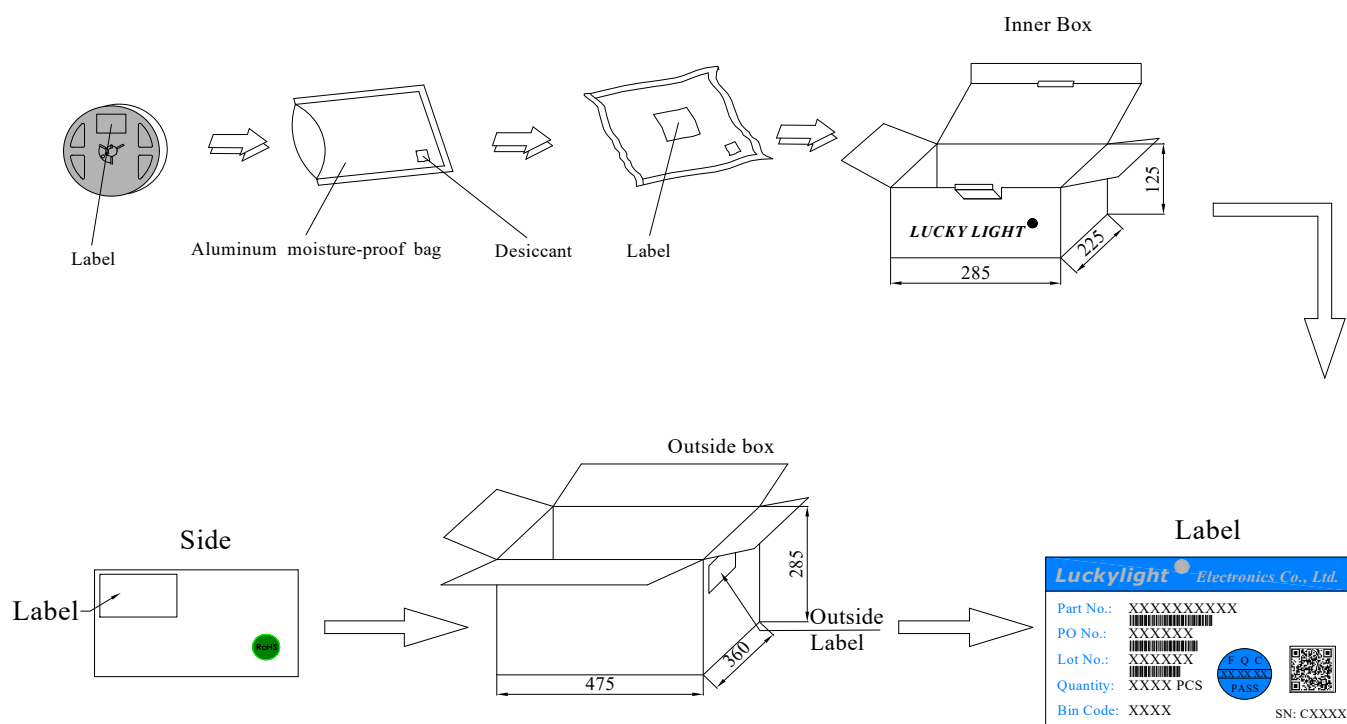
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Packing & Label Specifications

Moisture Resistant Packaging



a. 10 reel/Inner Box.

b. 6 Inner Boxes/Outside Box.

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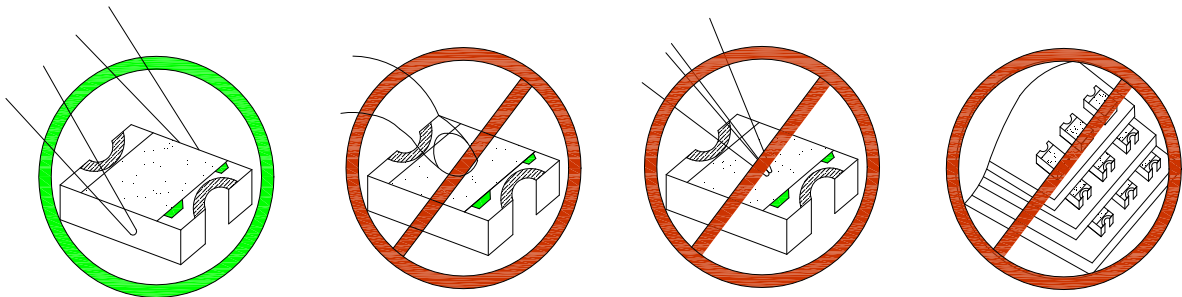
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Precautions

1. Handling Precautions

- 1.1. Handle the LEDs by the package body using appropriate ESD-safe tools. Avoid applying excessive mechanical force to the package.
- 1.2. Do not touch the optical surface directly with bare hands or sharp objects, as contamination or mechanical damage may affect optical performance.
- 1.3. Do not stack assembled PCBs in a manner that allows the LED packages to contact or press against each other.
- 1.4. Avoid excessive pressure, impact, bending, or twisting during handling, assembly, or PCB processing, as these may damage the epoxy package or internal structure.
- 1.5. Ensure that pick-and-place nozzles, fixtures, and handling tools do not apply excessive force to the LED package or optical surface.
- 1.6. Handle the LEDs in an ESD-protected environment and follow the ESD precautions specified in this datasheet.



2. Storage Conditions

- 2.1. Do not open the moisture-proof bag until the LEDs are ready for use.
- 2.2. Before opening the package, store the LEDs in the original unopened moisture-proof bag at 30°C or less and 60%RH or less.
- 2.3. Shelf Life
The shelf life is 12 months from the date of manufacture when stored in the original unopened moisture-proof bag under the conditions specified above.

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2.4. After opening the package, store the LEDs at 30°C or less and 60%RH or less.

2.5. Floor Life

The LEDs should be used within 168 hours after opening the package.

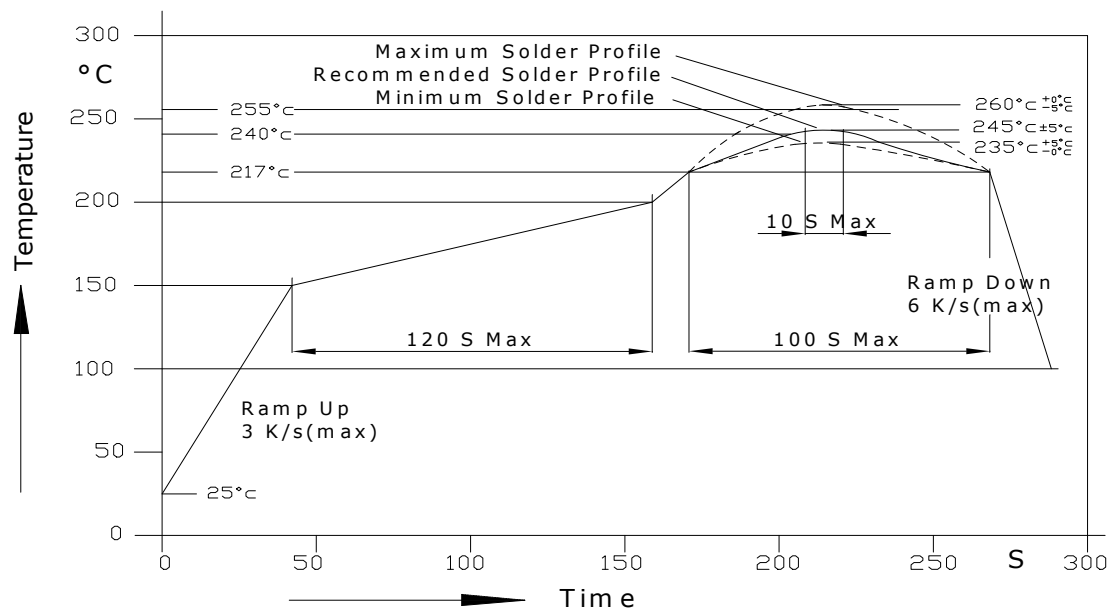
2.6. Baking Condition

If the desiccant has deteriorated, the moisture-proof bag has been compromised, or the LEDs have exceeded the specified storage time, bake the LEDs at $65 \pm 5^\circ\text{C}$ for 24 hours before use.

3. Soldering Condition

3.1 Lead Free Reflow Soldering

The LEDs are compatible with lead-free reflow soldering. The recommended reflow profile is shown below.



Recommended Reflow Conditions

Parameter	Condition
Preheat Temperature	150 to 200°C
Preheat Time	120 seconds maximum
Peak Temperature	260°C maximum
Time at Peak	10 seconds maximum
Maximum Reflow Cycles	2

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3.2. Reflow Soldering Precautions

3.2.1. Reflow soldering should not be performed more than two times.

3.2.2. Do not apply mechanical stress to the LEDs during heating.

3.2.3. Allow the LEDs and PCB to cool naturally after soldering. Avoid applying mechanical force while the assembly is still hot.

3.2.4. Do not bend, twist, or warp the PCB after soldering, as mechanical stress may damage the LED package or solder joints.

3.3 Manual Soldering

When manual soldering is required, use the following conditions:

Parameter	Condition
Soldering Iron Temperature	300°C maximum
Soldering Time	3 seconds maximum
Maximum Soldering Operations	1

Do not apply excessive pressure or mechanical stress to the LED package or terminals during manual soldering.

3.4 Reflow Profile Verification

Because PCB designs, component quantities, solder pastes, board materials, and reflow ovens vary, no single reflow temperature profile is suitable for all applications.

The reflow profile should therefore be optimized and verified for the specific PCB assembly process to ensure reliable solder joints and prevent thermal or mechanical damage to the LEDs.

4. ESD Precautions

4.1 LEDs are sensitive to electrostatic discharge and electrical surges. Appropriate ESD protection measures must be applied during handling, assembly, testing, and storage.

4.2 Personnel handling the LEDs should use grounded wrist straps, ESD-safe gloves, or other suitable protective equipment.

4.3 All workstations, tools, equipment, storage racks, and assembly machinery should be properly grounded.

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- 4.4 Use an ionizer or ion blower when necessary to neutralize electrostatic charges that may accumulate on the LED package surface during handling or storage.
- 4.5 Avoid direct contact with the LED terminals unless proper ESD protection is in place.
- 4.6 ESD-damaged LEDs may exhibit abnormal characteristics such as increased reverse leakage current, reduced forward voltage, unstable optical output, or failure to emit light at low forward current.

5. Recommended Drive Circuit

- 5.1 LEDs are current-driven devices. To ensure stable operation and consistent brightness, a current-limiting resistor should be connected in series with each LED.
- 5.2 When multiple LEDs are connected in parallel, each LED should have its own current-limiting resistor to minimize current imbalance caused by variations in forward voltage.
- 5.3 Circuit A is recommended. Circuit B is not recommended because variations in the electrical characteristics of individual LEDs may result in unequal current distribution and brightness differences.

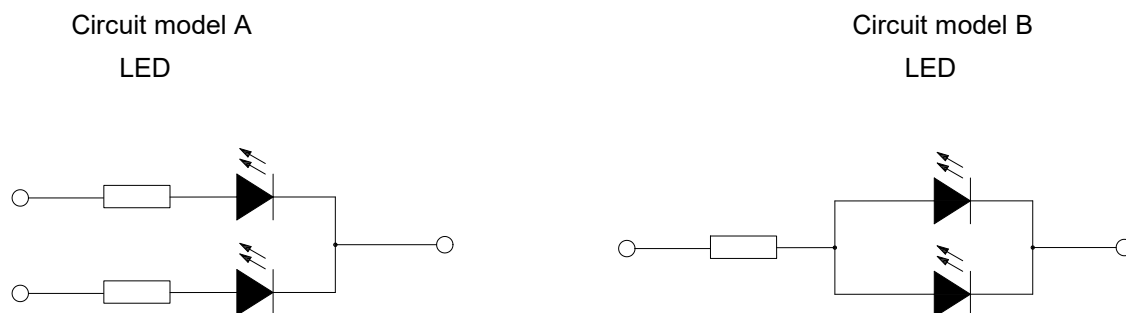


Figure Note

Circuit A Recommended

Each LED has an individual current-limiting resistor.

Circuit B Not Recommended

A shared current path may cause current imbalance and uneven brightness.

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Revision History

Revision	Date	Description	Page
Rev. 1	May 1, 2003	Initial release	-
Rev. 2	August 8, 2005	Package dimensions updated	2
Rev. 3	September 16, 2008	10 mA luminous intensity data added	3
Rev. 4	March 22, 2017	Pb-free reflow profile updated	8
Rev. 5	September 10, 2025	Datasheet revised with no change to product specifications	1-10

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