C3838UV2C-Q4-BL

3.8x3.8mm,UV LED

Ceramic Package Top View LED

Technical Data Sheet

Features:

- Small SMT ceramic package with high efficiency.
- Quartz glass lens
- Soldering method: SMT.
- Binning Parameters: Brightness, Forward.
- Voltage, Wavelength and Chromaticity.
- Matches ANSI binning.
- Reflow soldering with JEDEC JSTD-020C compatible.
- The product itself will remain within RoHS compliant Version.

Descriptions:

- The C3838 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 C3838 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:

- Sensor.
- Industrial use.
- Medical Sterilization
- Special lighting

Part No.	Emitting Color	Lens Color
C3838UV2C-Q4-BL	UV	Water Clear

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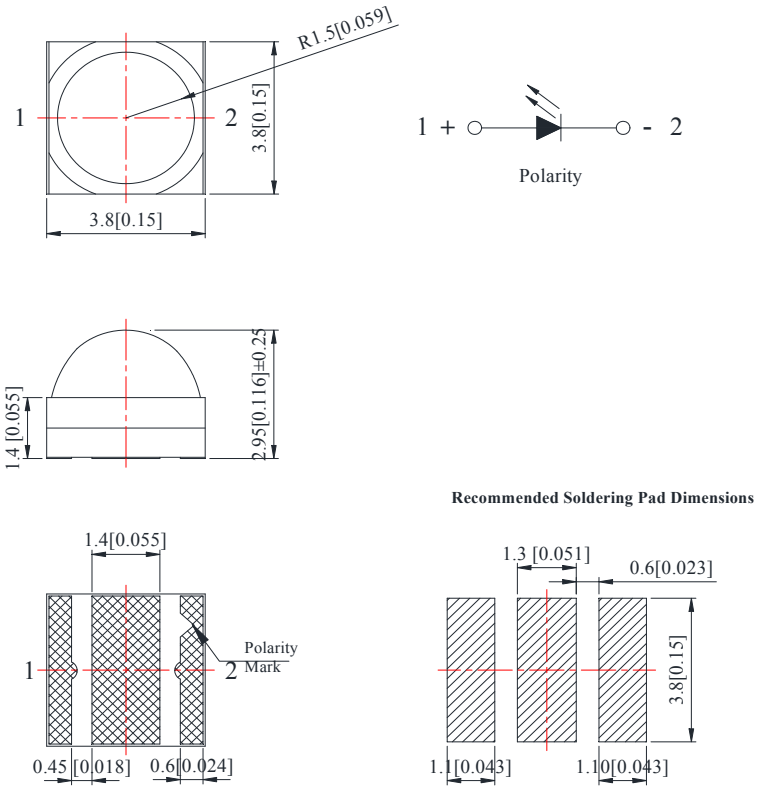
Package Dimension:



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25 mm (.010″) unless otherwise noted.

Technical Data Sheet

Absolute Maximum Ratings at Ta=25℃

Parameters	Symbol	Max	Unit
Power Dissipation	Pd	1~3	W
Peak Forward Current[a]	IFP	750	mA
DC Forward Current	IF	700	mA
Reverse Voltage	VR	5	V
Electrostatic Discharge (HBM)	ESD	1000	V
LED Junction Temperature	Tj	120	℃
Operating Temperature Range	Topr	-40℃ to +85℃	
Storage Temperature Range	Tstg	-40℃ to +85℃	
Soldering Temperature	Tsld	260℃ for 5 Seconds	

Notes:
a. Duty Factor = 10%, Frequency = 1 kHz

Electrical Optical Characteristics at Ta=25℃

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Radiation Flux	Φe	900	1200		MW	IF=700mA
Luminous Flux[a]	Φv	2	4	---	Lm	IF=700mA
Viewing Angle	2θ1/2	---	60	---	Deg	IF=700mA
Peak Emission Wavelength[b]	λp	390	395	400	nm	IF=700mA
Spectral Line Half-Width	△λ	---	35	---	nm	IF=700mA
Forward Voltage[C]	VF	3.20	3.60	4.00	V	IF=700mA
Thermal Resistance	Rth j-s	---	10	---	℃/W	IF=700mA
Reverse Current	IR	---	---	50	μA	VR=5V

Notes:

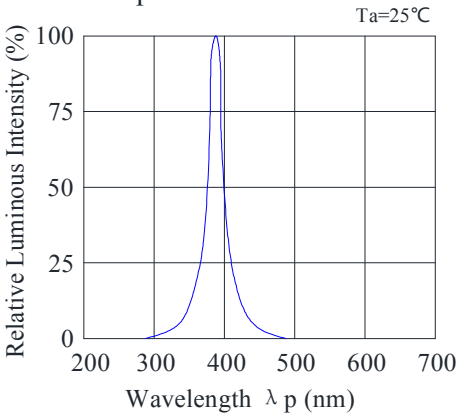
a. Luminous flux measurement tolerance: ±10%.

b. Wavelength measurement tolerance: ±1nm

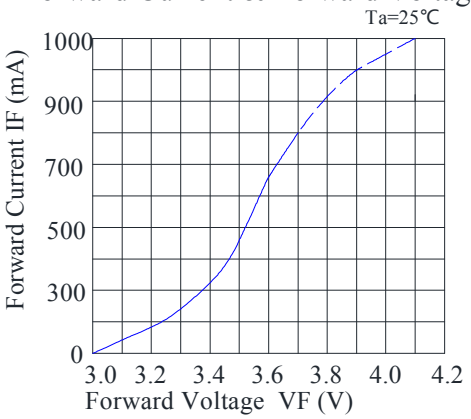
c. Forward voltage measurement tolerance: ±0.1V

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

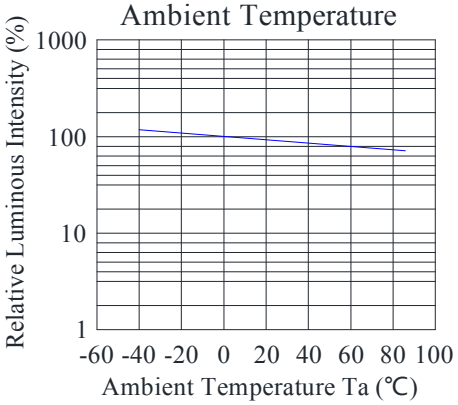
Spectrum Distribution



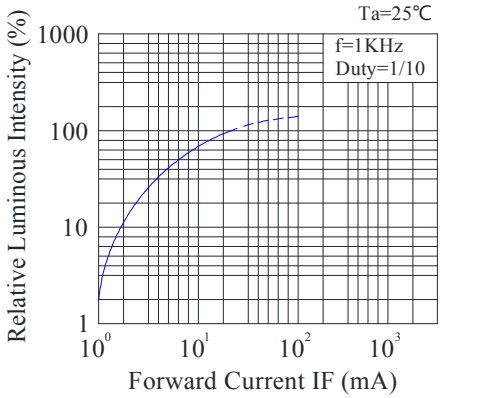
Forward Current & Forward Voltage



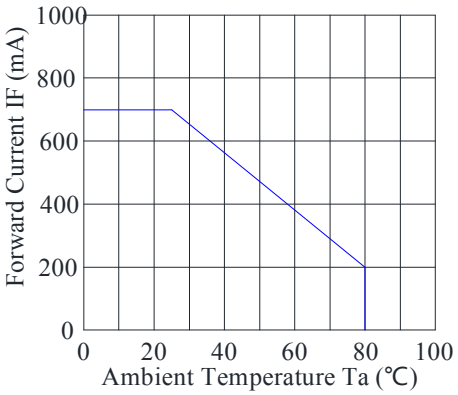
Luminous Intensity & Ambient Temperature



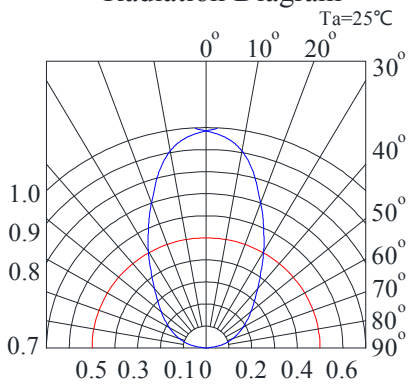
Luminous Intensity & Forward Current



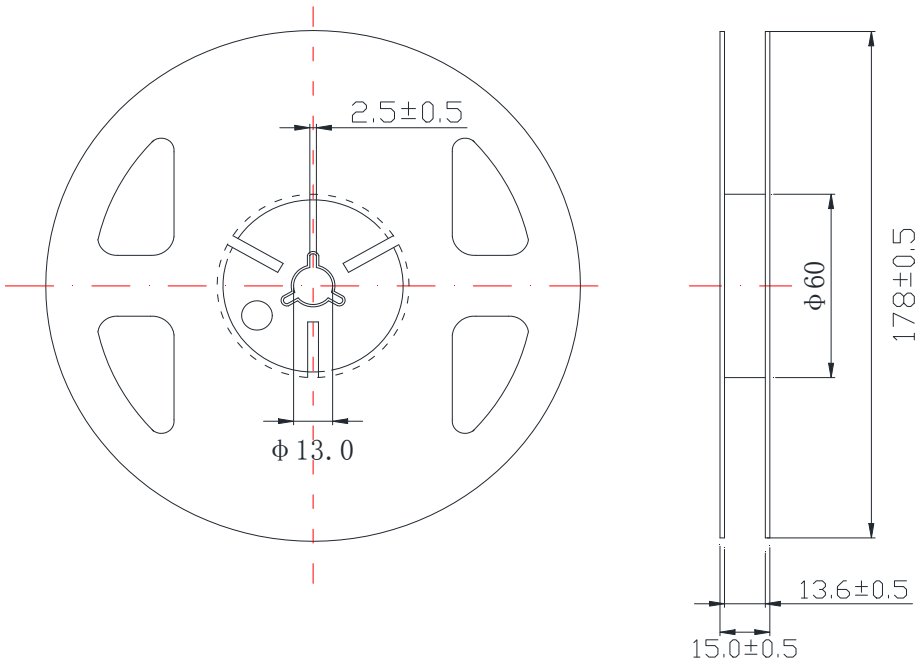
Forward Current Derating Curve



Radiation Diagram

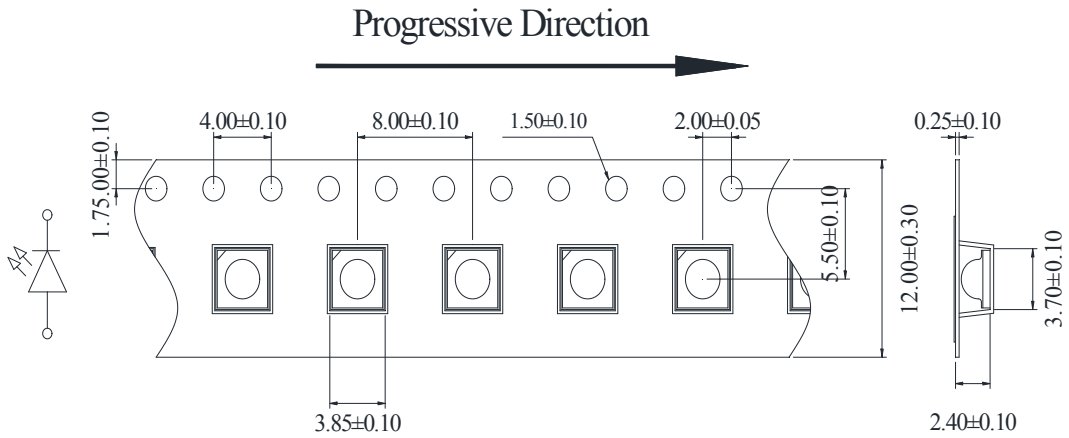


Reel Dimensions:



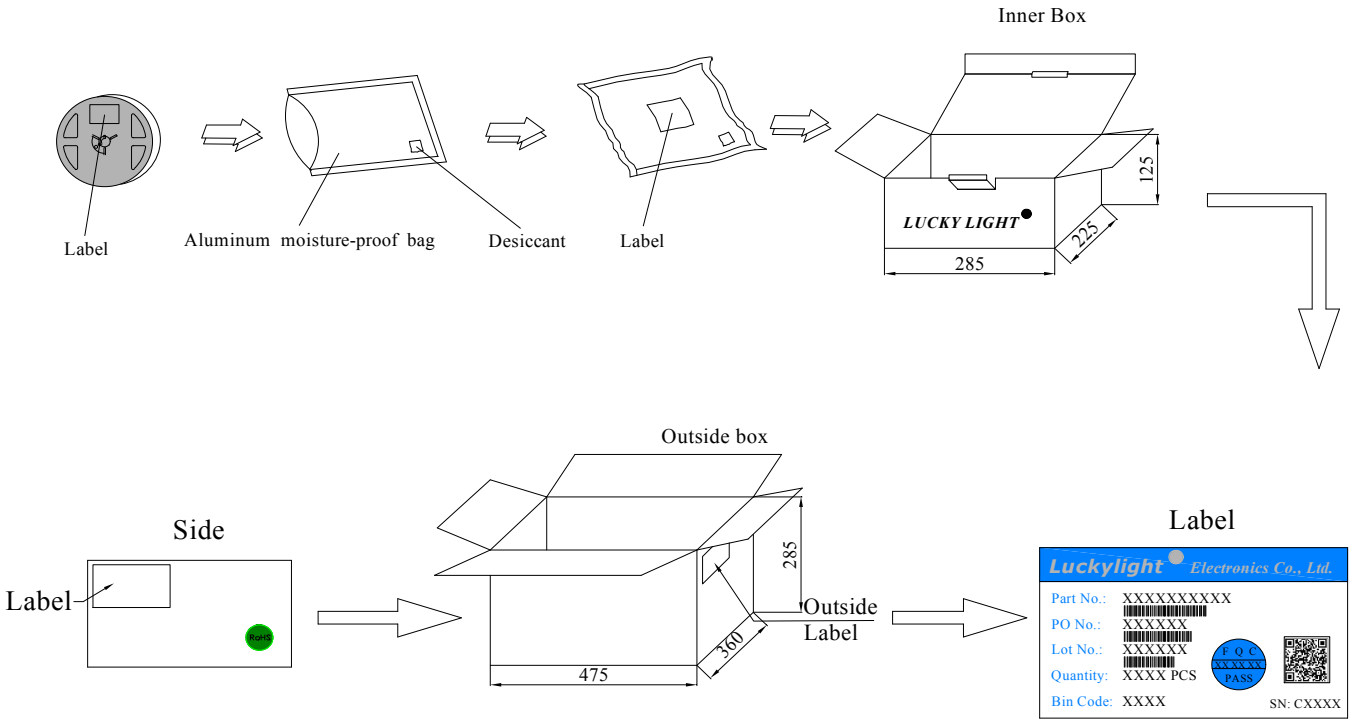
Carrier Tape Dimensions:

Loaded quantity 1000 pcs per reel.



Packing & Label Specifications:

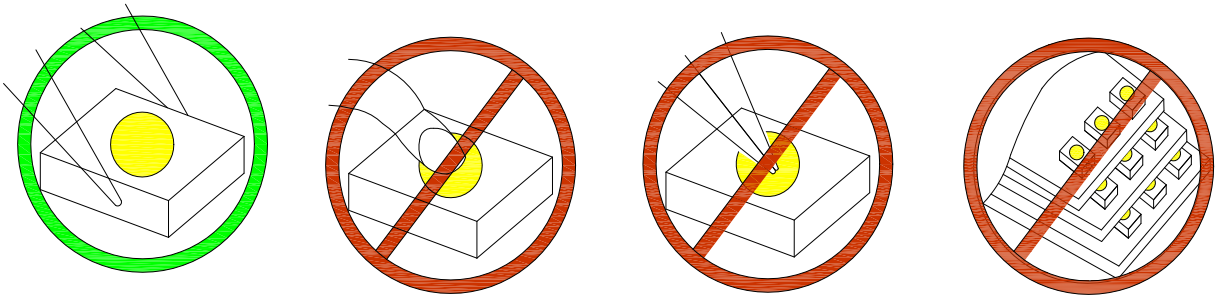
Moisture Resistant Packaging:



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 48 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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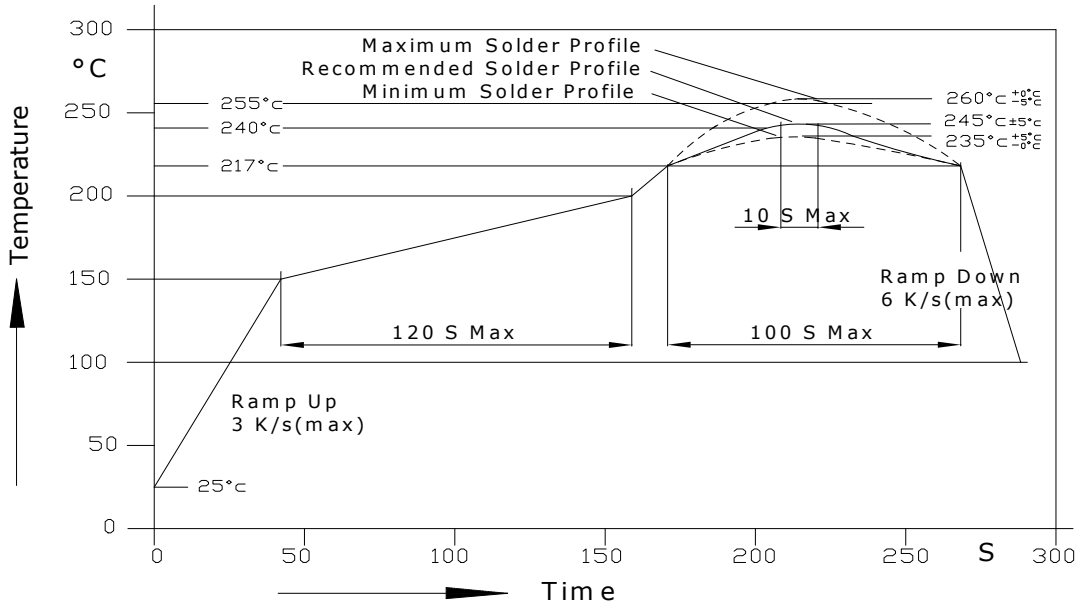
3. Soldering Condition

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)		

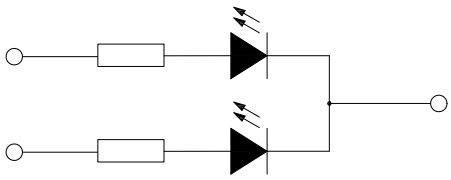
3.6. Because different board designs use different number and types of devices, solder pastes, reflow ovens, and circuit boards, no single temperature profile works for all possible combinations.

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

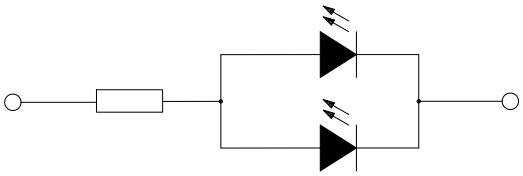
4. **Drive Method**

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.

Circuit model A
LED



Circuit model B
LED



a. Recommended circuit.

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

5. ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Suggestions to prevent ESD damage:

- Use of a conductive wrist band or anti-electrostatic glove when handling these LEDs.
- All devices, equipment, and machinery must be properly grounded.
- Work tables, storage racks, etc. should be properly grounded.
- Use ion blower to neutralize the static charge which might have built up on surface of the LED's plastic lens as a result of friction between LEDs during storage and handling.

ESD-damaged LEDs will exhibit abnormal characteristics such as high reverse leakage current, low forward voltage, or "no lightup" at low currents. To verify for ESD damage, check for "lightup" and Vf of the suspect LEDs at low currents. The Vf of "good" LEDs should be >2.0V@0.1mA for InGaN product and >1.4V@0.1mA for AlInGaP product.

Technical Data Sheet

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