

DATA SHEET

PART NO.:L-C196LGWDT

REV: A / 0

CUSTOMER'S APPROVAL: _____ DCC: _____

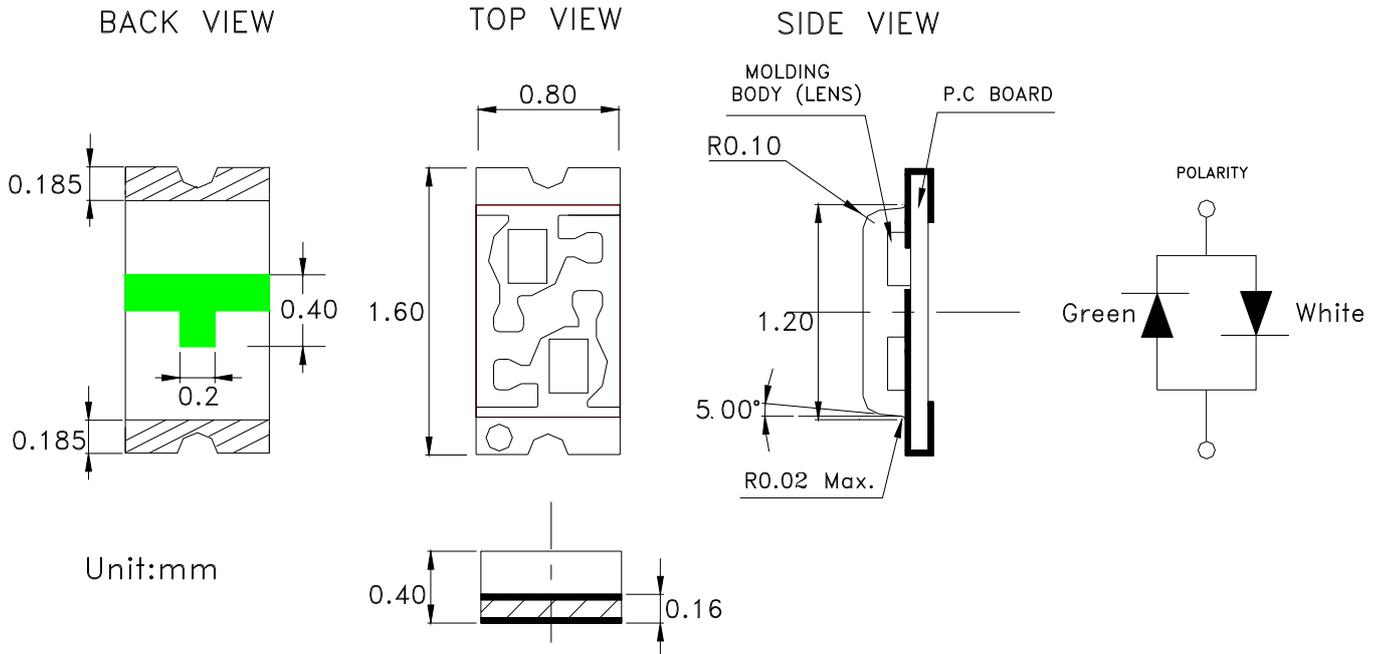
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SURFACE MOUNT DEVICE LED

Part No.:L-C196LGWDT

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● PACKAGE OUTLINE DIMENSIONS



Note:

1. All dimensions are in millimeters.
2. Tolerance is $\pm 0.1\text{mm}$ (.004") unless otherwise noted

● Features

- * Dual color, top view, wide view angle Chip LED.
- * Package in 8mm tape on 7" diameter reels.
- * Compatible with automatic Pick & Place equipment.
- * Compatible with Reflow soldering and Wave soldering processes.
- * EIA STD package.
- * I.C. compatible.
- * Pb free product.

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● Chip Materials

chip	Light Color	Dice Material	Lens Color
LG	Super Green	InGaN	Light Yellow Diffused
W	White	InGaN	

● Absolute Maximum Ratings (Ta=25°C)

Symbol	Parameter	Rating		Unit
		Super Green	White	
P _D	Power Dissipation	75	75	mW
I _{PF}	Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	80	80	mA
-	De-rating Linear From 25°C	0.25	0.25	mA/°C
ESD	Electrostatic Discharge Threshold (HBM) ^{Note A}	00	1000	V
Topr	Operating Temperature Range	-40 ~ +85		°C
Tstg	Storage Temperature Range	-40 ~ +85		°C

Note A:

HBM: Human Body Model. Seller gives no other assurances regarding the ability of to withstand ESD.

● Electro-Optical Characteristics (Ta=25°C)

SYMBOL		PAR METER	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
VF	Super Green	Forward Voltage	IF = 20mA	2.7	3.0	3.3	V
	White			2.8	3.1	3.4	
IV	Super Green	Luminous Intensity	IF = 20mA	280	650	1120	mcd
	White			280	620	1120	
X	White	CIE Chromaticity	IF = 20mA		0.305		
Y	White	CIE Chromaticity	IF = 20mA		0.300		
2θ1/2		Half Intensity Angle	IF = 20mA		130		deg
λD	Super Green	Dominant Wavelength	IF = 20mA	520		535	nm
λp	Super Green	Peak Emission Wavelength	IF = 20mA		518		nm
Δλ	Super Green	Spectral Line Half-Width	IF = 20mA		17		nm
	White				15		

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● Bin Code List

Luminous Intensity (IV), Unit: mcd@5mA					
Super Green			White		
Bin Code	Min	Max	Bin Code	Min	Max
T	280	450	T	280	450
U	450	710	U	450	710
V	710	1120	V	710	1120

Tolerance of each bin are $\pm 15\%$

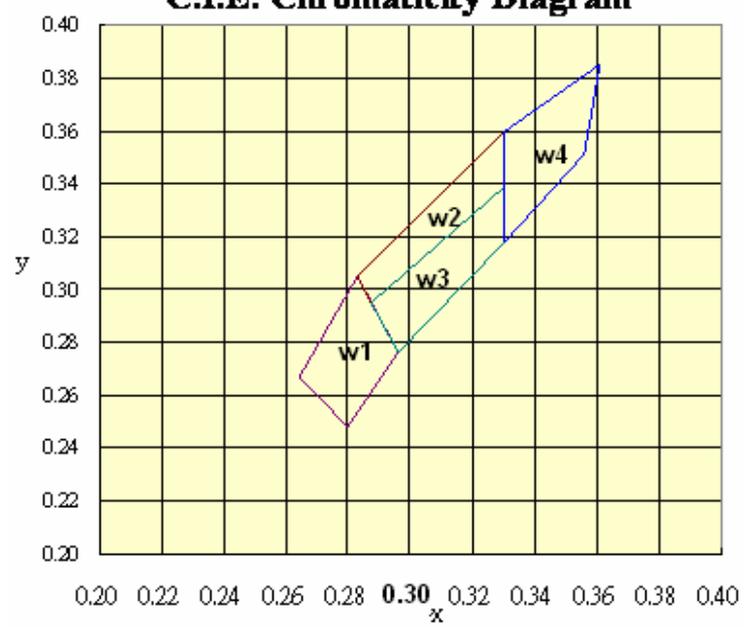
Forward Voltage(VF), Unit:V@5mA(White)		
White		
Bin Code	Min	Max
K8	2.80	2.95
K9	2.95	3.10
K10	3.10	3.25
K11	3.25	3.40

Tolerance of each bin are ± 0.1 Volt

Color Rank(CIE Chromaticity X,Y) @5mA									
Rank W1					Rank W2				
X	0.280	0.264	0.283	0.296	X	0.287	0.283	0.330	0.330
Y	0.248	0.267	0.305	0.276	Y	0.295	0.305	0.360	0.339
Rank W3					Rank W4				
X	0.296	0.287	0.330	0.330	X	0.330	0.330	0.361	0.356
Y	0.276	0.295	0.339	0.318	Y	0.318	0.360	0.385	0.351

Measurement of Color coordinates: ± 0.02

C.I.E. Chromaticity Diagram



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Notes:

1. Luminous intensity is measured with a light sensor and filter combination that proximates the CIE eye-response curve.
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. The dominant wavelength λ_d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
4. Caution in ESD:
Static Electricity and surge damages the LED. It is recommended use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.
5. Major standard testing equipment by "Instrument System" Model: CAS140B Compact Array Spectrometer and "KEITHLEY" Source Meter Model: 2400.

● Typical Electro-Optical Characteristics Curves

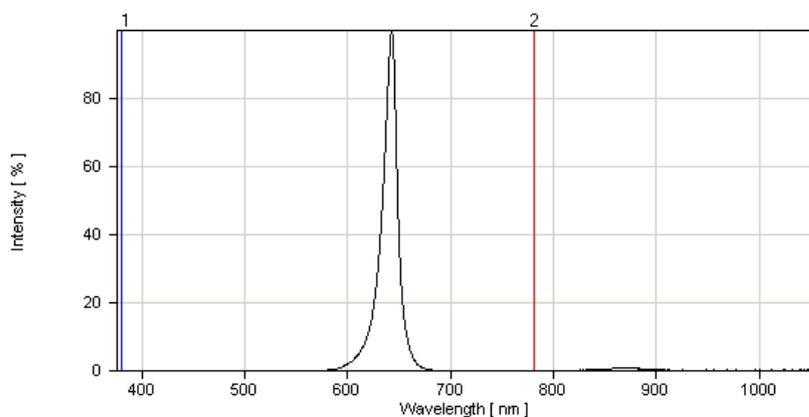


Fig.1 Super Green Relative Intensity vs. Wavelength

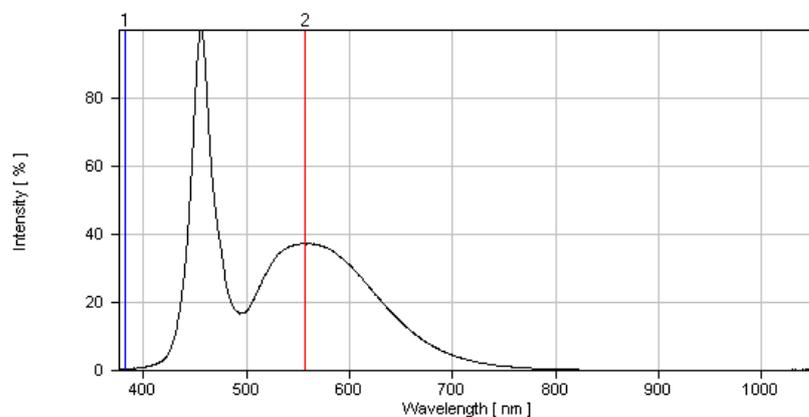


Fig.1 White Relative Intensity vs. Wavelength

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● Super Green Typical Electro-Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

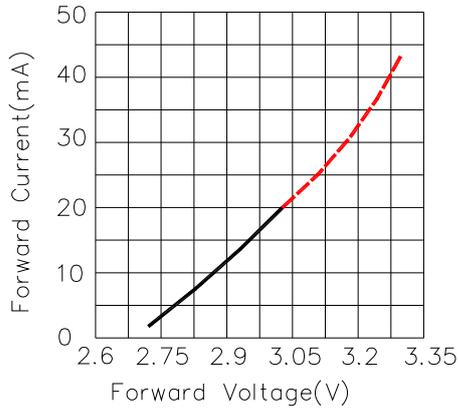


Fig.2 Forward Current vs.Forward Voltage

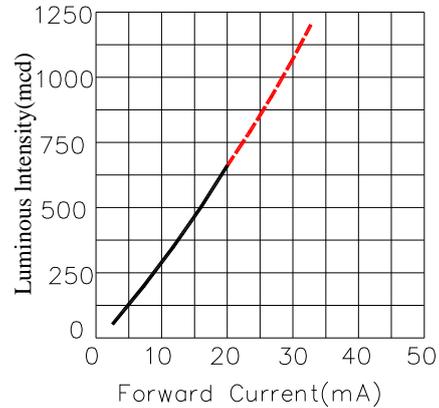


Fig.3 Luminous Intensity vs.Forward Current

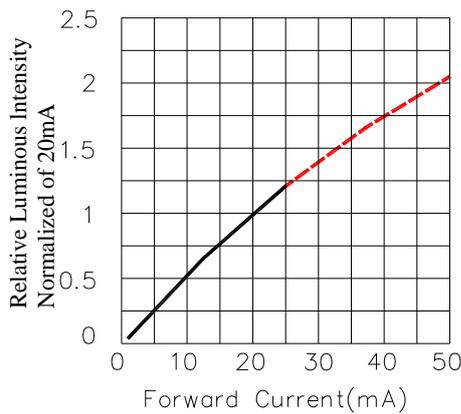


Fig.4 Relative Luminous Intensity vs.Forward Current

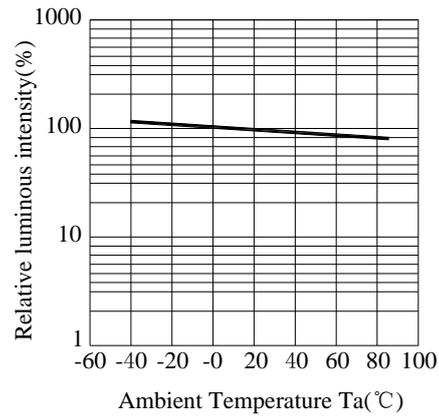


Fig.5 Luminous Intensity vs.Ambient Temperature

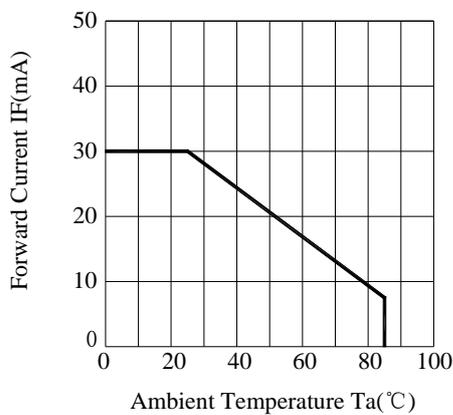


Fig.6 Forward Current Derating Curve

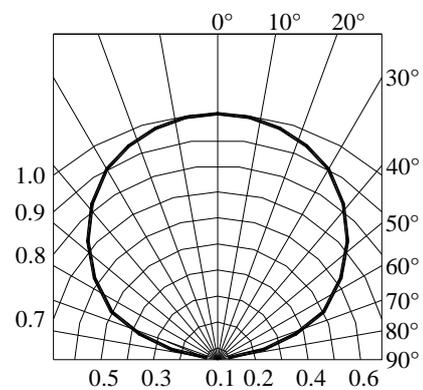


Fig.7 Relative Intensity vs.Angle

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● White Typical Electro-Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

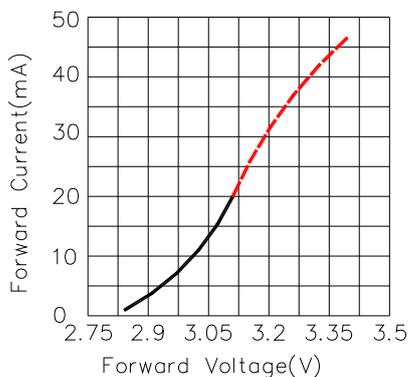


Fig.2 Forward Current vs.Forward Voltage

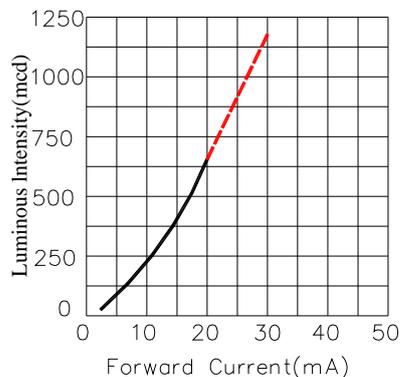


Fig.3 Luminous Intensity vs.Forward Current

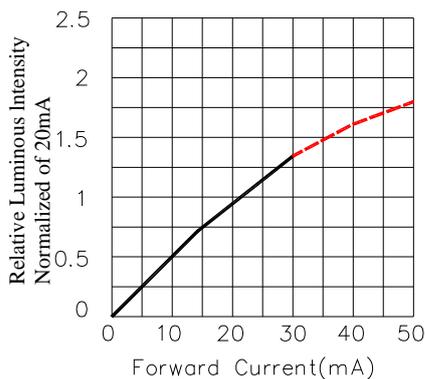


Fig.4 Relative Luminous Intensity vs.Forward Current

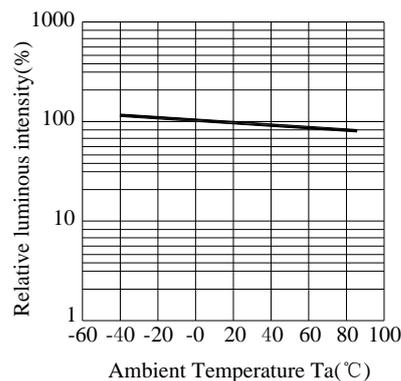


Fig.5 Luminous Intensity vs.Ambient Temperature

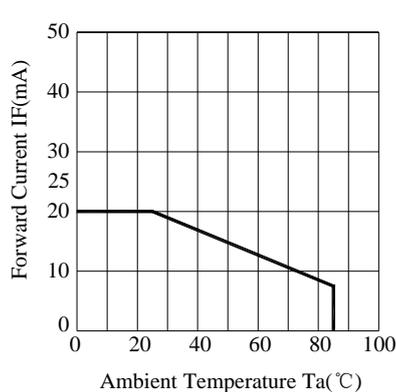


Fig.6 Forward Current Derating Curve

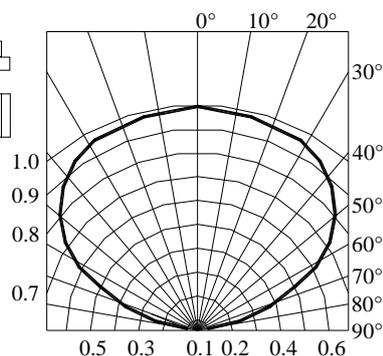


Fig.7 Relative Intensity vs.Angle

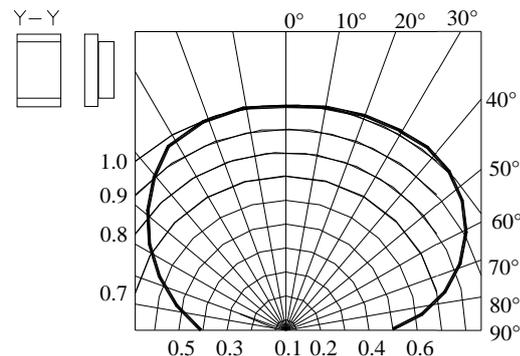


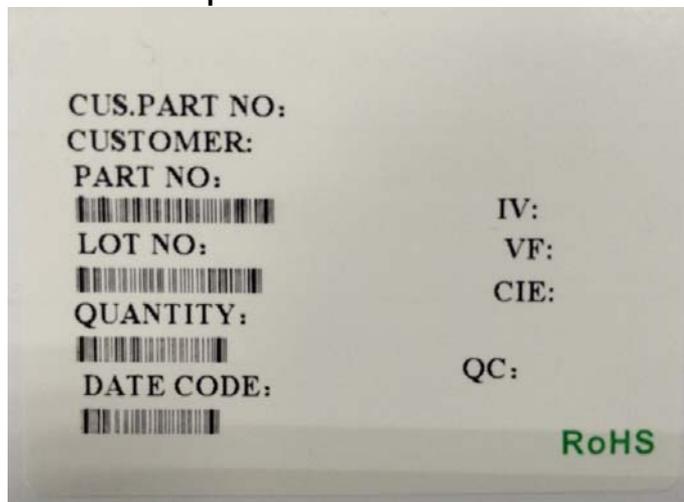
Fig.7 Relative Intensity vs.Angle

SURFACE MOUNT DEVICE LED

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● Label Explanation



ITEM CODE:PARA LIGHT

PART NO:L-C196LGWDT

IV --- Luminous Intensity Code

LOT NO: EM S L 12 09 0110

A B C D E F

A---EM: Emos Code

B---S:SMD

C---Local

D---Year

E---Month

F---SPEC.

PACKING QUANTITY OF BAG :

3000pcs for 150、170、110、155、115 series

4000pcs for 191 series

5000pcs for 192 series

DATE CODE: 2012 09 10

G H I

G--- Year

H--- Month

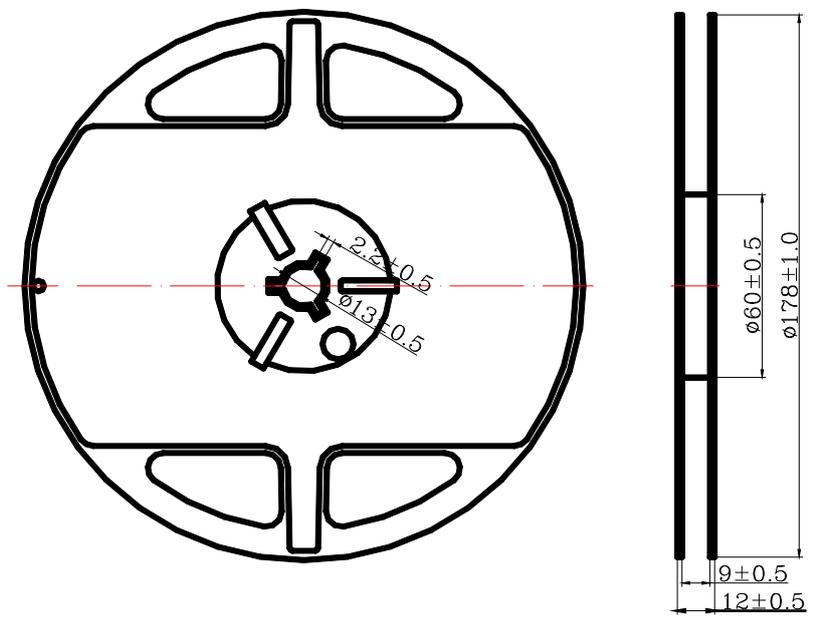
I --- Day

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● Reel Dimensions



Notes:

1. Taping Quantity: 4000pcs
2. The tolerances unless mentioned is ± 0.1 mm, Angle $\pm 0.5^\circ$, Unit: mm.

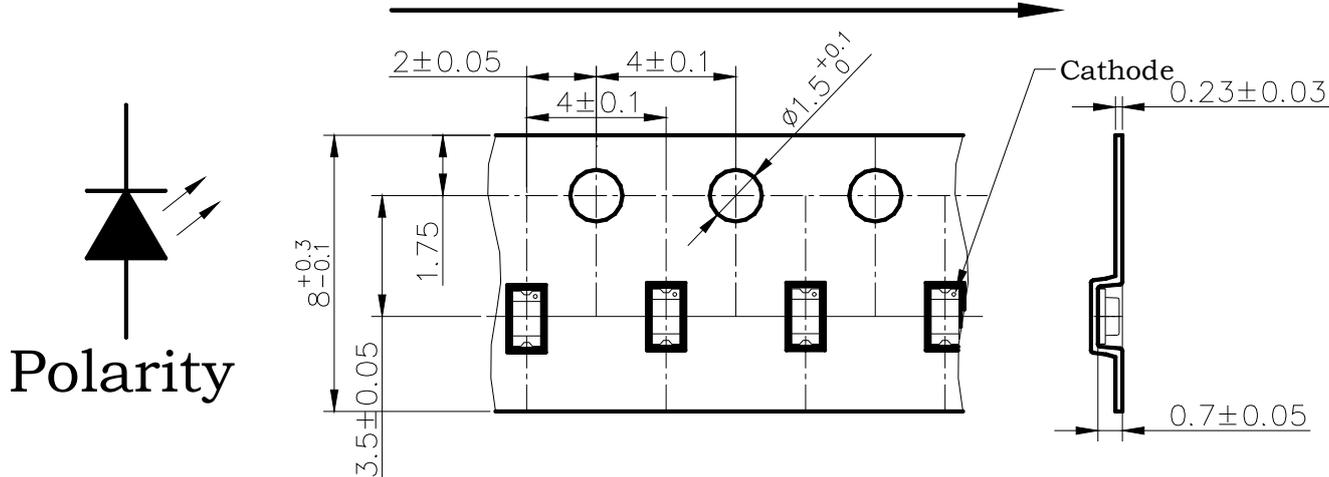
SURFACE MOUNT DEVICE LED

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● Package Dimensions Of Tape And Reel

Progressive direction

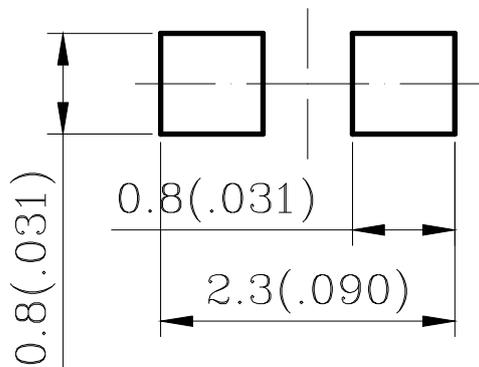


Notes: All dimensions are in millimeters.

● Cleaning

- * If cleaning is required, use the following solutions for less than 1 minute and less than 40°C.
- * Appropriate chemicals: Ethyl alcohol and isopropyl alcohol.
- * Effect of ultrasonic cleaning on the LED resin body differs depending on such factors as the oscillator output, size of PCB and LED mounting method. The use of ultrasonic cleaning should be enforced at proper output after confirming there is no problem.

● Suggest Soldering Pad Dimensions



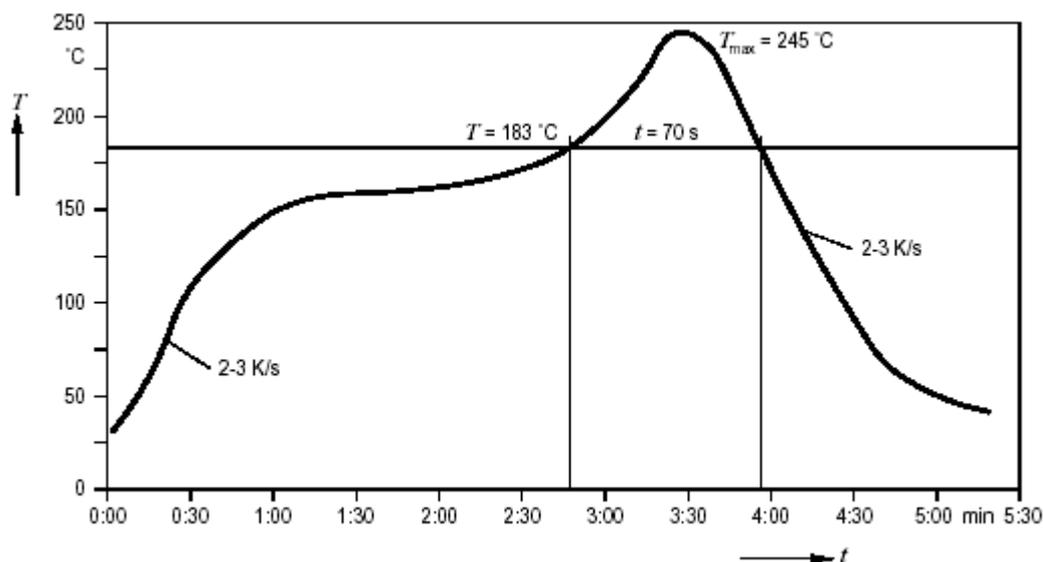
Direction of PWB camber
and go to reflow furnace

SURFACE MOUNT DEVICE LED

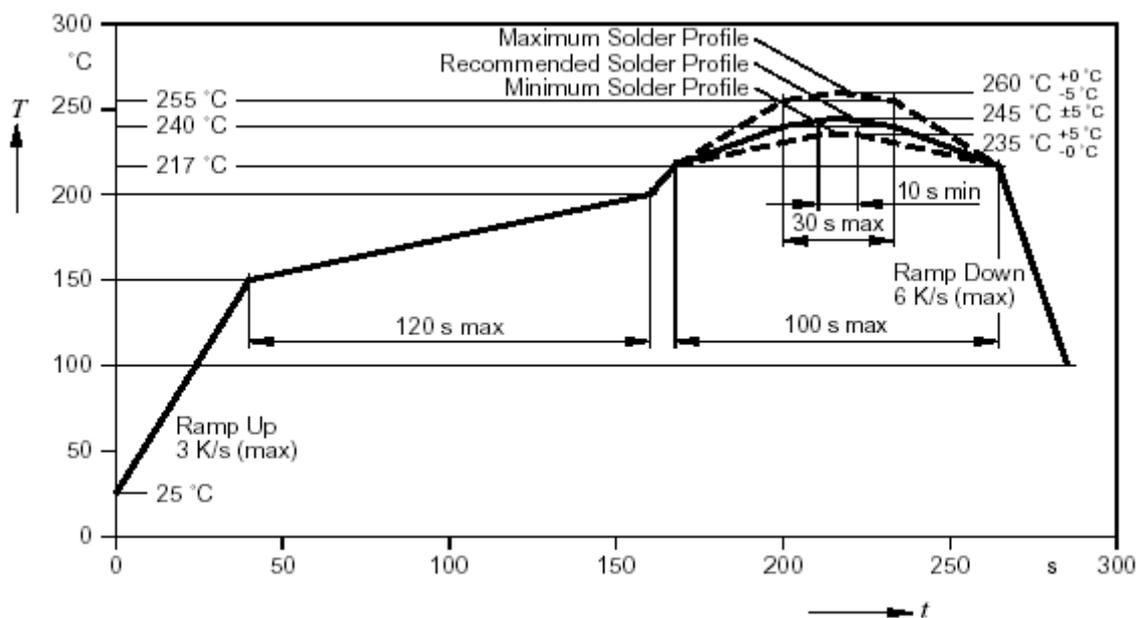
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• Suggest Sn/Pb IR Reflow Soldering Profile Condition:



• Suggest Pb-Free IR Reflow Soldering Profile Condition:



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● CAUTIONS

1.Application Limitation:

The LED's described here are intended to be used for ordinary electronic equipment (such as office equipment, communication equipment and household application). Consult PARA's sales in advance for information on application in which exceptional quality and reliability are required, particularly when the failure or malfunction of the LED's may directly jeopardize life or health (such as airplanes, automobiles, traffic control equipment, life support system and safety devices).

2.Storage:

Do not open moisture proof bag before the products are ready to use.

Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.

After opening the package: The LED's floor life is 1 year under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment: 60±5°C for 24 hours

3.Soldering

Do not apply any stress to the lead frame during soldering while the LED is at high temperature.

Recommended soldering condition.

Reflow Soldering:

Pre-heat 120~150°C, 120sec. MAX., Peak temperature : 240°C Max. Soldering time: 10 sec Max.

Soldering Iron: (Not recommended)

Temperature 300°C Max., Soldering time : 3 sec. Max.(one time only), power dissipation of iron : 20W Max. use SN60 solder of solder with silver content and don't to touch LED lens when soldering.

Wave soldering:

Pre-heat 100°C Max, Pre-heat time 60 sec. Max, Solder wave 260°C Max, Soldering time 5 sec. Max. preformed consecutively cooling process is required between 1st and 2nd soldering processes.

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4. Lead-Free Soldering

For Reflow Soldering:

- 1、Pre-Heat Temp:150-180°C,120sec.Max.
- 2、Soldering Temp: Temperature Of Soldering Pot Over 230°C,40sec.Max.
- 3、Peak Temperature:260°C、5sec.
- 4、Reflow Repetition:2 Times Max.
- 5、Suggest Solder Paste Formula 93.3 Sn/3.1 Ag/3.1 Bi /0.5 Cu

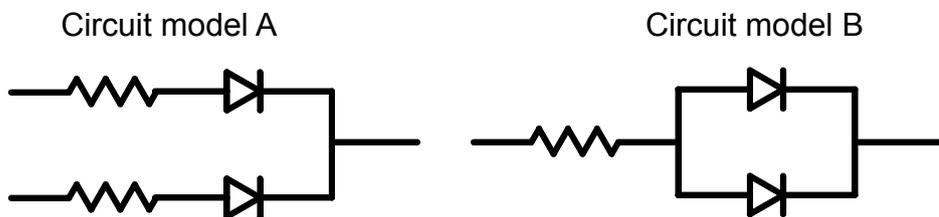
For Soldering Iron (Not Recommended):

- 1、Iron Tip Temp:350°C Max.
- 2、Soldering Iron:30w Max.
- 3、Soldering Time:3 Sec. Max. One Time.

For Dip Soldering:

- 1、Pre-Heat Temp:150°C Max. 120 Sec. Max.
- 2、Bath Temp:265°C Max.
- 3、Dip Time:5 Sec. Max.

5. Drive Method



(A)Recommended circuit.

(B)The difference of brightness between LED`s could be found due to the Vf-If characteristics of LED.