

SC11WN12JB

2.1x2.1mm, White LEDs

Surface Mount PLCC-4 White LEDs



Technical Data Sheet

Features:

- Industry standard PLCC-4 package.
- Full black body appearance.
- Available in full selection of colors.
- Suitable for automatic placement equipment.
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
- Available on tape and reel (8mm Tape).
- Compliance with RoHS and REACH

Descriptions:

- The SC11 series is a PLCC-4 LED device with dimensions of 2.1 mm × 2.1 mm. Its black body design helps further enhance display contrast, making it suitable for indoor panel display applications.
- The SC11 series is available in single colors such as red, orange, yellow, green, blue, and white for selection. It can also be provided in dual-color or RGB tricolor options.

Applications:

- Instrument panel backlighting
- Central console backlighting
- Switch push button backlighting
- Electronic signs and signals
- Interior full color sign
- Variable message sign
- Office automation, home appliances, industrial equipment.

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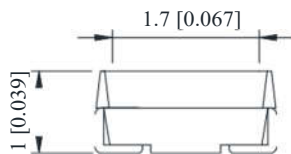
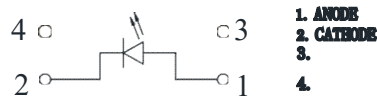
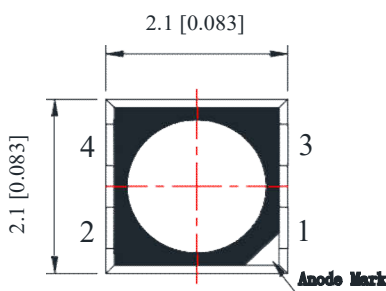
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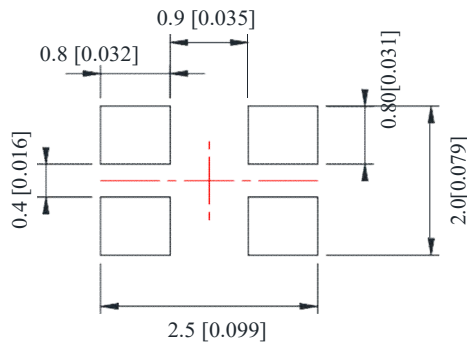
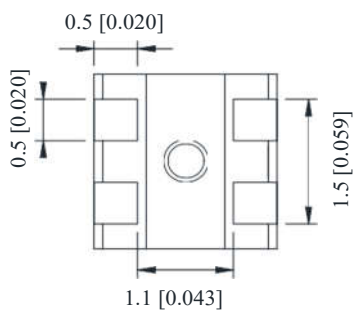
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Part No.	Emitting Color	Lens Color
SC11WN12JB	White	Yellow Diffused

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 +80°C	
Storage Temperature Range	Tstg	-40°C to +85°C	
Soldering Temperature	Tsld	260°C for 5 Seconds	

Notes:

a. Derate linearly as shown in derating curve.

b. Duty Factor = 10%, Frequency = 1 kHz

Electrical Optical Characteristics at Ta=25°C

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity ^(a)	IV	2000	2500	---	mcd	IF=20mA
Luminous Flux ^(a)	Φv	7	8	---	Lm	IF=20mA
Viewing Angle ^(b)	2θ1/2	---	120	---	Deg	IF=20mA
Chromaticity Coordinates ^(c)	x	---	0.315	---		IF=20mA
	y	---	0.323	---		
Color Temperature	CCT	6000	6500	---	K	IF=20mA
Color Rendering Index	CRI	70	---	---	Ra	IF=20mA
Forward Voltage	VF	2.80	3.10	3.40	V	IF=20mA
Reverse Current	IR	---	---	10	μA	VR=5V

Notes:

a. ALuminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

b. 2θ1/2 is the o -axis angle where the luminous intensity is 1/2 the peak intensity

c. The dominant wavelength (λd) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

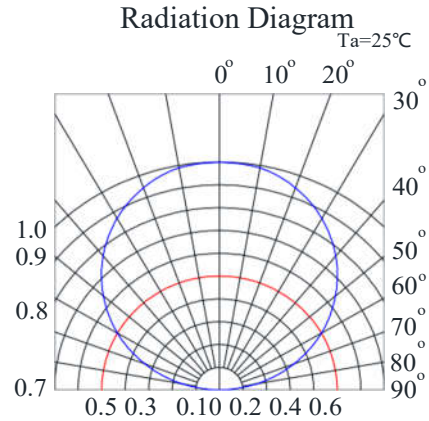
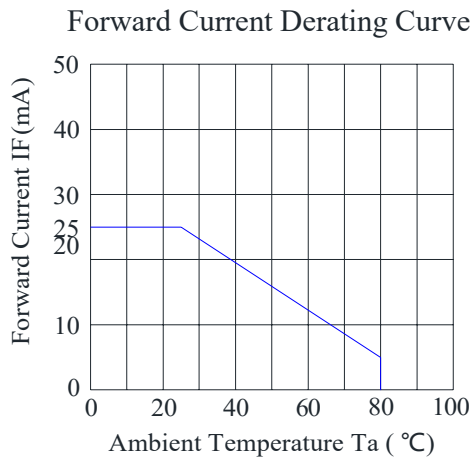
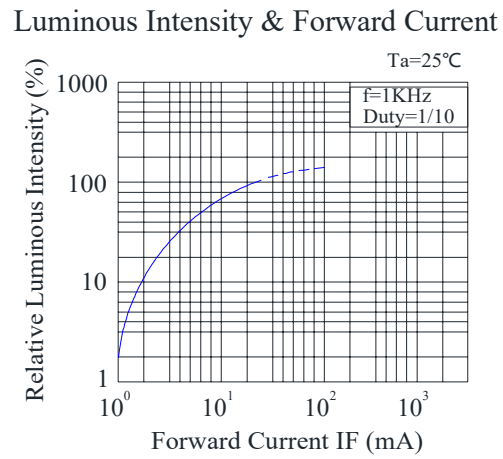
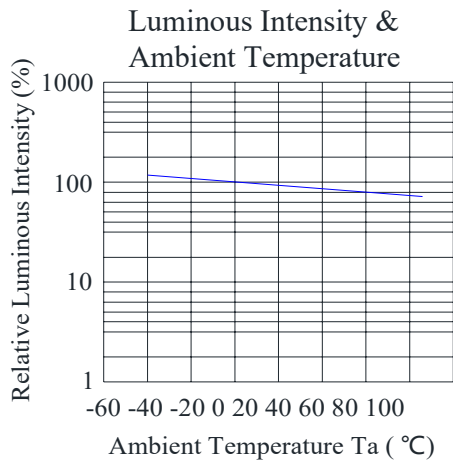
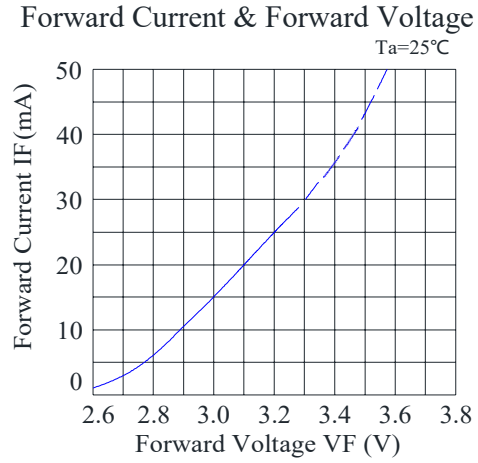
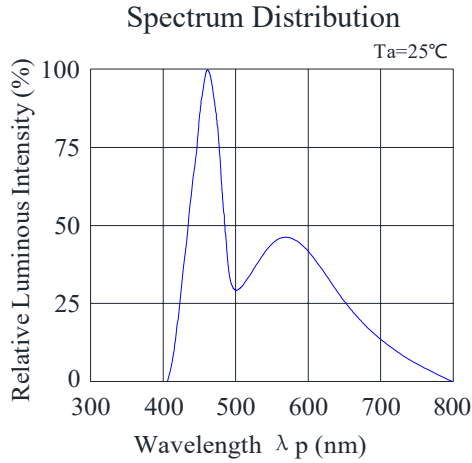
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Typical Electrical / Optical Characteristics Curves (25°C Ambient Temperature Unless Otherwise Noted)



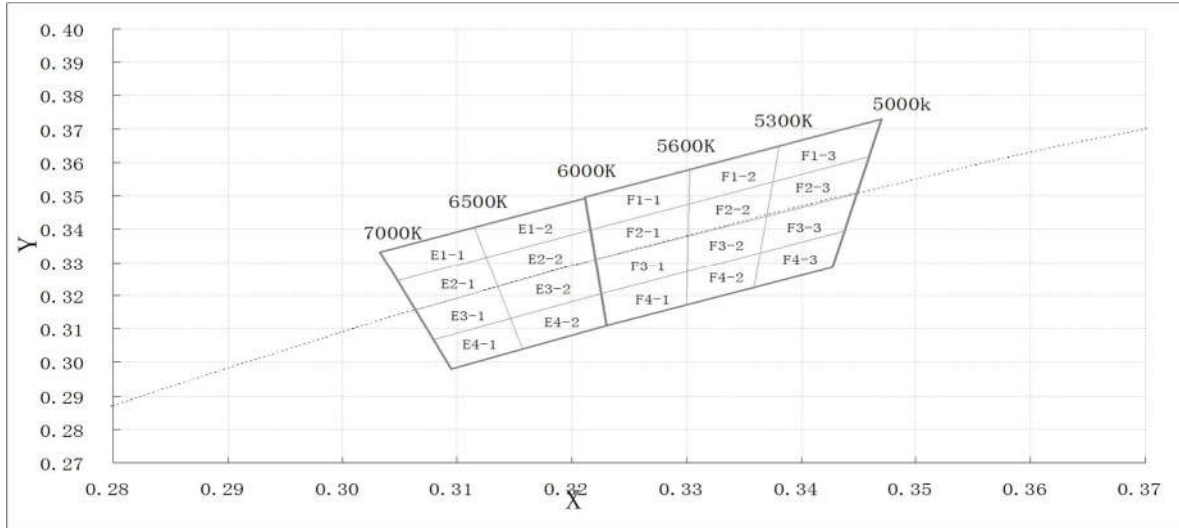
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CIE 1931 Chromaticity Diagram:



Chromaticity Coordinates Specifications for Bin Rank:

Bin Code	Left x	Left y	Top x	Top y	Right x	Right y	Bottom x	Bottom y
E1-1	0.305	0.324	0.313	0.331	0.312	0.341	0.303	0.333
E2-1	0.306	0.316	0.314	0.323	0.313	0.331	0.305	0.324
E3-1	0.308	0.307	0.315	0.313	0.314	0.323	0.306	0.316
E4-1	0.310	0.298	0.316	0.304	0.315	0.313	0.308	0.307
E1-2	0.313	0.331	0.323	0.340	0.323	0.349	0.312	0.341
E2-2	0.314	0.323	0.323	0.330	0.323	0.340	0.313	0.331
E3-2	0.315	0.313	0.323	0.321	0.323	0.330	0.314	0.323
E4-2	0.316	0.304	0.323	0.311	0.323	0.321	0.315	0.313
F1-1	0.323	0.340	0.330	0.347	0.330	0.357	0.323	0.349
F2-1	0.323	0.330	0.330	0.337	0.330	0.347	0.323	0.340
F3-1	0.323	0.321	0.330	0.327	0.330	0.337	0.323	0.330
F4-1	0.323	0.311	0.330	0.317	0.330	0.327	0.323	0.321
F1-2	0.330	0.347	0.337	0.354	0.338	0.365	0.330	0.357
F2-2	0.330	0.337	0.337	0.343	0.337	0.354	0.330	0.347
F3-2	0.330	0.327	0.337	0.333	0.337	0.343	0.330	0.337
F4-2	0.330	0.317	0.337	0.322	0.337	0.333	0.330	0.327
F1-3	0.337	0.354	0.346	0.362	0.347	0.373	0.338	0.365
F2-3	0.337	0.343	0.345	0.351	0.346	0.362	0.337	0.354
F3-3	0.337	0.333	0.344	0.340	0.345	0.351	0.337	0.343
F4-3	0.337	0.322	0.343	0.328	0.344	0.340	0.337	0.333

Notes:

1. Color coordinates measurement allowance is ± 0.15 .
2. One delivery will include up to two consecutive color ranks and three luminous intensity ranks of the products the quantity-ratio of the ranks is decided by **Seam**

Spec No.: SC11

Date: 22-Mar-2017

Issue No.: G-Rev-4

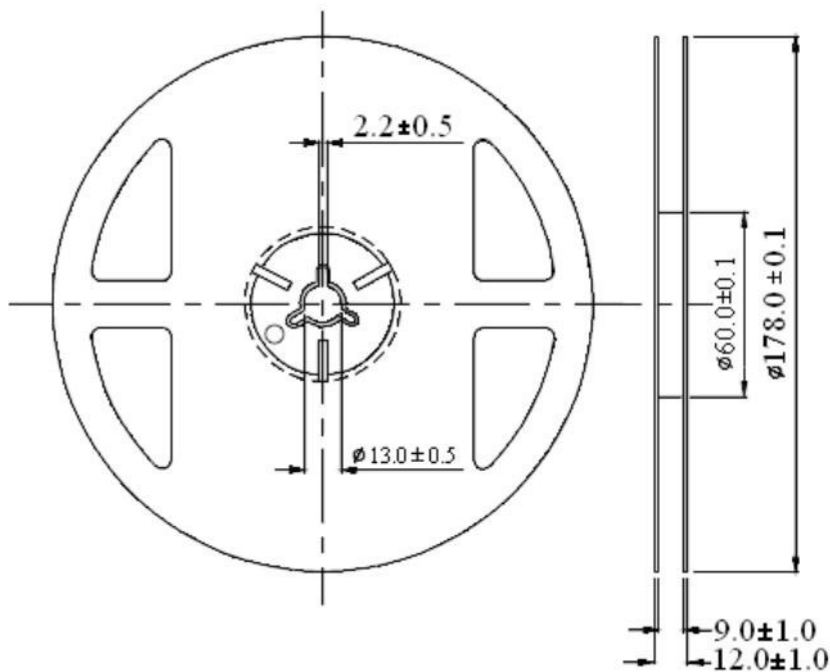
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Reel Dimensions:

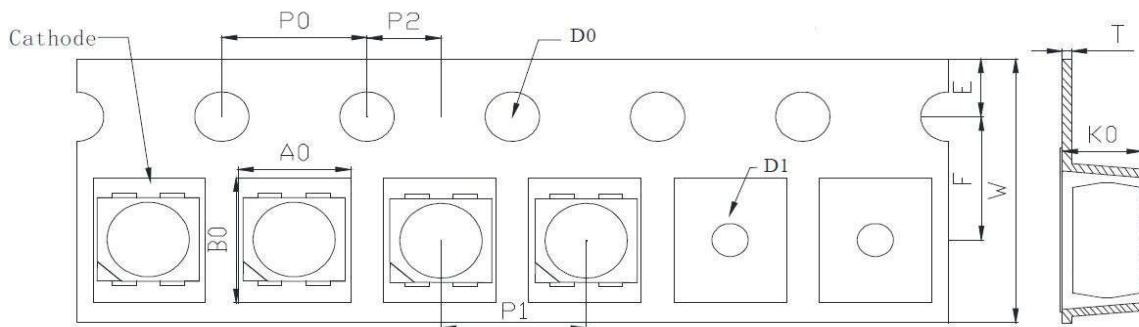


Unit: mm
Tolerance: ± 0.25mm

Carrier Tape Dimensions:

Loaded quantity 4000 pcs per reel.

Packing Size													
Item	W	P1	E	F	D0	D1	P0	10P0	P2	A0	B0	K0	T
Spec	8.00	4.00	1.75	3.50	1.50	1.00	4.00	40.00	2.00	2.20	2.20	1.20	0.25
Tolerance	± 0.20	± 0.10	± 0.10	± 0.05	+ 0.10 - 0.00	± 0.05	± 0.05	± 0.20	± 0.05	± 0.10	± 0.10	± 0.10	± 0.05



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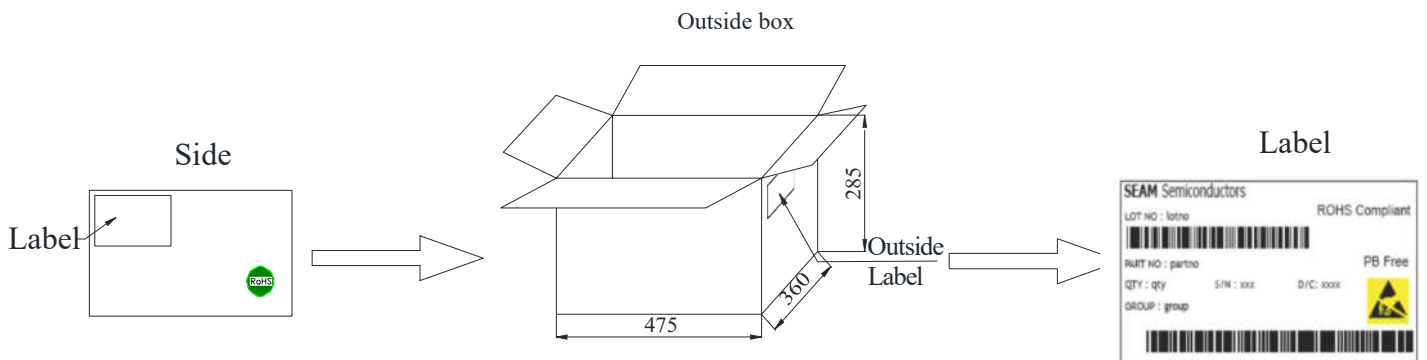
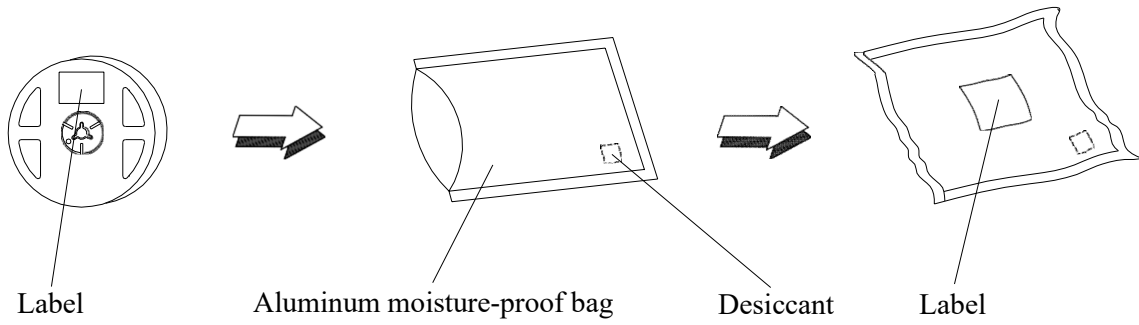
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Packing & Label Specifications:

Moisture Resistant Packaging:



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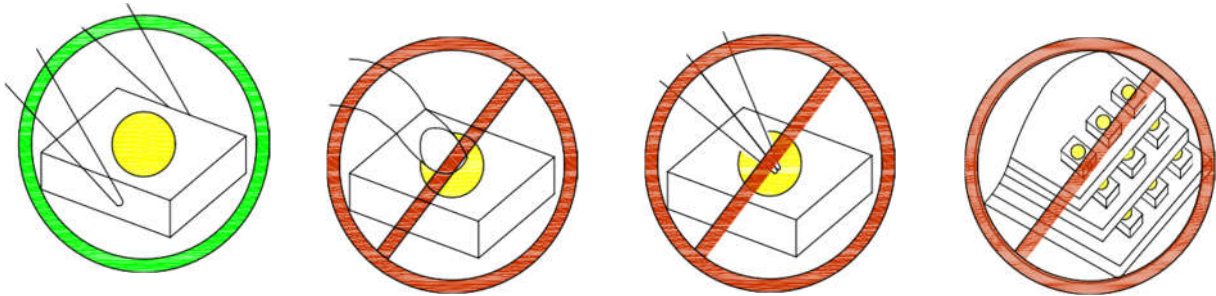
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CAUTIONS

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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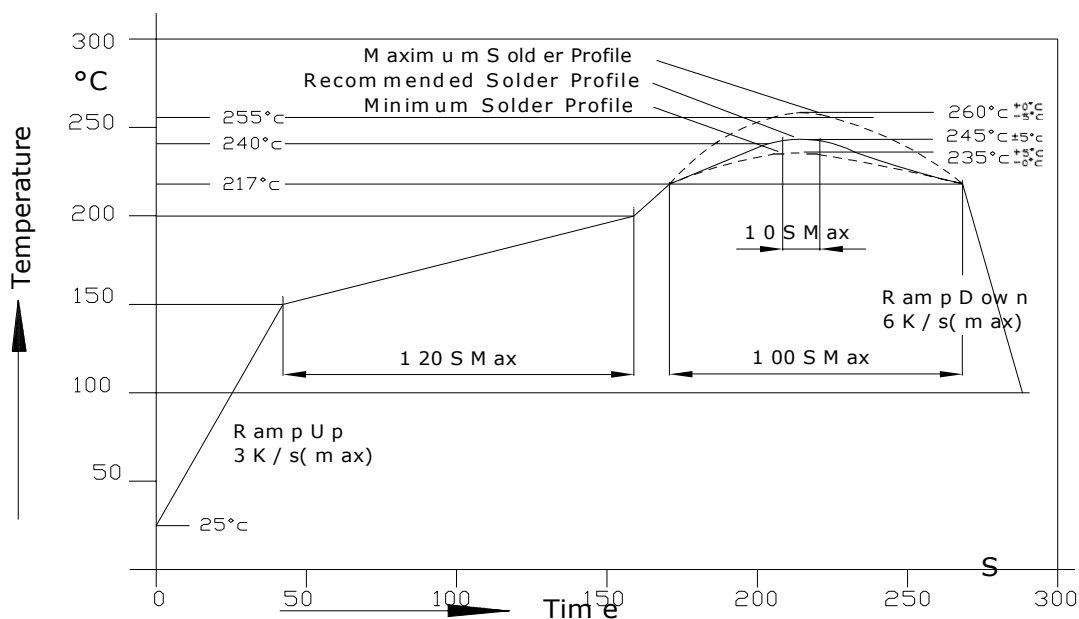
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3. Soldering Condition

3.1. Pb-free solder temperature profile



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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)		

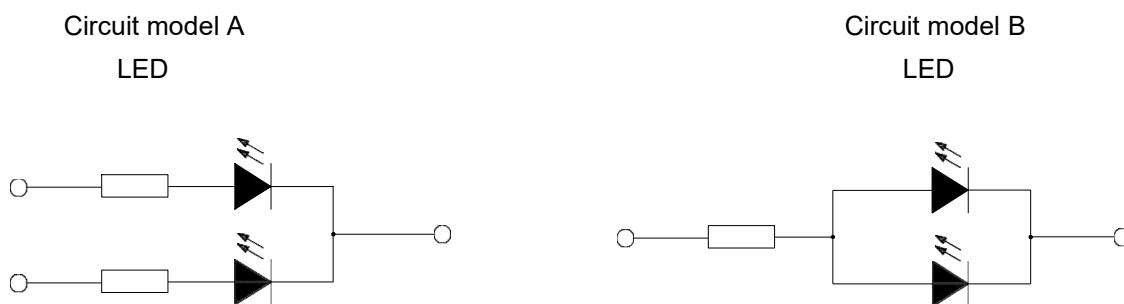
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3.6. Because different board designs use different number and types of devices, solder pastes, reflow ovens, and circuit boards, no single temperature profile works for all possible combinations.

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.



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

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