LEDTRONICS, INC.®

23105 Kashiwa Court, Torrance, CA 90505
Phone: (800) 579-4875 or (310) 534-1505 Fax: (310) 534-1424
E-mail: webmaster@ledtronics.com
Website: http://www.ledtronics.com

SML1209-0UO-TR

Super Orange
Dome Lens Surface Mount LED
3.2 ×2.4 ×2.5 mm Package
25° viewing angle

DWG BY: SL / JG 12-06-06
CHK BY: PL 01-17-07
QA: __ __-__-__
MFG: __ __-__-__
REVISION LTR: - 12-06-06

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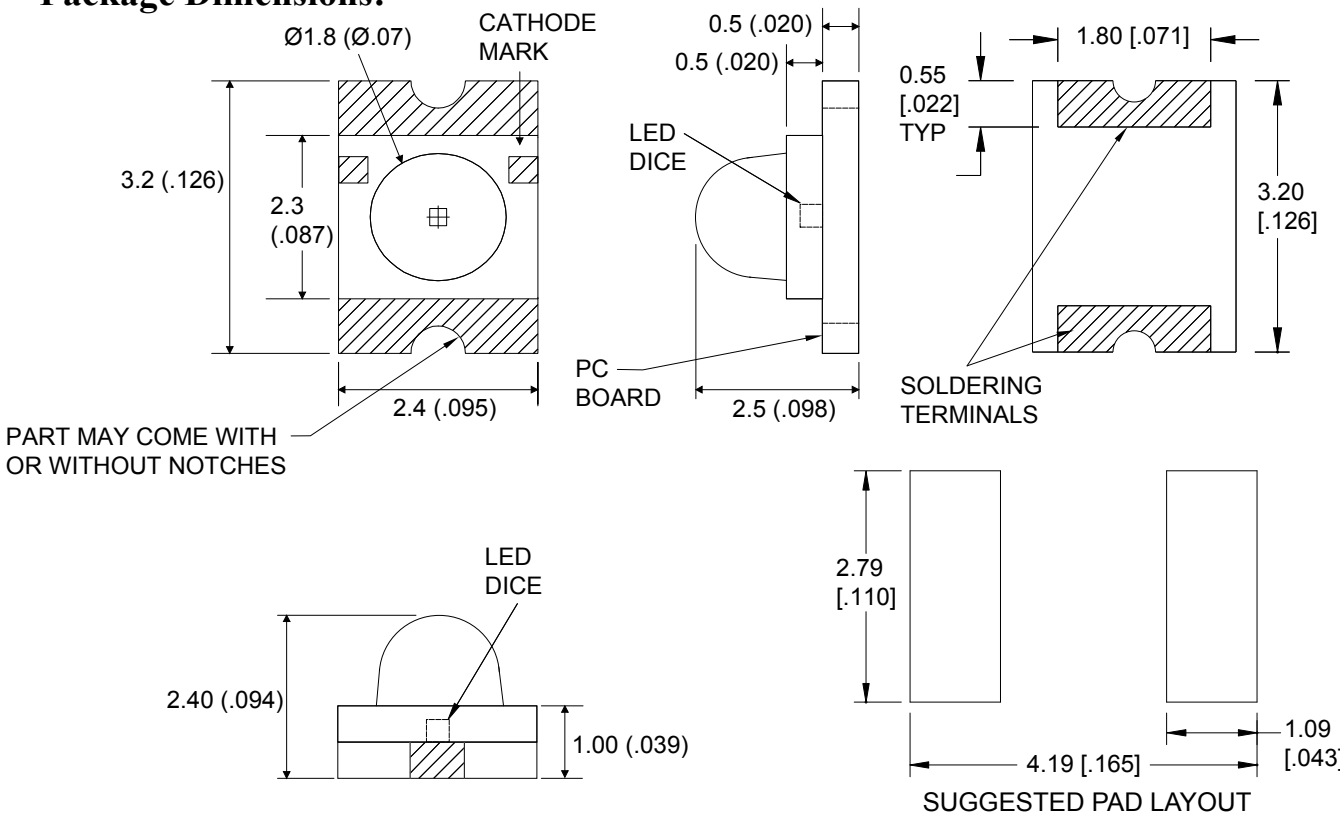
Features

* Meet ROHS standards.
* Dome lens Chip LED.
* Ultra bright AlInGaP Chip LED.
* Package in 8mm tape on 7" diameter reels.
* Compatible with automatic placement equipment.
* Compatible with infrared and vapor phase reflow solder process.
* EIA STD package.
* I.C. compatible.

Package Dimensions:



Part No.	Chip Material	Lens Color	Emission Color
SML1209-0UO-TR	GaAllnP	Water Clear	Super Orange

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.1mm (.004") unless otherwise noted.
3. Specifications are subject to change without notice.
4. Precautions for ESD:
   Static electricity and surge can damage the LED. It is recommended to use a wristband or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.

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Absolute Maximum Ratings (T_A=25°C)

Parameter	Symbol	Value	Unit
Forward current	If	30	mA
Reverse voltage	Vr	5	V
Power dissipation	Pd	75	mW
Operating temperature range	Topr	-55 ~+85	°C
Storage temperature range	Tstg	-40 ~+85	°C
Peak forward current (1/10 Duty Cycle, 0.1ms Pulse Width)	Ifp	80	mA

Electro-optical characteristics (T_A=25°C)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	If=20mA	λ peak	612	613	619	nm
Spectral half bandwidth	If=20mA	△ λ	--	18	--	nm
Dominant wavelength	If=20mA	λ dom	605	607	609	nm
Forward voltage	If=20mA	Vf	--	2.0	2.6	V
Luminous intensity	If=20mA	Iv	--	3000	--	mcd
Viewing angle at 50% Iv	If=20mA	$2\theta_{1/2}$	--	25	--	Deg
Reverse current	Vr=5V	Ir	--	--	100	μA
Chromaticity Coordinates	If=20mA	X	--	0.65	--	
		Y		0.34		
Radiant Intensity	If=20mA	Ie	--	7000	--	μW/sr

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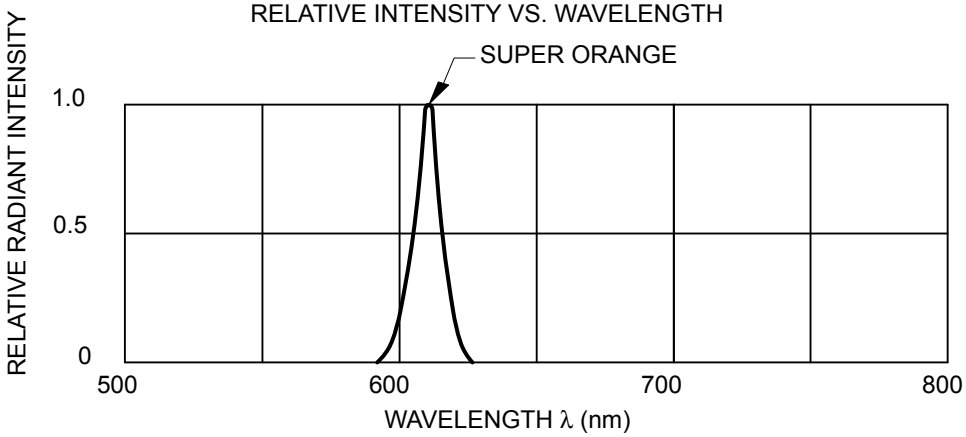
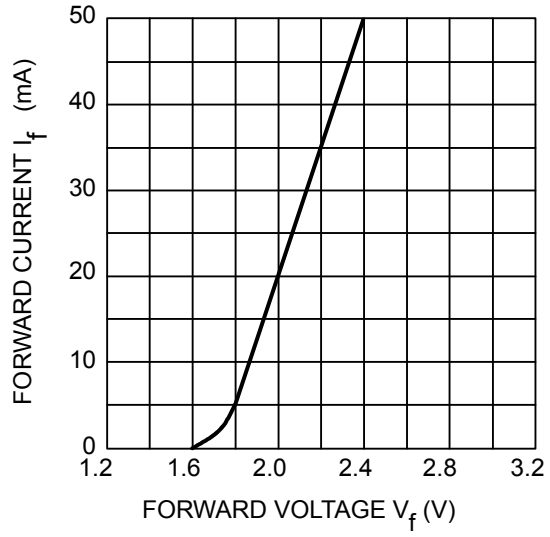
OPTICAL CHARACTERISTIC CURVES

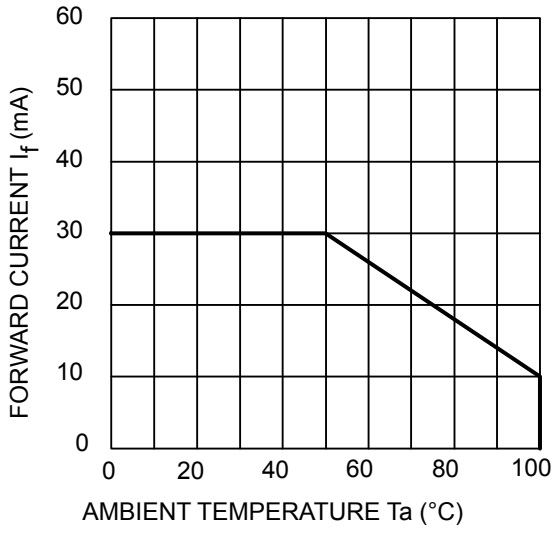
RELATIVE INTENSITY VS. WAVELENGTH



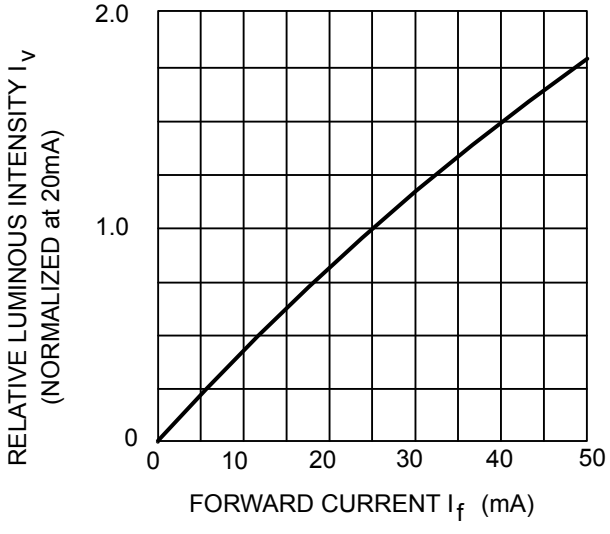
FORWARD CURRENT VS. FORWARD VOLTAGE



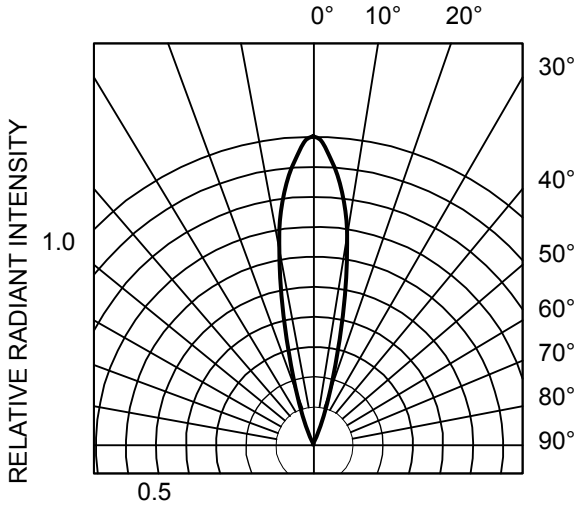
FORWARD CURRENT DERATING CURVE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



RADIATION DIAGRAM



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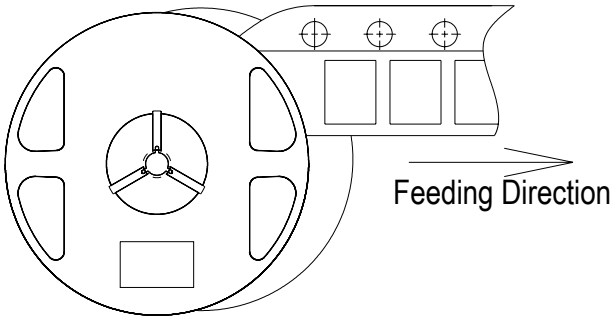
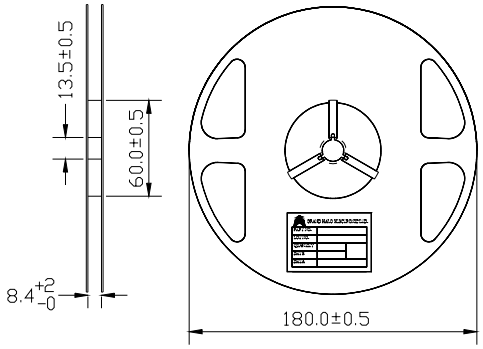
SMD Chip LED Lamps Packaging Specifications

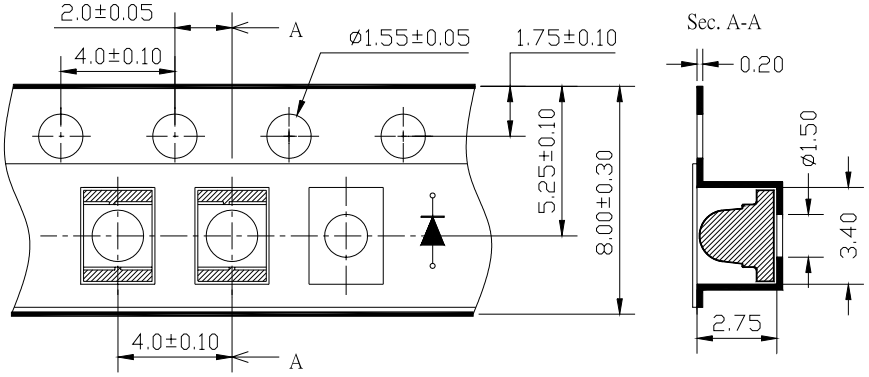
Feeding



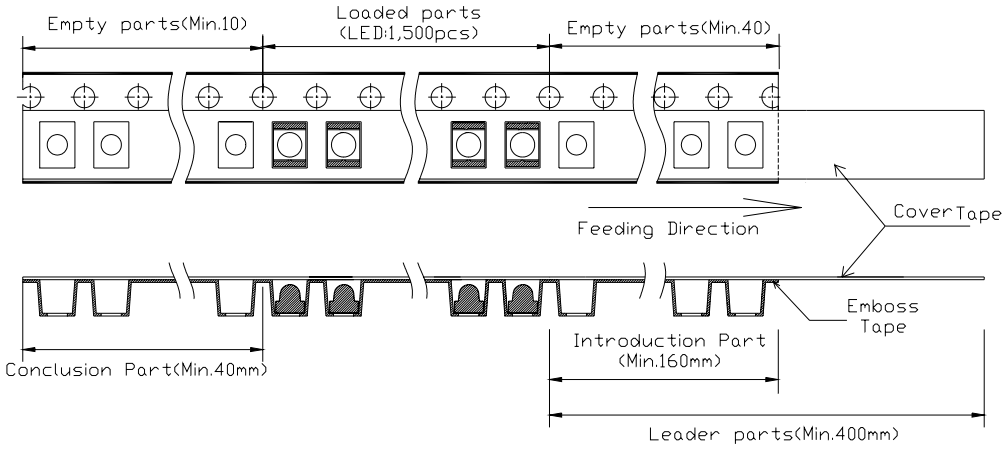
Dimensions of Reel (Unit: mm)



Dimensions of Tape (Unit: mm)



Arrangement of Tape



NOTES

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
4. 1,500 pcs/Reel

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Test items and results of reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	-20°C 30min ↑ ↓ 80°C 30min	100 cycle	0/22
	Thermal Shock	-20°C 15min ↑ ↓ 80°C 15min	100 cycle	0/22
	High Humidity Heat Cycle	30°C ⇔ 65°C 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	T_a=80°C	1000 hrs	0/22
	Humidity Heat Storage	T_a=60°C RH=90%	1000 hrs	0/22
	Low Temperature Storage	T_a=-30°C	1000 hrs	0/22
Operation Sequence	Life Test	T_a=25°C I_F=20mA	1000 hrs	0/22
	High Humidity Heat Life Test	60°C RH=90% I_F=10mA	500 hrs	0/22
	Low Temperature Life Test	T_a=-20°C I_F=20mA	1000 hrs	0/22

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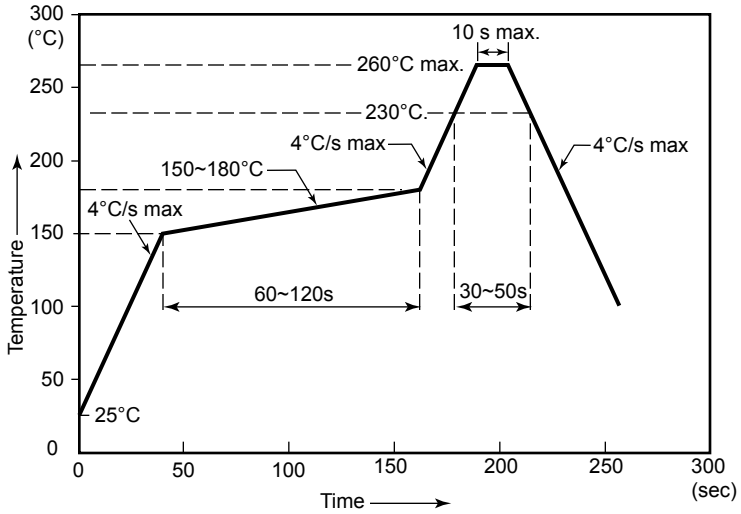
Reflow Profile

■ Reflow Temp/Time



NOTES:

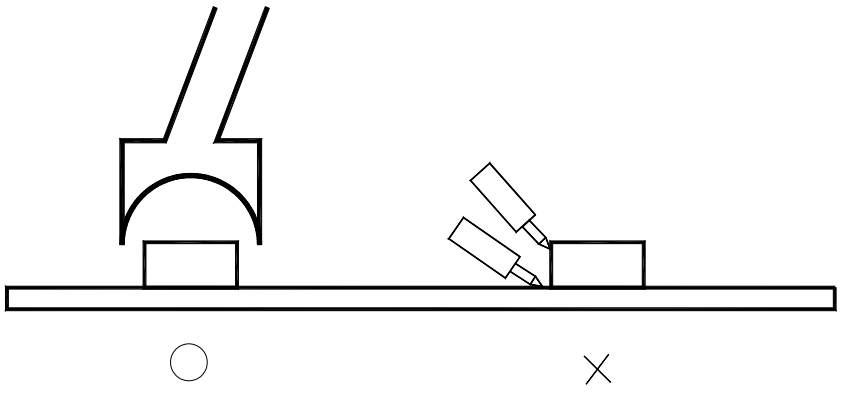
1. We recommend the reflow temperature at 245°C (±5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■Soldering iron

Basic spec is ≤ 5sec when 260°C. If temperature is higher, time should be shorter (+10°C→ -1sec).Power dissipation of iron should be smaller than 15W, and temperatures should be controllable. Surface temperature of the device should be under 230°C .

■Rework

1. Customer must finish rework within 5 sec under 260°C.
2. The head of iron cannot touch copper foil.
3. Twin-head type is preferred.



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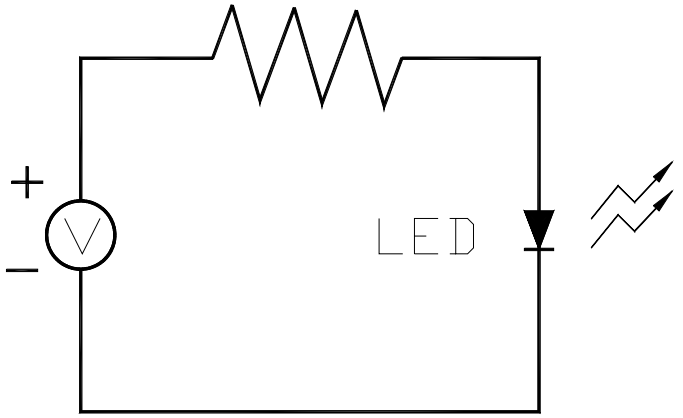
Test circuit and handling precautions

■ Test circuit



■ Handling precautions

1. Over-current-proof

Customer must apply resistors for protection; otherwise a slight voltage shift will cause a big change in current (Burn out occurs).

2.Storage

2.1 It is recommended to store the products in the following conditions:
Humidity: 60% R.H. Max.
Temperature : 5°C~30°C (41°F~86°F)

2.2 Shelf life in sealed bag: 12 months at < 5°C~30°C and < 30% R.H. after the package is opened, the products should be used within a week or they should be kept stored at ≦ 20 R.H. with zip-lock seal.

3.Baking

It is recommended to bake before soldering when the pack is unsealed after 72hrs.
The conditions are as follows:

3.1 60±3°C x(12~24hrs) and < 5%RH, taped reel type
3.2 100±3°C x(45min~1hr), bulk type
3.3 130±3°C x(15~30min), bulk type