LEDTRONICS, INC.®

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SML1209-0PY-TR

Super Yellow
Surface Mount LED
3.2 ×2.4 ×2.5 mm Chip LED
25° viewing angle

DWG BY:
SL / JG
07-18-06

CHK BY:
PL
06-29-07

QA:
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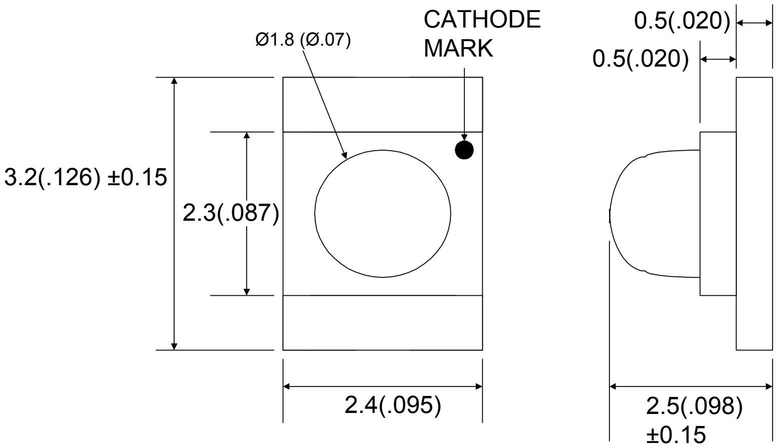
—-—-—

MFG:
—
—-—-—

REVISION LTR: -

06-28-07

Package Dimensions:



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

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25mm (.010”) unless otherwise noted.
3. Protruded resin under flange is 1.0mm (.04”) max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notice.
6. 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.

Absolute Maximum Ratings (T_A=25°C)

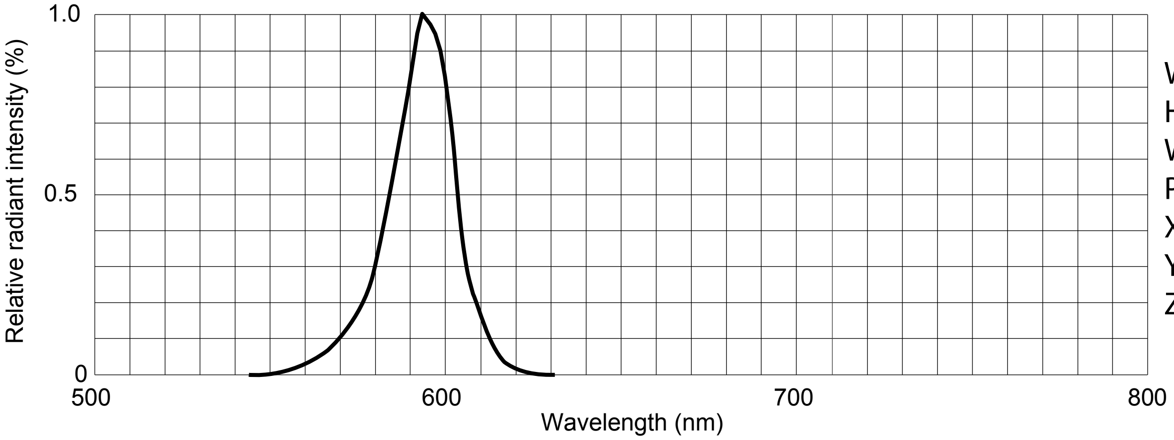
Parameter	Symbol	Value	Unit
Forward current	If	30	mA
Reverse voltage	Vr	5	V
Power dissipation	Pd	75	mW
Operating temperature range	Top	-20 ~+80	°C
Storage temperature range	Tstg	-20 ~+80	°C
Peak pulsing current (1/8 duty f=1kHz)	Ifp	125	mA

Electro-optical characteristics (T_A=25°C)

Parameter	Test Condition	Symbol	Value Min	Value Typ	Value Max	Unit
Wavelength at peak emission	If=20mA	λ peak	588	593	599	nm
Spectral half bandwidth	If=20mA	△ λ	--	17	--	nm
Dominant wavelength	If=20mA	λ dom	586	590	594	nm
Forward voltage	If=20mA	Vf	2.0	2.1	2.5	V
Luminous intensity	If=20mA	Iv	1200	2500	--	mcd
Viewing angle at 50% Iv	If=10mA	$2\theta_{1/2}$	--	25	--	Deg
Reverse current	Vr=5V	Ir	--	--	10	μA
Chromaticity Coordinates	If=20mA	X Y	--	0.57 0.42	--	
Radiant Intensity	If=20mA	Ie	--	5500	--	μW/sr

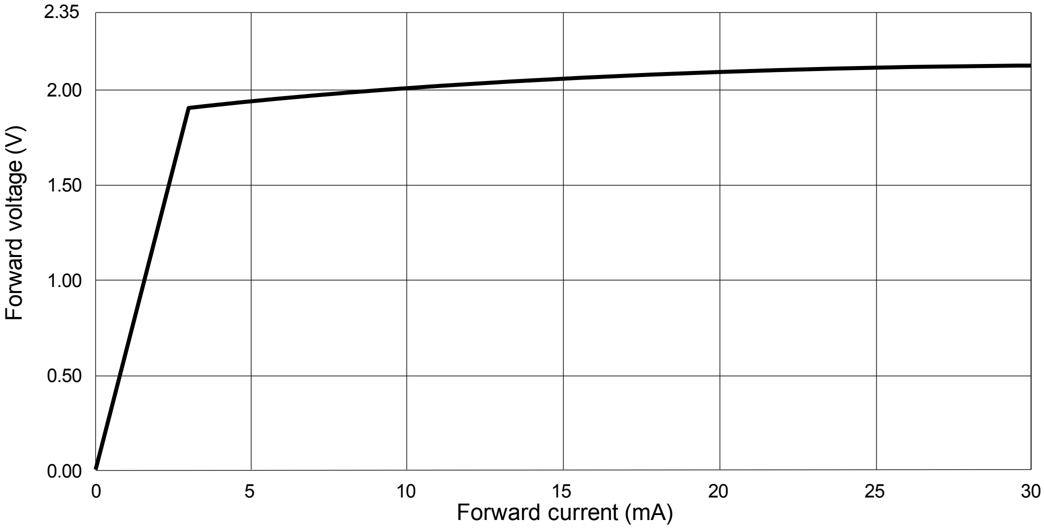
OPTICAL CHARACTERISTIC CURVES

Relative intensity vs. wavelength

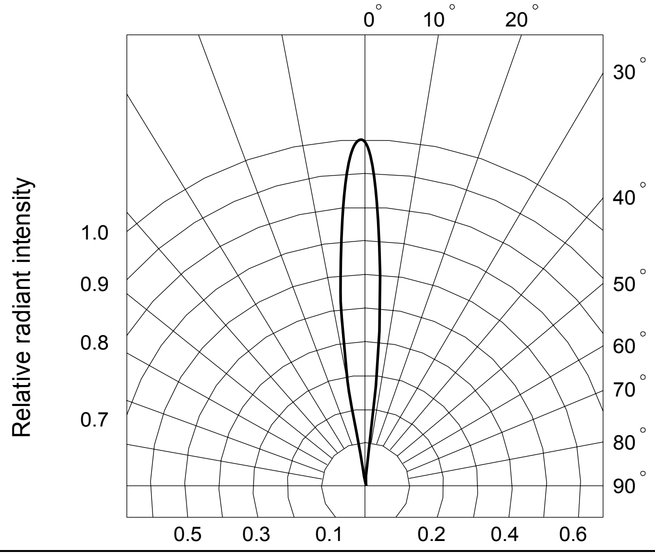


Wp (nm)	595.8
Hw (nm)	19.8
Wd (nm)	592.2
Purity	0.999
X	0.5876
Y	0.4117
Z	0.0007

Forward current vs. forward voltage

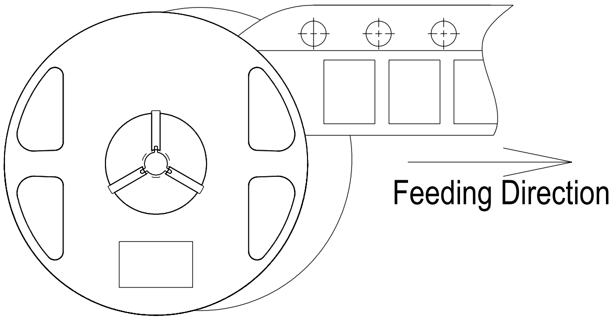


Radiation diagram

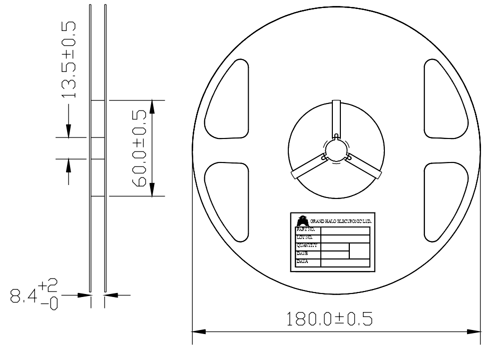


SMD Chip LED Lamps Packaging Specifications

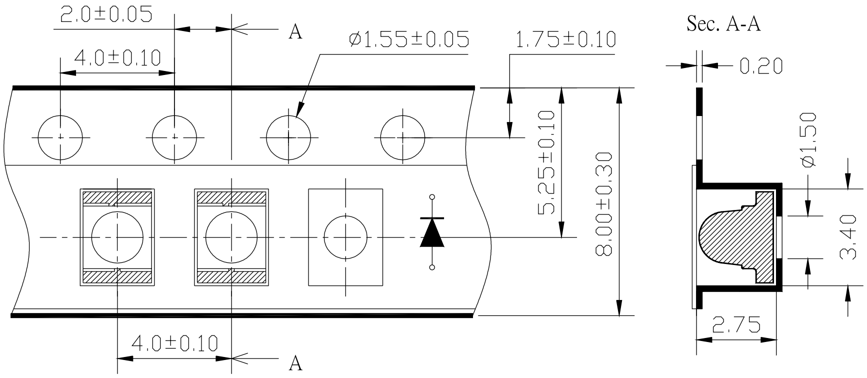
● Feeding



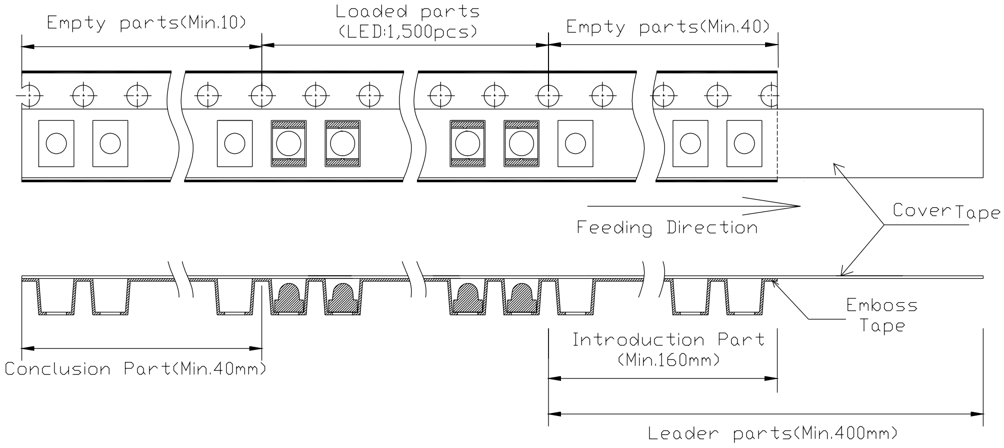
● Dimensions of Reel (Unit: mm)



● 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

Forward Voltage Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
☐	1.9	2.5	V

Luminous Intensity Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
S	630	1250	mcd
T	1000	2000	
U	1600	3200	
V	2500	5000	

Dominant wavelength Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
m	585	590	nm
n	590	595	
o	595	600	

Group Name on Label (Example DATA: ☐Rj20)

DATA: ☐Un 20	Vf (V)	Iv (mcd)	λd (nm)	Test Condition
☐→U→n→20	1.9~2.5	1600~3200	590~595	IF=20mA

∗ NOTE:

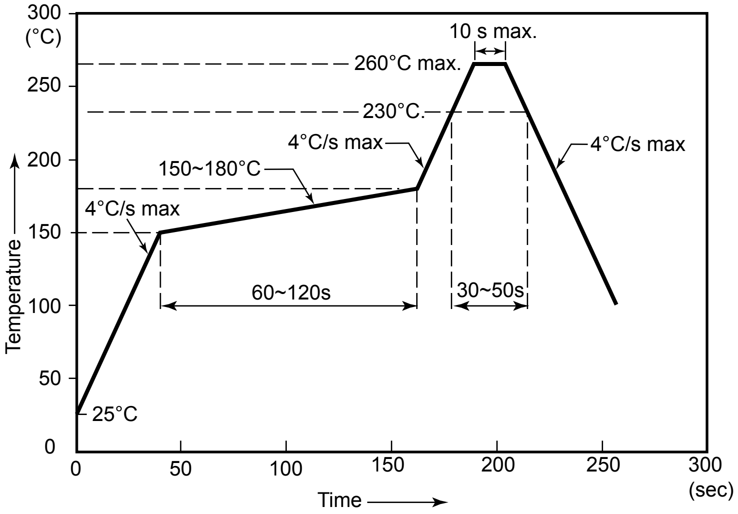
1. The tolerance of luminous intensity (Iv) is ±15%.
2. The tolerance of dominant wavelength is ±1nm.
3. This specification is preliminary.

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

Reflow Profile

■ Reflow Temp/Time



NOTES:

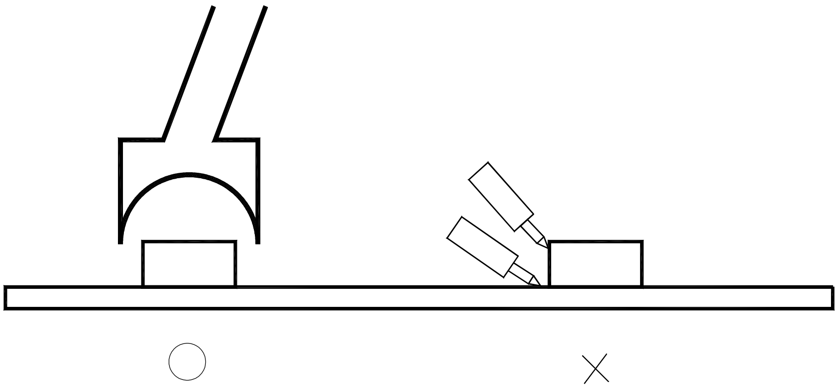
1. We recommend the reflow temperature at 245°C (±5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■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 .

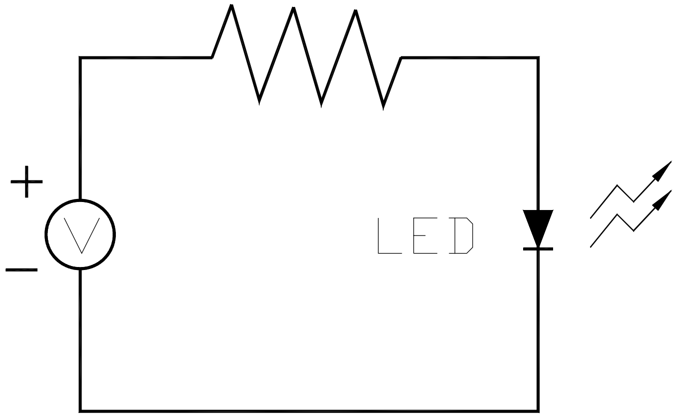
■Rework

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.



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