

SML0606-ER/UG-TR

Super Red/Super Green

Surface Mount LED

1.6 × 1.5 × 0.8 mm Chip LED

140° viewing angle

DWG BY:
SL / GP
08-21-07

CHK BY:
PL
08-21-07

QA:

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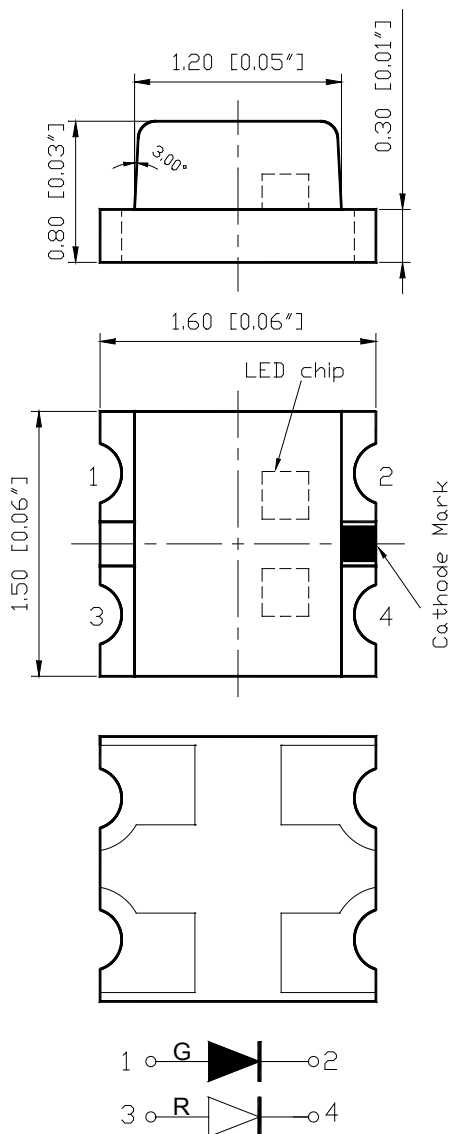
MFG:

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REVISION LTR: -

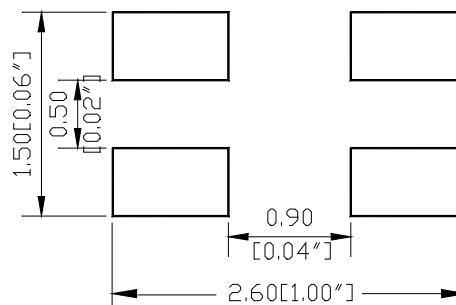
08-21-07

Package outlines



ATTENTION
 OBSERVE PRECAUTIONS
 FOR HANDLING
 ELECTROSTATIC
 SENSITIVE DEVICES

RECOMMEND PAD LAYOUT



ITEM	MATERIALS	
Resin (mold)	Epoxy	
Bonding Wire	Ø25µm Au	
Lens color	Water Transparent	
Printed circuit board	BT (White)	
Dice	Red	AlGaInP
	Green	AlGaInP

NOTES:

1. All dimensions are in millimeters (inches);
2. Tolerance are $\pm 0.1\text{mm}$ (0.004inch) unless otherwise noted.

Absolute maximum ratings

(T_A=25°C)

Parameter	Symbol	Value		Unit
		R	G	
Power dissipation	Pd	75	75	mW
Forward current	If	30		mA
Reverse voltage	Vr	5		V
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

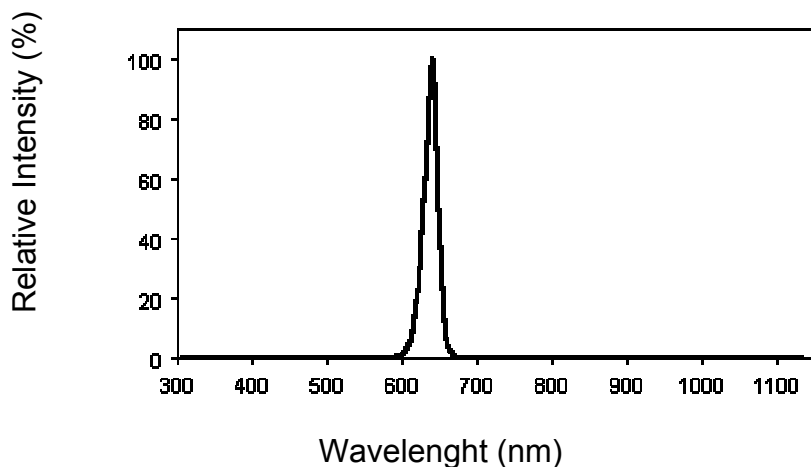
(T_A=25°C)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	If=20mA	λ peak R	--	633	--	nm
		G	--	576	--	
Spectral half bandwidth	If=20mA	Δλ R	--	18	--	nm
		G	--	17	--	
Dominant wavelength	If=20mA	λ dom R	--	623	--	nm
		G	--	574	--	
Forward voltage	If=20mA	Vf R	--	1.9	2.6	V
		G	--	2.1	2.6	
Luminous intensity * 1	If=20mA	Iv R	--	150	--	mcd
		G	--	40	--	
Viewing angle at 50% Iv	If=10mA	2θ 1/2	--	140	--	Deg
Reverse current	Vr=5V	Ir	--	--	10	μA
Chromaticity Coordinates	If=20mA	X	--	0.70	--	Red
		Y		0.30		
Chromaticity Coordinates	If=20mA	X	--	0.47	--	Green
		Y		0.53		

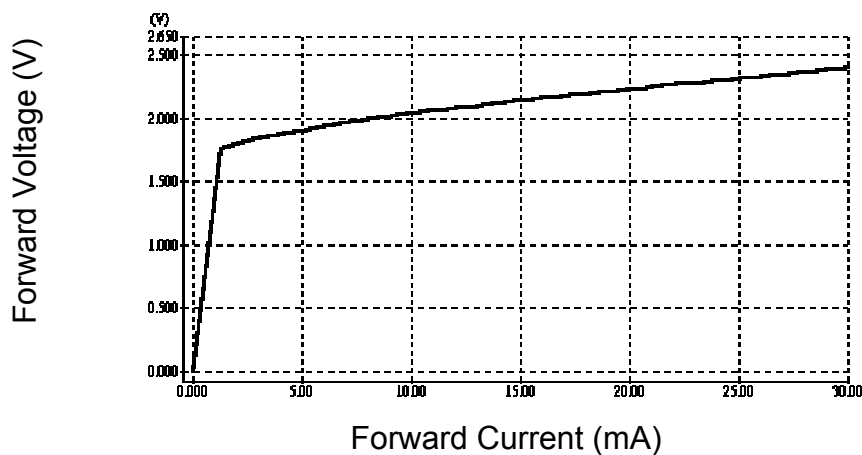
* 1 Note: Luminous intensity tolerance is ±10%.

OPTICAL CHARACTERISTIC CURVES (Red)

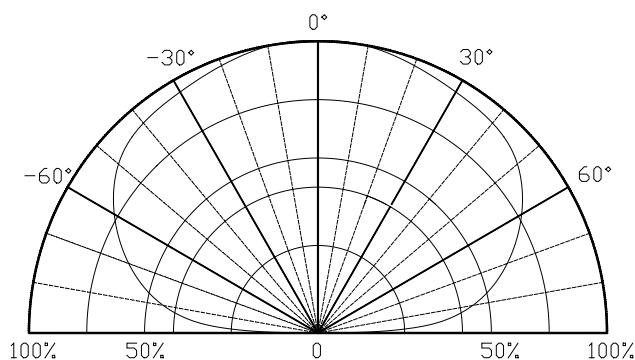
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage

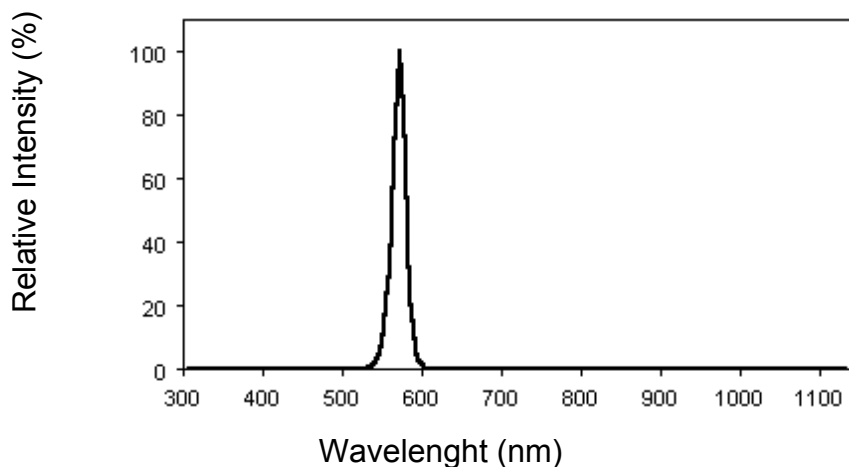


Directive Characteristics

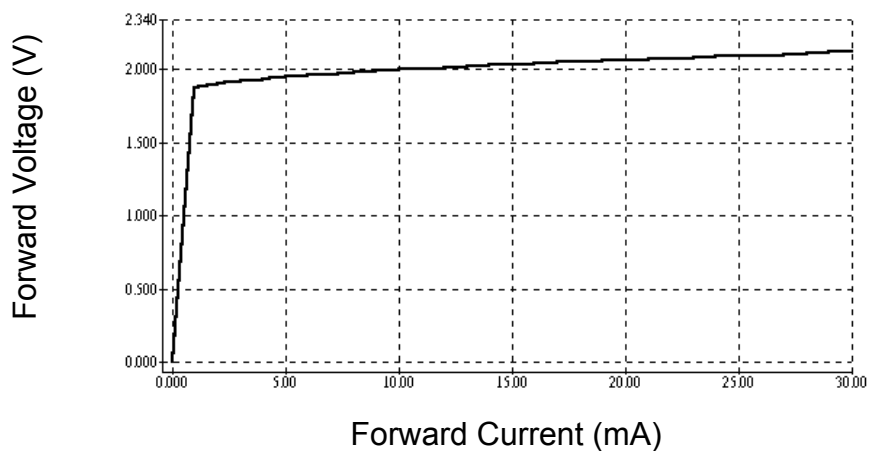


OPTICAL CHARACTERISTIC CURVES (Green)

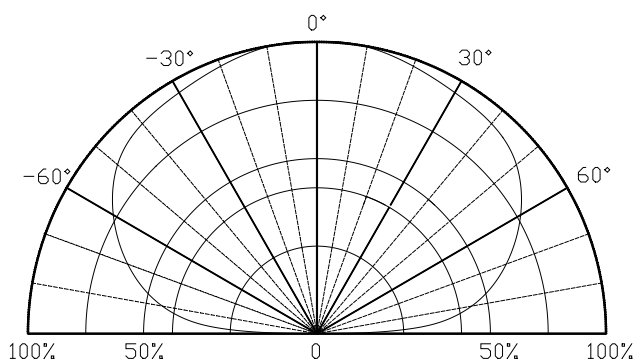
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage

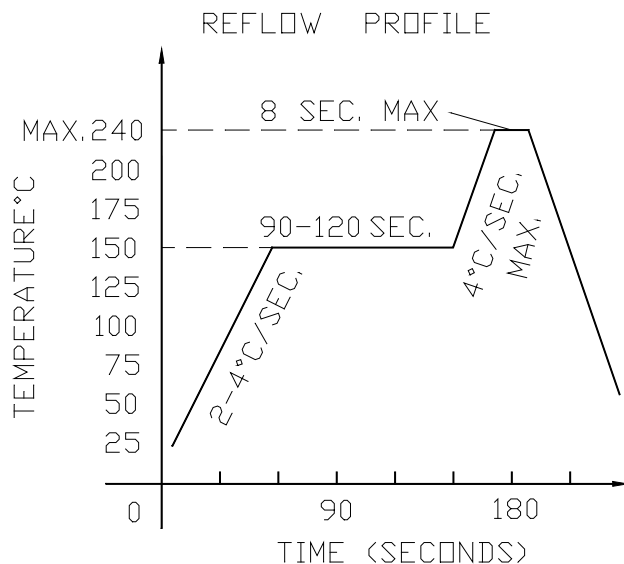


Directive Characteristics



Reflow Profile

■ Reflow Temp/Time

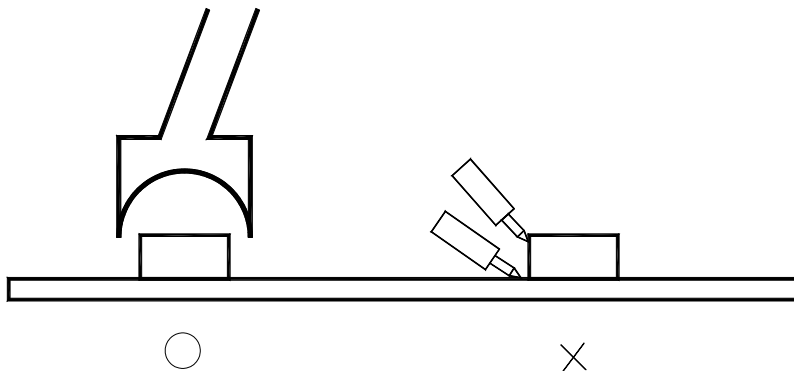


■ Soldering iron

Basic spec is $\leq 5\text{sec}$ when 260°C . If temperature is higher, time should be shorter ($+10^{\circ}\text{C} \rightarrow -1\text{sec}$). Power dissipation of iron should be smaller than 15W, and temperatures should be controllable. Surface temperature of the device should be under 230°C .

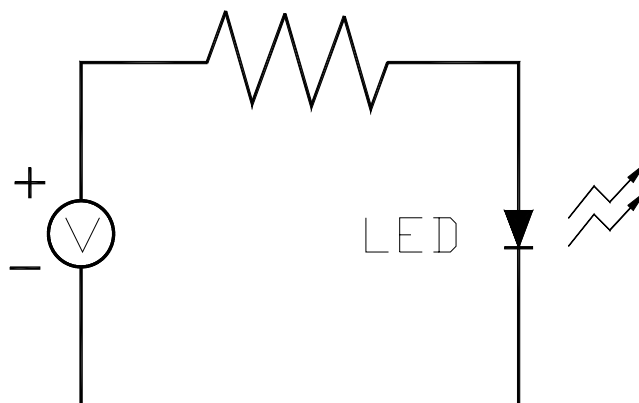
■ Rework

1. Customer must finish rework within 5 sec under 260°C .
2. The head of iron can not 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 slight voltage shift will cause big current change (Burn out will happen).

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 month 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 keeping to stored at ≤ 20 R.H. with zip-lock sealed.

3.Baking

It is recommended to baking before soldering when the pack is unsealed after 72hrs. The Conditions are as followings:

3.1 60±3°C x(12~24hrs) and <5%RH, taped reel type

3.2 100±3°C x(45min~1hr), bulk type

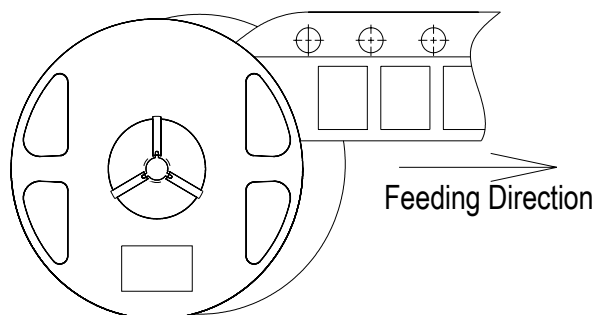
3.3 130±3°C x(15~30min), bulk type

Test items and results of reliability

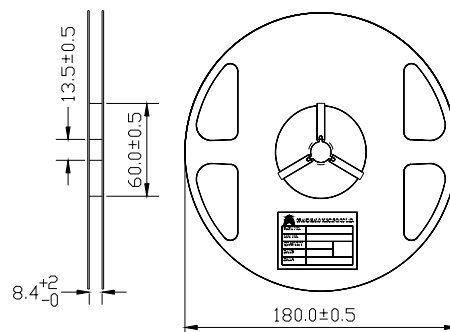
Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	-20°C 30min ↑ ↓ 80°C 30min	100 cycle	0/22
	Thermal Shock	-20°C 15min ↑ ↓ 80°C 15min	100 cycle	0/22
	High Humidity Heat Cycle	30°C ⇔ 65°C 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	T _a =80°C	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

LED Lamps Packaging Specifications

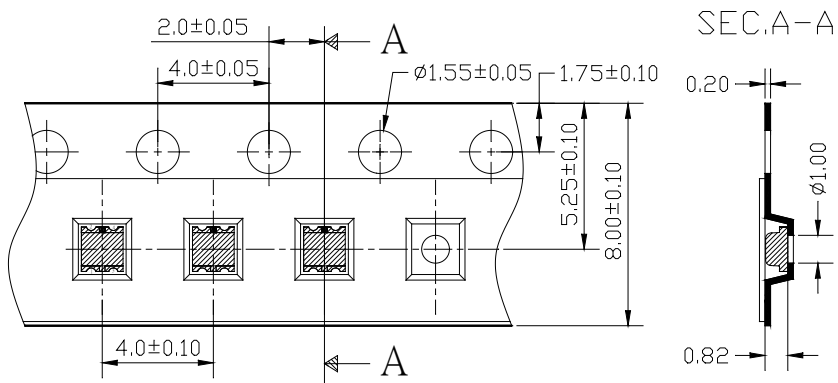
● Feeding Direction



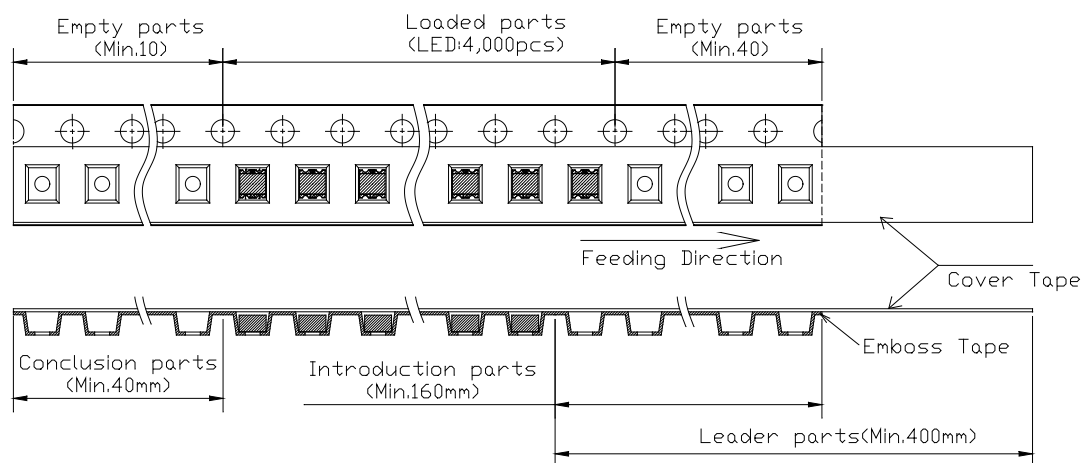
● Dimensions of Reel (Unit: mm)



● 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. 4,000pcs/Reel