

# SML10R6T-TR

Ultra Red

Surface Mount LED

3.5 × 2.7 × 1.85 mm Chip LED

120° viewing angle

DWG BY:  
SL / GP  
11-02-07

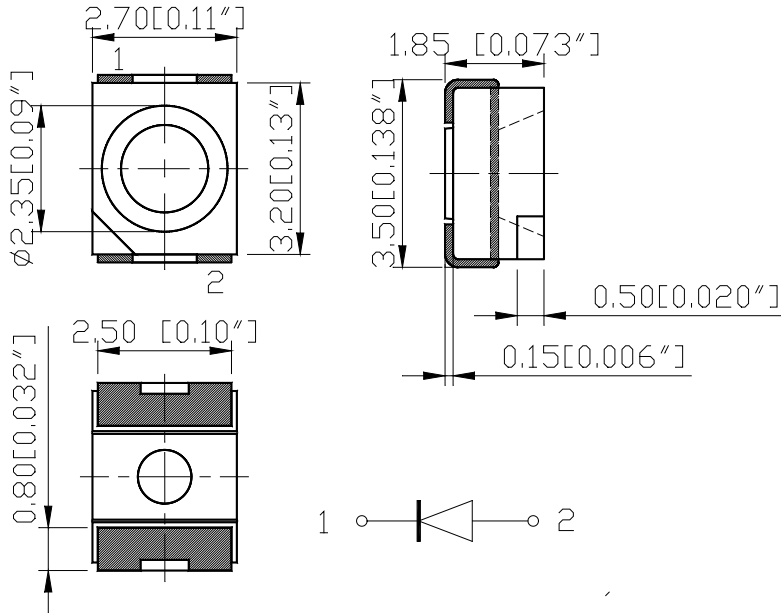
CHK BY:  
PL  
11-02-07

QA:  
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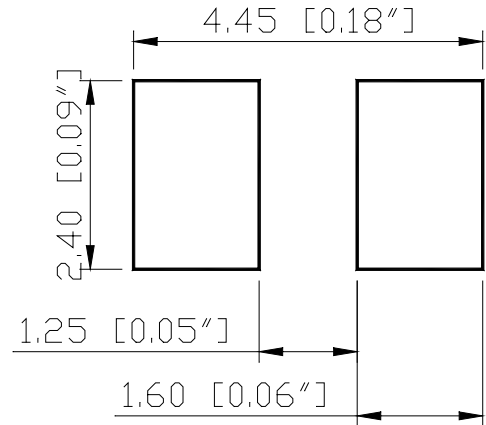
MFG:  
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REVISION LTR: -  
  
11-02-07

## Package outlines



### RECOMMEND PAD LAYOUT



ITEM	MATERIALS
Resin (mold)	Epoxy
Bonding Wire	Ø25µm Au
Lens color	Water Transparent
Dice	GaAlAs
Emitted color	Red

### NOTES:

- All dimensions are in millimeters (inches);
- Tolerance are ±0.2mm (0.008inch) unless otherwise noted.

**Absolute maximum ratings (T<sub>A</sub>=25°C)**

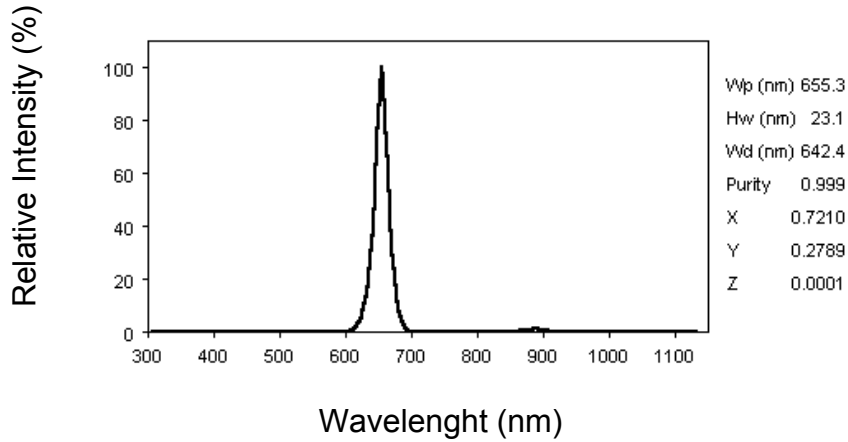
Parameter	Symbol	Value	Unit
Power dissipation	Pd	69	mW
Forward current	I <sub>f</sub>	30	mA
Reverse voltage	V <sub>r</sub>	5	V
Operating temperature range	T <sub>op</sub>	-20 ~+80	°C
Storage temperature range	T <sub>stg</sub>	-20~+80	°C
Peak pulsing current (1/8 duty f=1kHz)	I <sub>fp</sub>	125	mA

**Electro-optical characteristics (T<sub>A</sub>=25°C)**

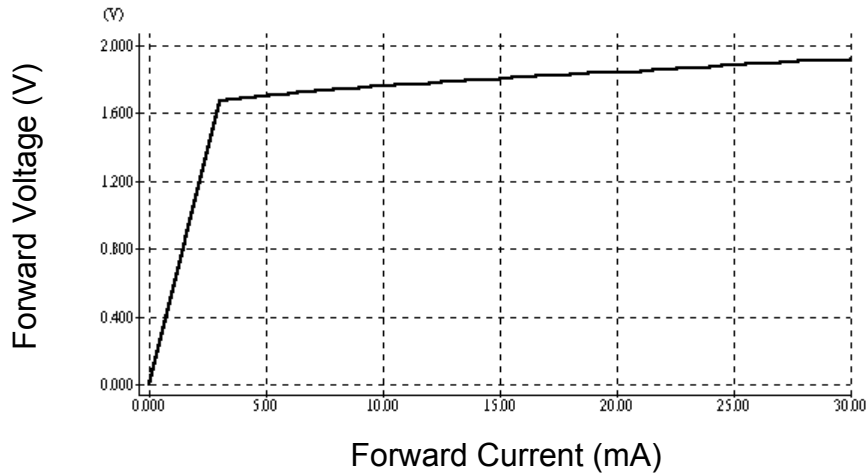
Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	I <sub>f</sub> =20mA	λ peak	655	660	665	nm
Spectral half bandwidth	I <sub>f</sub> =20mA	Δλ	--	25	--	nm
Dominant wavelength	I <sub>f</sub> =20mA	λ dom	--	643	--	nm
Forward voltage	I <sub>f</sub> =20mA	V <sub>f</sub>	--	1.8	2.3	V
Chip Luminous intensity * 1	I <sub>f</sub> =20mA	I <sub>v</sub>	15	--	--	mcd
Viewing angle at 50% I <sub>v</sub>	I <sub>f</sub> =10mA	2θ 1/2	--	120	--	Deg
Reverse current	V <sub>r</sub> =5V	I <sub>r</sub>	--	--	10	μA
Chromaticity Coordinates	I <sub>f</sub> =20mA	X	--	0.	--	
		Y	--	0.	--	

# OPTICAL CHARACTERISTIC CURVES

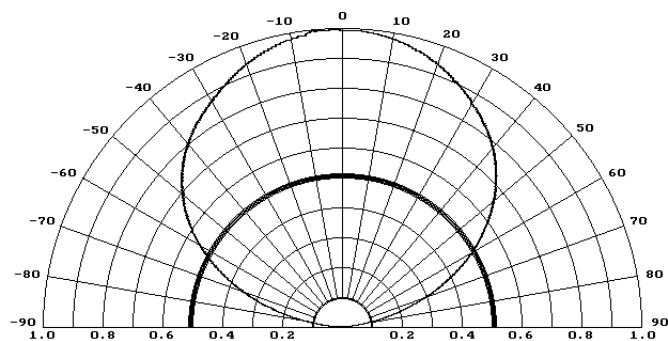
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage

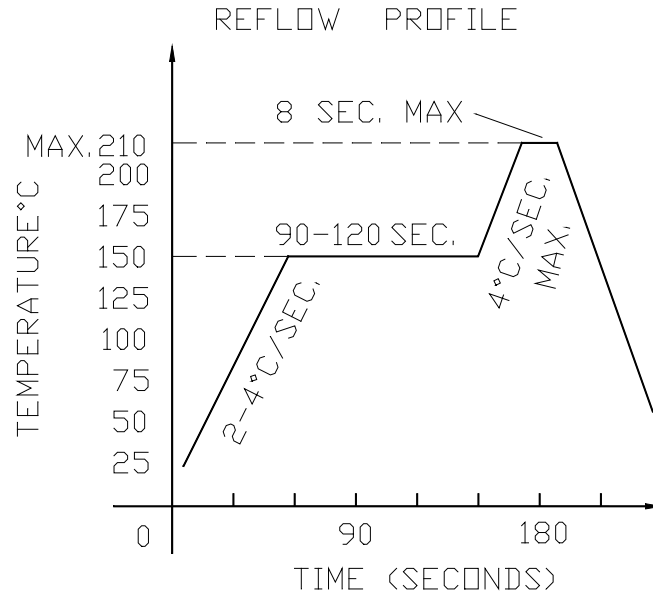


Directive Characteristics



## Reflow Profile

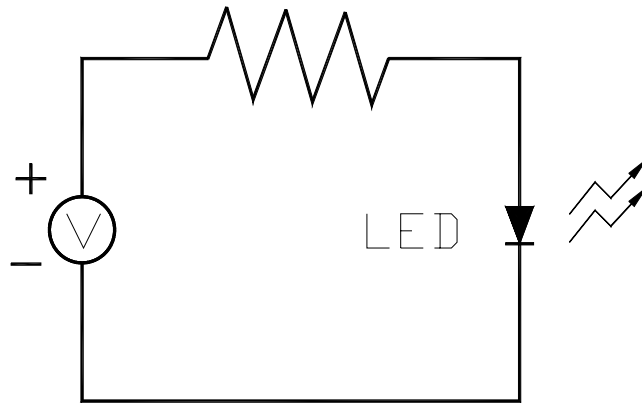
■ Reflow Temp/Time



■ Soldering iron

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

## TEST CIRCUIT



### ■ Precautions For use

Over-current-proof

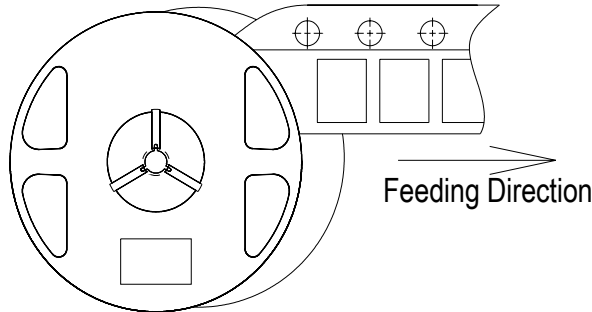
Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).

**Test items and results of reliability**

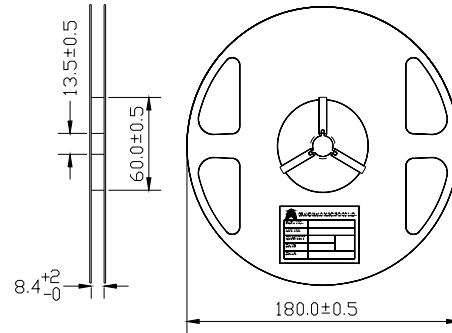
Type	Test Item	REF. Standard	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	JIS C 7021 (1977)A-4	-20°C 30min ↑ ↓ 5min 80°C 30min	100 cycle	0/100
	Thermal Shock	MIL-STD-107D	-20°C 15min ↑ ↓ 80°C 15min	100 cycle	0/100
	High Humidity Heat Cycle	JIS C 7021 (1977)A-5	30°C ↔ 65°C 90%RH 24hrs/1cycle	10 cycle	0/100
	High Temperature Storage	JIS C 7021 (1977)B-10	T <sub>a</sub> =80°C	1000 hrs	0/100
	Humidity Heat Storage	JIS C 7021 (1977)B-11	T <sub>a</sub> =60°C RH=90%	1000 hrs	0/100
	Low Temperature Storage	JIS C 7021 (1977)B-12	T <sub>a</sub> =-30°C	1000 hrs	0/100
Operation Sequence	Life Test	JIS C 7035 (1985)	T <sub>a</sub> =25°C I <sub>f</sub> =20mA	1000 hrs	0/100
	High Humidity Heat Life Test	*	60°C RH=90% I <sub>f</sub> =20mA	500 hrs	0/100
	Low Temperature Life Test	*	T <sub>a</sub> =-20°C I <sub>f</sub> =20mA	1000 hrs	0/100

# Single-Color High Performance SMD Top LEDs Packaging Specifications

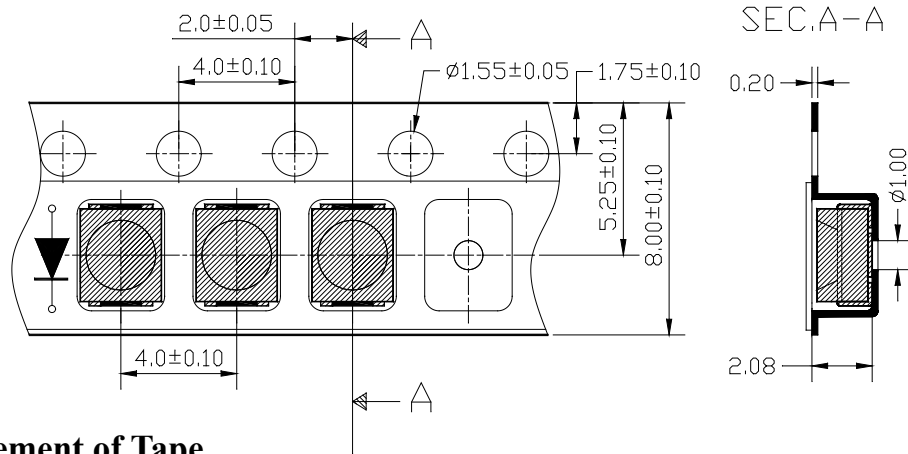
● **Feeding Direction**



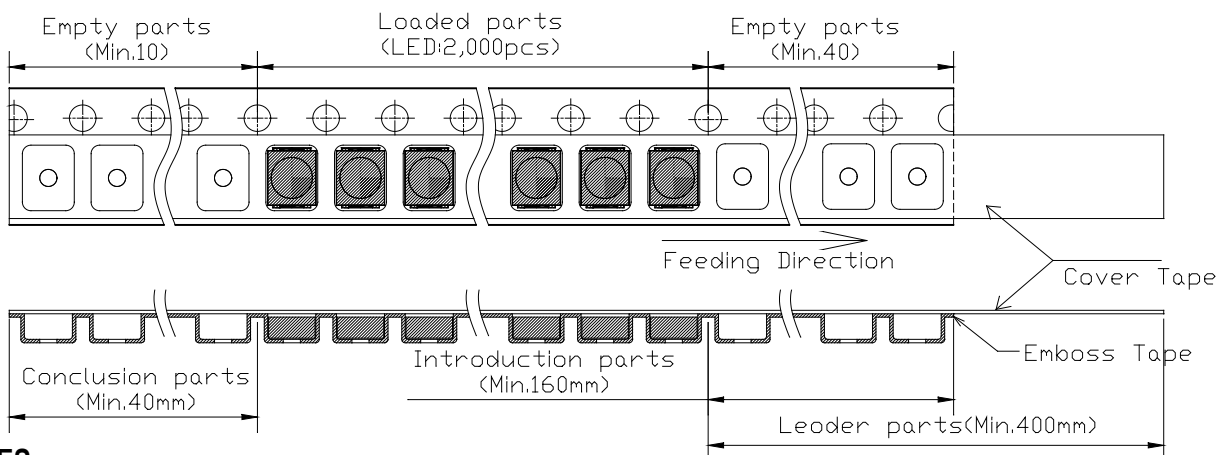
● **Dimensions of Reel (Unit: mm)**



● **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. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications;
4. 2,000pcs/Reel