

# SML0603-Y3KH-TR

Super Yellow

Surface Mount LED

1.6×0.8×0.8mm Chip LED

120° viewing angle

DWG BY:  
BL / JG / GP  
11-08-06

CHK BY:  
PL  
03-07-12

REVISION LTR: A  
ECR#: 030212-GP01  
03-06-12

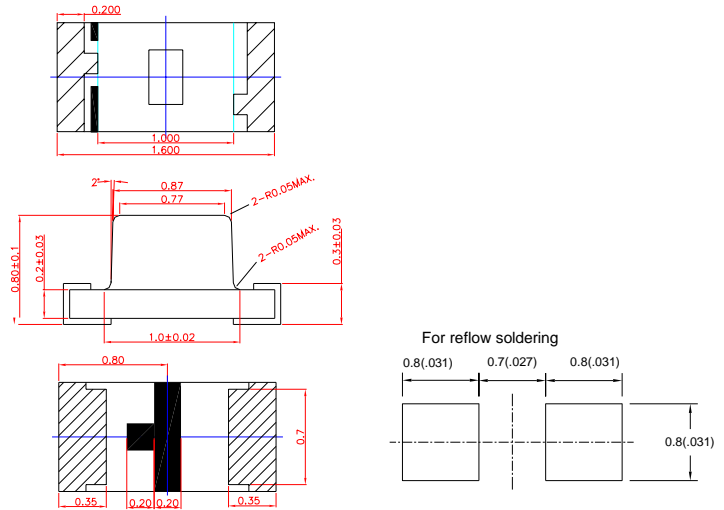
● **Features:**

1. Emitted Color : Super Yellow
2. Lens Appearance : Water Clear
3. Mono-color type.
4. 1.6x0.8x0.8mm(0603) standard package
5. Suitable for all SMT assembly methods.
6. Compatible with infrared and vapor phase reflow solder process.
7. Compatible with automatic placement equipment.
8. This product doesn't contain restriction Substance, comply ROHS standard.

● **Applications:**

1. Automotive : Dashboards, stop lamps, turn signals.
2. Backlighting : LCDs, Key pads advertising.
3. Status indicators : Consumer & industrial electronics.
4. General use.

● **Package Dimensions:**



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.10mm (0.004") unless otherwise specified.
3. Specifications are subject to change without notice.

● **Absolute Maximum Ratings(Ta=25°C)**

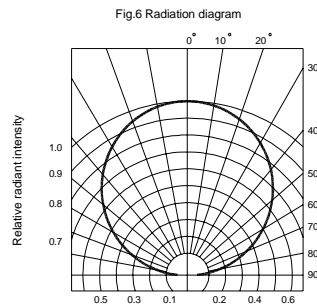
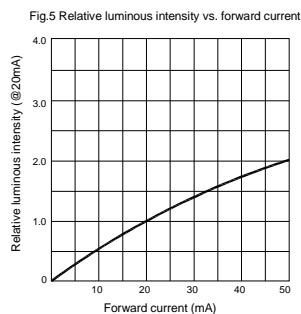
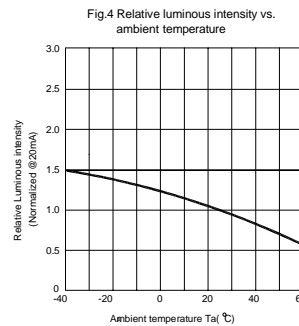
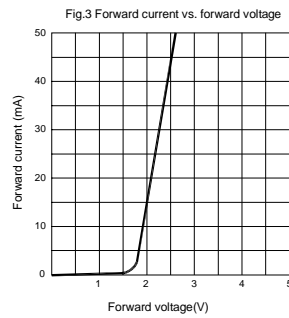
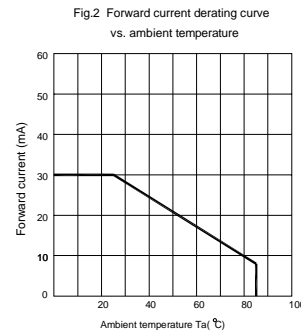
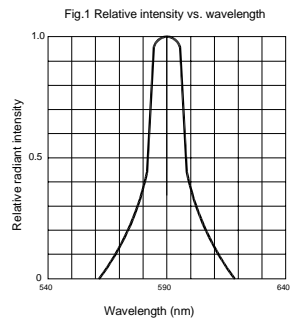
Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	52	mW
Forward Current	I <sub>F</sub>	20	mA
Peak Forward Current * 1	I <sub>FP</sub>	100	mA
Reverse Voltage	V <sub>R</sub>	5	V
Operating Temperature	Topr	-40°C ~85°C	-
Storage Temperature	Tstg	-40°C ~85°C	-
Soldering Temperature	Tsol	See Page 6	-

\* 1 Condition for I<sub>FP</sub> is pulse of 1/10 duty and 0.1msec width.

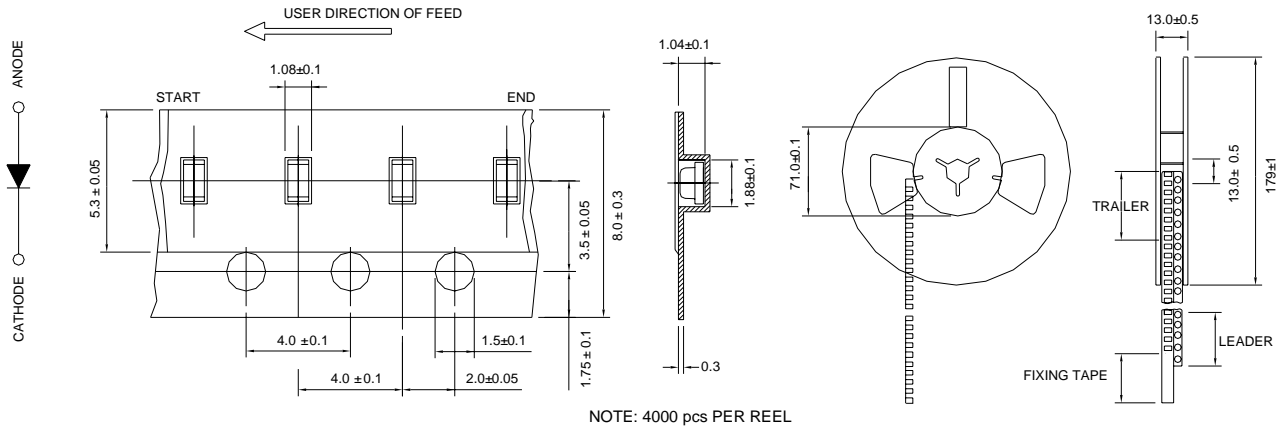
● **Electrical and optical characteristics (Ta=25°C)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F=20mA$	-	2.0	2.6	V
Luminous Intensity	$I_v$	$I_F=20mA$	40	80	-	mcd
Peak Wave Length	$\lambda_p$	$I_F=20mA$	589	594	600	nm
Dominant Wave Length	$\lambda_d$	$I_F=20mA$	588	591	596	nm
Spectral Line Half-width	$\Delta\lambda$	$I_F=20mA$	-	18	-	nm
Viewing Angle	$2\theta_{1/2}$	$I_F=20mA$	-	120	-	deg
Radiant Intensity	$I_e$	$I_F=20mA$	-	-	-	$\mu W/sr$
Chromaticity Coordinates	X	$I_F=20mA$	0.56	0.58	0.61	
	Y		0.39	0.41	0.44	

● **Typical Electro-Optical Characteristics Curves**



● **Tapping and packaging specifications(Units: mm)**



● **Bin Limits**

Intensity Bin Limits (At 20mA)

BIN CODE	Min. (mcd)	Max. (mcd)
N	42	63
P	63	94
Q	94	140
R	140	210

Tolerance for each Bin limit is ± 15%.

● **BIN : X**



● **Reliability Test**

Classification	Test Item	Reference Standard	Test Conditions	Result
urance Test	Operation Life	MIL-STD-750D:1026 MIL-STD-883D:1005 JIS-C-7021 :B-1	Connect with a power $I_f=20\text{mA}$ $T_a$ =Under room temperature Test time=1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202F:103B JIS-C-7021 :B-11	$T_a=+85^\circ\text{C}\pm 5^\circ\text{C}$ RH=90%-95% Test time=240hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High $T_a=+100^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 :B-11	Low $T_a=-40^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202F:107D MIL-STD-750D:1051 MIL-STD-883D:1010 JIS-C-7021 :A-2	$-35^\circ\text{C}\pm 5^\circ\text{C}\sim +25^\circ\text{C}\sim +85^\circ\text{C}\pm 5^\circ\text{C}\sim +25^\circ\text{C}$ 30min 5min 30min 5min Test Time=10cycle	0/20
	Thermal Shock	MIL-STD-202F:107D MIL-STD-750D:1051 MIL-STD-883D:1011	$-40^\circ\text{C}\pm 5^\circ\text{C}\sim +85^\circ\text{C}\pm 5^\circ\text{C}$ 20min 20min Test Time=10cycle	0/20
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS-C-7021 :A-1	Preheating : $140^\circ\text{C}-160^\circ\text{C}$ , within 2 minutes. Operation heating : $260^\circ\text{C}$ (Max.), within 10seconds. (Max.)	0/20

● **Judgment criteria of failure for the reliability**

Measuring items	Symbol	Measuring conditions	Judgement criteria for failure
Forward voltage	$V_F$ ( V )	$I_F=20\text{mA}$	Initial Level*1.1
Reverse current	$I_R$ ( $\mu\text{A}$ )	$V_R=5\text{V}$	Over U*2
Luminous intensity	$I_v$ ( mcd )	$I_F=20\text{mA}$	Initial Level*0.7

Note: 1.U means the upper limit of specified characteristics.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

● **Soldering :**

1. Manual of Soldering

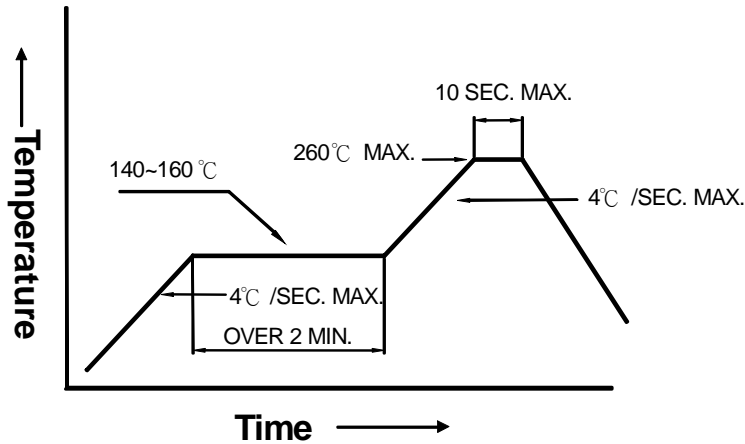
The temperature of the iron tip should not be higher than 300°C (572°F) and Soldering within 3 seconds per solder-land is to be observed.

2. Reflow Soldering

Preheating : 140°C~160°C±5°C, within 2 minutes.

Operation heating : 260°C (Max.) within 10 seconds.(Max)

Gradual Cooling (Avoid quenching).

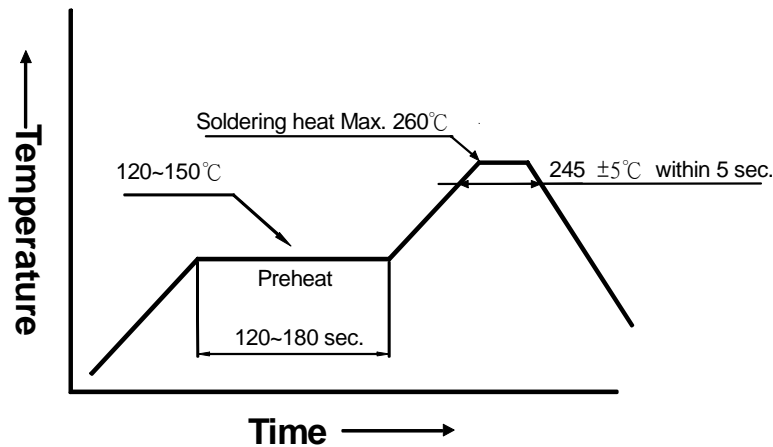


3. DIP soldering (Wave Soldering) :

Preheating : 120°C~150°C, within 120~180 sec.

Operation heating : 245°C±5°C within 5 sec. 260°C (Max)

Gradual Cooling (Avoid quenching).



● **Handling :**

Care must be taken not to cause to the epoxy resin portion of LEDs while it is exposed to high temperature.

Care must be taken not rub the epoxy resin portion of LEDs with hard or sharp article such as the sand blast and the metal hook.