

## - 规格书 -

产品型号: SEA-0204

产品名称: LED模组

# SM SWITCH CO.,LTD

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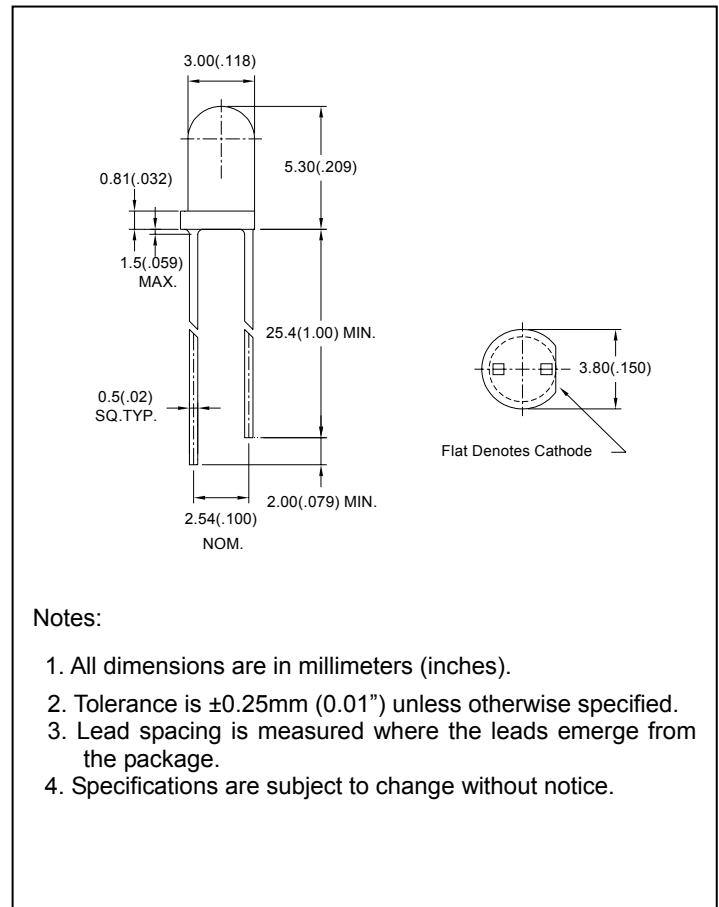
## ● Features:

1. Chip material: GaP/GaP
2. Emitted color : Green
3. Lens Appearance : Green Diffused
4. Low power consumption.
5. High efficiency.
6. Versatile mounting on P.C. Board or panel.
7. Low current requirement.
8. 3mm diameter package.
9. This product don't contained restriction substance, compliance ROHS standard.

## ● Applications:

1. TV set
2. Monitor
3. Telephone
4. Computer
5. Circuit board

## ● Package dimensions:



## ● Absolute Maximum Ratings( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Rating	Unit
Power Dissipation	$P_d$	80	mW
Forward Current	$I_F$	30	mA
Peak Forward Current* <sup>1</sup>	$I_{FP}$	150	mA
Reverse Voltage	$V_R$	5	V
Operating Temperature	$T_{opr}$	$-40^\circ\text{C} \sim 85^\circ\text{C}$	
Storage Temperature	$T_{stg}$	$-40^\circ\text{C} \sim 100^\circ\text{C}$	
Soldering Temperature	$T_{sol}$	260°C max (for 5 seconds)	
Hand Soldering Temperature	$T_{sol}$	350°C max(for 3 seconds )	

\*<sup>1</sup>Condition for  $I_{FP}$  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	$V_F$	$I_F=20mA$	-	2.2	2.6	V
Luminous Intensity	$I_v$	$I_F=20mA$	-	40	-	mcd
Reverse Current	$I_R$	$V_R=5V$	-	-	100	$\mu A$
Peak Wave Length	$\lambda_p$	$I_F=20mA$	-	568	-	nm
Dominant Wave Length	$\lambda_d$	$I_F=20mA$	560	-	576	nm
Spectral Line Half-width	$\Delta \lambda$	$I_F=20mA$	-	30	-	nm
Viewing Angle	$2\theta_{1/2}$	$I_F=20mA$	-	35	-	deg

## ● Typical electro-optical characteristics curves

Fig.1 Relative intensity vs. Wavelength

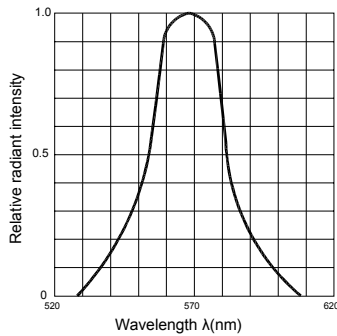


Fig.2 Forward current derating curve vs. Ambient temperature

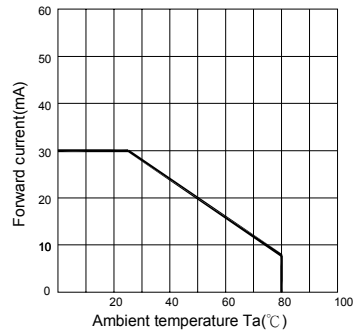


Fig.3 Forward current vs. Forward voltage

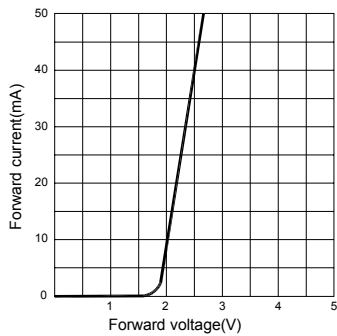


Fig.4 Relative luminous intensity vs. Ambient temperature

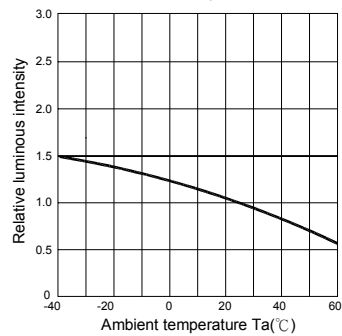


Fig.5 Relative luminous intensity vs. Forward current

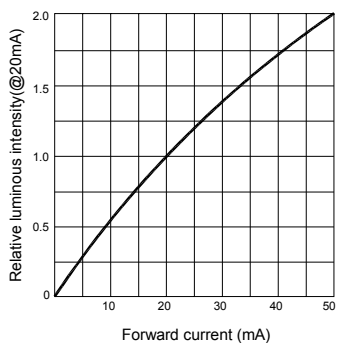
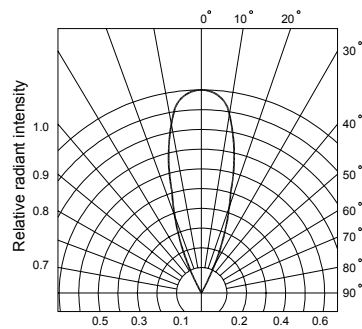


Fig.6 Radiation diagram



● **Bin Limits**

1. Intensity Bin Limits (At  $I_F = 20\text{mA}$ )

<b>Bin Code</b>	<b>Min. (mcd)</b>	<b>Max. (mcd)</b>
K	12.3	18.5
L	18.5	28
M	28	42
N	42	63
P	63	94

● Bin : x



NOTES: 1. Tolerance of measurement of luminous intensity.

: ±15%

## ● JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

Measuring items	Symbol	Measuring conditions	Judgement criteria for failure
Forward voltage	$V_F$	$I_f=20\text{mA}$	Over $U \times 1.2$
Reverse current	$I_r$	$V_r=5\text{V}$	Over $U \times 2$
Luminous intensity	$I_v$	$I_f=20\text{mA}$	Below $S \times 0.5$

Notes: 1.U means the upper limit of specified characteristics. S means initial value.

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.

## ● RELIABILITY TEST

O	Item	Test Condition	Test Hours/Cycles	Sample NO	Ac/Re
1	DC Operating Life	$I_f:20\text{mA}$	1000HRS	15PCS	0/1
2	High Temperature Storage	Temp: $100^\circ\text{C}$	1000HRS	15PCS	0/1
3	Low Temperature Storage	Temp: $-40^\circ\text{C}$	1000HRS	15PCS	0/1
4	High Temperature/High Humidity	$85^\circ\text{C}/90\%\text{RH}$	240HRS	15PCS	0/1
5	Temperature Cycle	H: $+85^\circ\text{C}$ 20min   5 min L: $-40^\circ\text{C}$ 20min	10 CYCLES	15PCS	0/1

## ● Lead Frame Dipping

The LED Lead Frame are dipped by Sn in order to protect the rust. Also the dipping thickness is Max  $5 \mu\text{m}$ . When soldering, leave 2.0mm of minimum clearance between the resin and the soldering point.

## ● DIP soldering (Wave Soldering)

Preheating :  $120^\circ\text{C}$ , within 120~180 sec.

Operation heating :  $255^\circ\text{C} \pm 5^\circ\text{C}$  within 5 sec.  $260^\circ\text{C}$  (Max)

Gradual Cooling (Avoid quenching).

