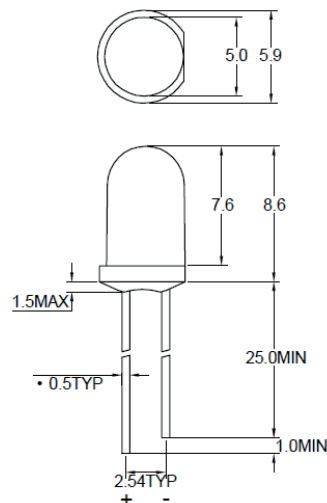


NMOP-10121

ROUND TYPE LED LAMPS



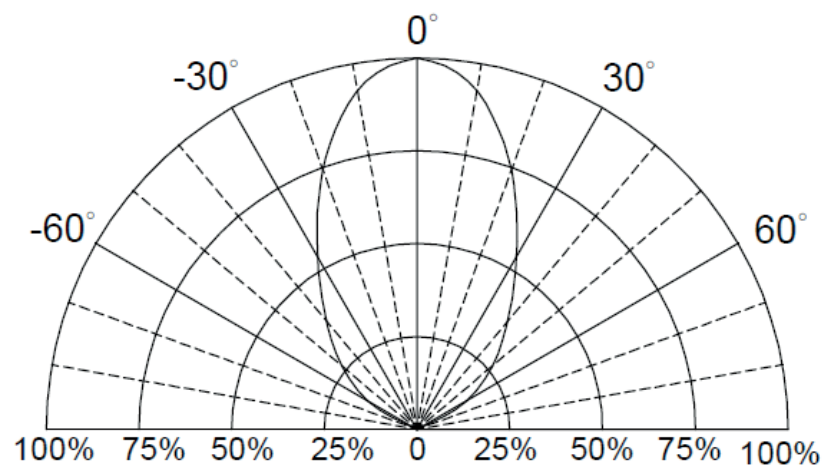
Package Dimensions:



Note :

1. All dimension are in millimeter tolerance is $\pm 0.2\text{mm}$ unless otherwise noted.
2. Specifications are subject to change without notice.

Directivity Radiation:



Absolute Maximum Ratings at Ta=25° C

Parameter	Symbol	Ratings	UNIT
		G	
Forward Current	I_F	30	mA
Peak Forward Current Duty 1/10@10KHz	I_{FP}	120	mA
Power Dissipation	PD	100	mW
Reverse Current @5V	I_r	10	μ A
Operating Temperature	T_{opr}	-40 ~+85	°C
Storage Temperature	T_{stg}	-40 ~+100	°C
Soldering Temperature	T_{sol}	Max 260°C for 5 sec Max (2mm from body)	

Typical Electrical & Optical Characteristics (Ta=25° C)

PART NO	MATERIAL	Color		Peak wave-length λ_P nm	Spectral halfwidth $\Delta \lambda$ nm	Forward voltage @20mA(V)		Luminous intensity @10mA(mcd)		Viewing angle $2 \theta_{1/2}$ (deg)
		Emitted	Lens			Min.	Max.	Min.	Typ.	
NMOP-10121	GaP	Green	Green Diffused	565	30	1.7	2.6	12	30	68

Note :

1. The forward voltage data did not including $\pm 0.1V$ testing tolerance.
2. The luminous intensity data did not including $\pm 15\%$ testing tolerance.

Typical Electro-Optical Characteristics Curve

G CHIP

Fig.1 Forward current vs. Forward Voltage

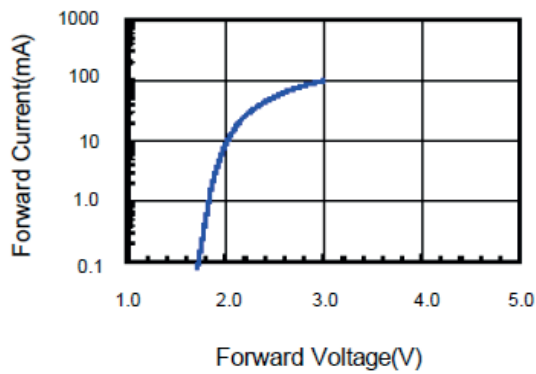


Fig.2 Relative Intensity vs. Forward Current

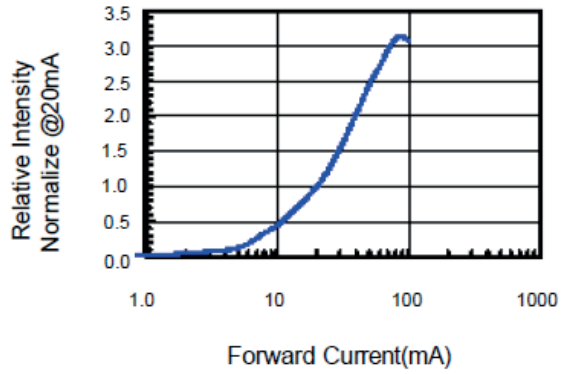


Fig.3 Forward Voltage vs. Temperature

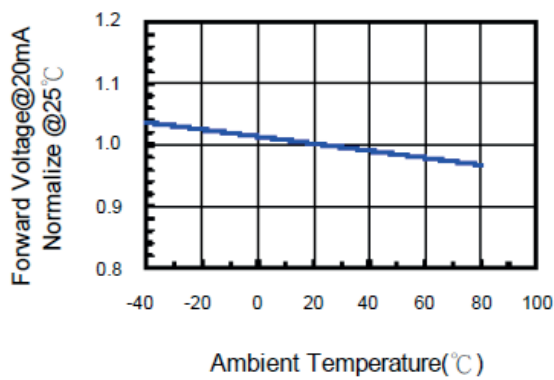


Fig.4 Relative Intensity vs. Temperature

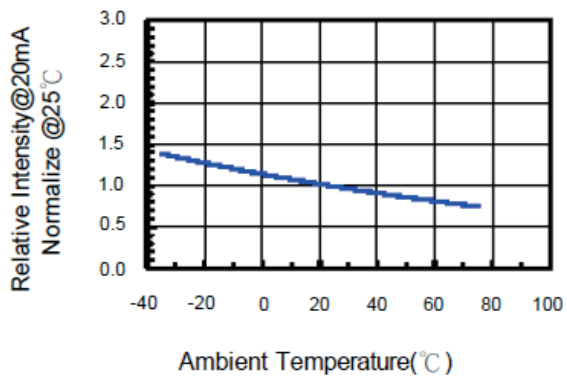
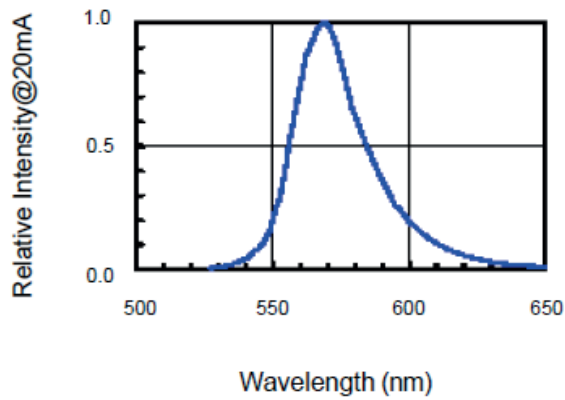


Fig.5 Relative Intensity vs. Wavelength



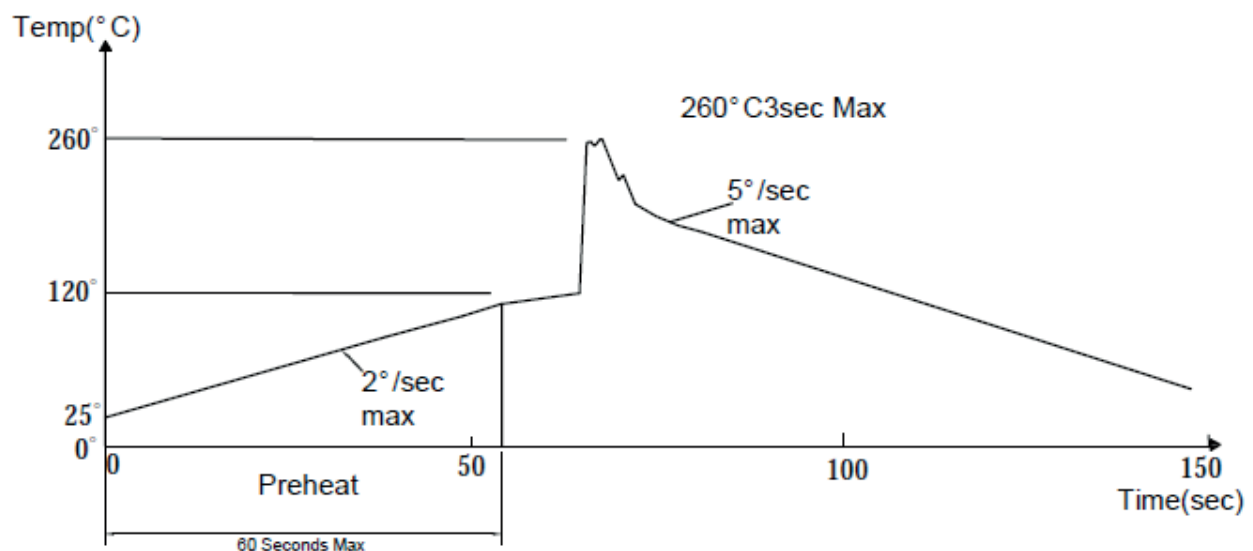
Soldering Conditions (Pb-Free)

1. Iron

Soldering Iron: 30W Max
 Temperature 350°C Max
 Soldering Time: 3 Seconds Max (One Time)
 Distance: 2mm Min (From solder joint to body)

2. Wave Soldering Profile

Dip Soldering
 Preheat: 120°C Max
 Preheat time: 60 seconds Max
 Ramp-up
 2°C/sec (max)
 Ramp-Down: -5°C/sec (max)
 Solder Bath: 260°C Max
 Dipping Time: 3 seconds Max
 Distance: 2mm Min (From solder joint to body)



Reliability Test:

Test Item	Test Condition	Description	Reference Standard
Operating Life Test	1. Under Room Temperature 2. $I_f=20\text{mA}$ 3. $t=1000\text{ hrs (-24hrs, +72hrs)}$	This test is conducted for the purpose of determining the resistance of a part in electrical and thermal stressed.	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
High Temperature Storage Test	1. $T_a = 105^\circ\text{C} \pm 5^\circ\text{C}$ 2. $t = 1000\text{hrs (-24hrs, +72 hrs)}$	The purpose of this is the resistance of the device which is laid under condition of high temperature for hours.	MIL-STD-883:1008 JIS C 7021: B-10
Low Temperature Storage Test	1. $T_a = -40^\circ\text{C} \pm 5^\circ\text{C}$ 2. $t = 1000\text{hrs (-24hrs, +72 hrs)}$	The purpose of this is the resistance of the device which is laid under condition of low temperature for hours.	JIS C 7021: B-12
High Temperature High Humidity Test	1. $T_a = 65^\circ\text{C} \pm 5^\circ\text{C}$ 2. RH = 90%~95% 3. $t = 240\text{hrs} (\pm 2\text{hrs})$	The purpose of this test is the resistance of the device under tropical for hours.	MIL-STD-202:103B JIS C 7021: B-11
Thermal Shock Test	1. $T_a = 105^\circ\text{C} \pm 5^\circ\text{C} \ \& \ -40^\circ\text{C} \pm 5^\circ\text{C}$ (10 min) (10 min) 2. total 10 cycles	The purpose of this is the resistance of the device to sudden extreme changes in high and low temperature.	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1011
Solder Resistance Test	1. $T_{\text{sol}} = 260^\circ\text{C} \pm 5^\circ\text{C}$ 2. Dwell time = $10 \pm 1\text{sec}$.	This test intended to determine the thermal characteristic resistance of the device to sudden exposures at extreme changes in temperature when soldering the lead wire.	MIL-STD-202: 210A MIL-STD-750: 2031 JIS C 7021: A-1
Solderability Test	1. $T_{\text{sol}} = 230^\circ\text{C} \pm 5^\circ\text{C}$ 2. Dwell time = $5 \pm 1\text{sec}$.	This test intended to see soldering well performed or not.	MIL-STD-202: 208D MIL-STD-750: 2026 MIL-STD-883: 2003 JIS C 7021: A-2