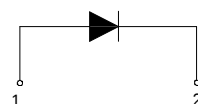
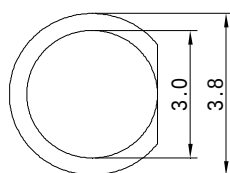


ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- $\phi 3$ LAMP LED
- LOW POWER CONSUMPTION.
- CABINED VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- PACKAGE: 1000PCS / BAG.

Package Dimensions



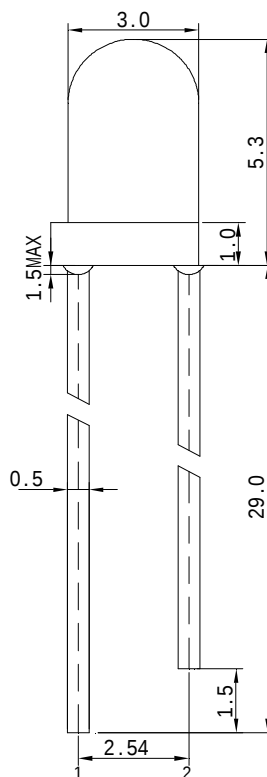
1: ANODE
2: CATHODE

HL-304S220D



Description

This devices are made with TS AlGaInP



Tolerance Grade	Dimension Tolerance (UNIT:mm)			
	0.5~3	3~6	6~30	30~120
Medium(m)	± 0.1	± 0.2	± 0.3	± 0.5
Chip		Lens Color		
Material	Emitting Color	Color Diffused		
AlGaInP	Orange			

■ Absolute Maximum Rating

Item	Symbol	Absolute Maximum Rating	Unit
Forward Current	I _F	20	mA
Peak Forward Current*	I _{FP}	100	mA
Reverse Voltage	V _R	5	V
Power Dissipation	P _D	80	mW
Electrostatic discharge	E _{SD}	2000	V
Operation Temperature	T _{opr}	-30~+80	°C
Storage Temperature	T _{stg}	-30~+80	°C
Lead Soldering Temperature*	T _{sol}	Max. 260°C for 5sec Max.	

*I_{FP} Conditions: Pulse Width ≤ 10msec

*T_{sol} Conditions: 3mm from the base of the epoxy bulb

■ Typical Optical/ Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V _F	I _F =20mA	1.8	2.2	2.6	V
50% Power Angle	2θ 1/2		--	40	--	deg
Luminous Intensity	I _v		350	460	--	mcd
Prpc Wavelength	λ _D		600	--	610	nm
Recommend Forward Current	I _F (rec)	--	--	--	20	mA
Reverse Current	I _R	V _r =5V	--	--	20	uA

Notes:

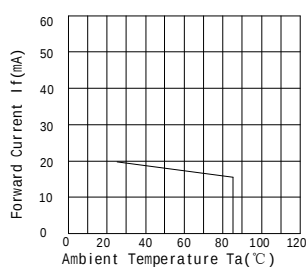
1. Absolute maximum ratings Ta=25°C.
2. Tolerance of measurement of forward voltage ± 0.1V.
3. Tolerance of measurement of peak Wavelength ± 2.0nm.
4. Tolerance of measurement of luminous intensity ± 15%.
5. Tolerance of measurement of angle intensity ± 15%.

Reliability Performance Test Items And Result

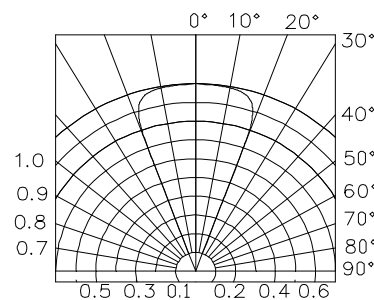
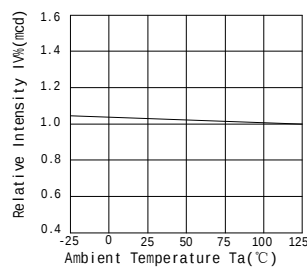
Test Classification	Test Item	Test Conditions	Test Duration	Sample Size	AC/RE
Life Test	Room Temperature DC Operating Life Test	$T_a=25^{\circ}\text{C}\pm 5^{\circ}\text{C}$, $I_F=20\text{mA}$	1000 hrs	22 pcs	0/1
Environment Test	Thermal Shock Test	$100^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 5min $\uparrow\downarrow$ $-40^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 5min.	100 cycles	22 pcs	0/1
	Temperature Cycle Test	$100^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 30min $\uparrow\downarrow$ 5min $-40^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 30min.	100 cycles	22 pcs	0/1
	High Temperature & High Humidity Test	$85^{\circ}\text{C}\pm 5^{\circ}\text{C}/85\%\text{RH}$ $I_F=5\text{mA}$	1000 hrs	22pcs	0/1
	High Temperature Storage	$T_a=100^{\circ}\text{C}\pm 5^{\circ}\text{C}$	1000 hrs	22 pcs	0/1
	Low Temperature Storage	$T_a=-40^{\circ}\text{C}\pm 5^{\circ}\text{C}$	1000 hrs	22 pcs	0/1
Mechanical Test	Resistance to Soldering Heat	Temp= 260°C max T=5sec max	1times	22 pcs	0/1
	Lead Integrity	Load $2.5\text{N}(0.25\text{kgf})$ $0^{\circ} \sim 90^{\circ} \sim 0^{\circ}$	3times	22 pcs	0/1

The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced. It does not constitute the warranting of industrial property nor the granting of any license.

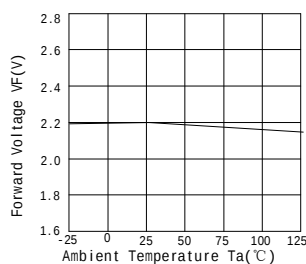
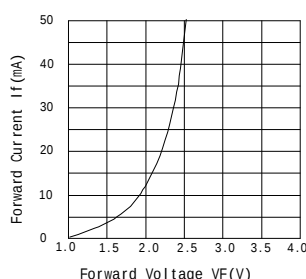
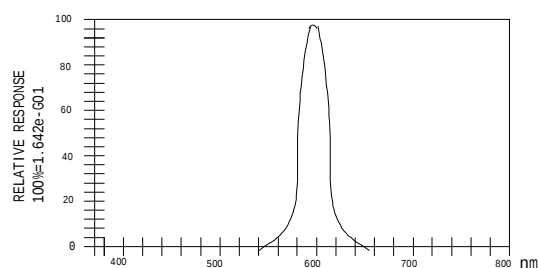
Forward Current vs. Ambient Temperature



Relative Intensity vs. Ambient Temperature



Forward Current vs. Forward Voltage


Luminous Spectrum ($T_a=25^{\circ}\text{C}$) SPECTRAL RADIANCE


Soldering:

1. Manual Of Soldering

The temperature of the iron tip should not be higher than 260°C (500°F) and Soldering within 3 seconds per solder-land is to be observed.

2. DIP soldering (Wave Soldering):

Preheating: $120^{\circ}\text{C} \sim 150^{\circ}\text{C}$, within 120~180 sec.

Operation heating: $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ within 5 sec. 260°C (Max)

Gradual Cooling (Avoid quenching).

