



Pb-free  
HEAT

**STANLEY**

# H-□000L Series

Single Color Ultra High Brightness  $\phi$  5 Type

## Features

Package	$\phi$ 5 Round shape type, Water Clear epoxy
Product features	<ul style="list-style-type: none"><li>• Outer Dimension <math>\phi</math> 5 Round shape type</li><li>• Operation temperature range. Storage Temperature : -30°C~100°C Operating Temperature : -30°C~85°C</li><li>• Lead-free soldering compatible</li><li>• RoHS compliant</li></ul>
Dominant wavelength	647 nm
Half Intensity Angle	10 deg.
Die materials	GaAlAs
Soldering methods	TTW (Through The Wave) soldering and manual soldering
ESD	More than 2kV(HBM)
Packing	Bulk : 200pcs(MIN.)

## Recommended Applications

Amusement Equipment, Electric Household Appliances, OA/FA, Other General Applications

## Color and Luminous Intensity

(Ta=25°C)

Part No.	Material	Emitted Color	Lens Color		Dominant Wavelength $\lambda d$ (nm)		Luminous Intensity		
					TYP.	I <sub>F</sub>	MIN.	TYP.	I <sub>F</sub>
					Iv (mcd)				
H-3000L	GaAlAs	Red	Water Clear	Clear	647	20	2,400	3,000	20
H-2000L	GaAlAs	Red			647	20	1,400	2,000	20
H-1000L	GaAlAs	Red			647	20	700	1,000	20

## Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings	Unit
Power Dissipation	$P_d$	125	mW
Forward Current	$I_F$	50	mA
Pulse Forward Current ※1	$I_{FRM}$	300	mA
Derating (Ta=25°C or higher)	$\Delta I_F$	0.67	mA/°C
Reverse Voltage	$V_R$	4	V
Operating Temperature	$T_{opr}$	-30~+85	°C
Storage Temperature	$T_{stg}$	-30~+100	°C

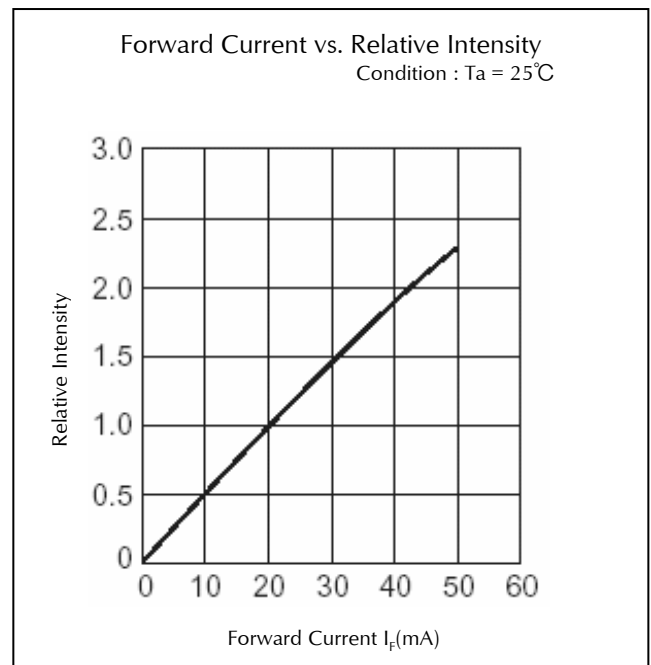
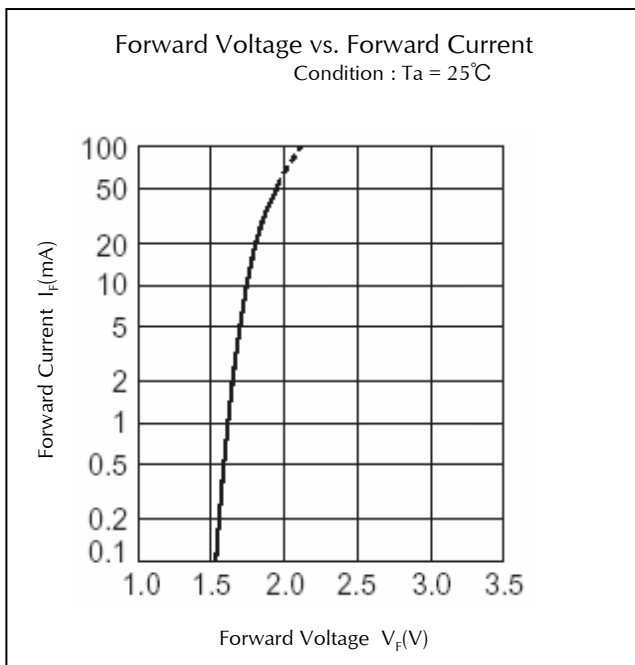
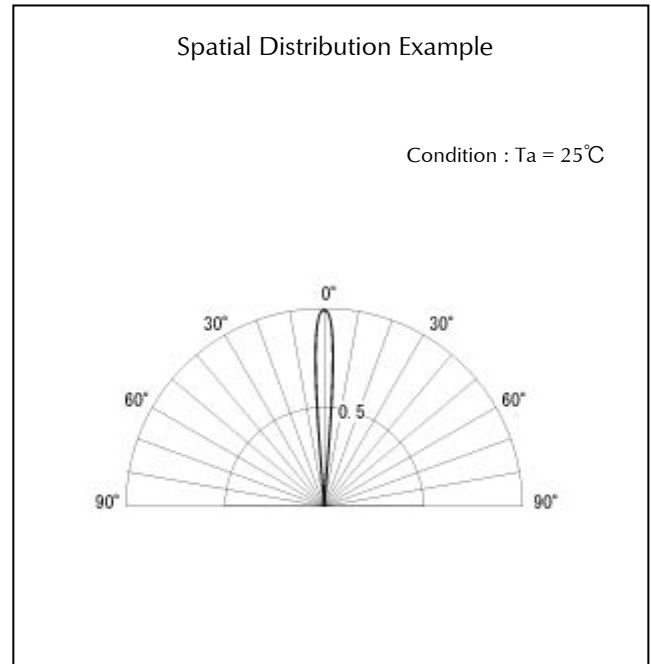
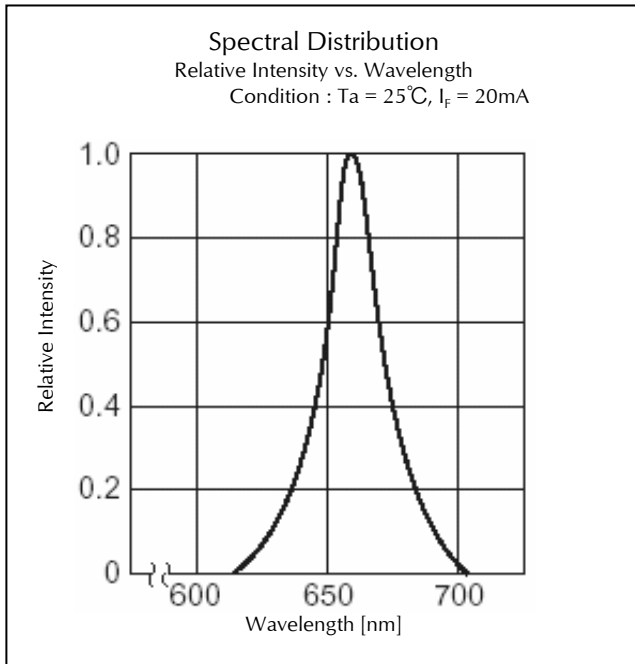
 ※1  $I_{FRM}$  Measurement condition : Pulse Width  $\leq 1$ ms., Duty  $\leq 1/20$ .

## Electro-Optical Characteristics

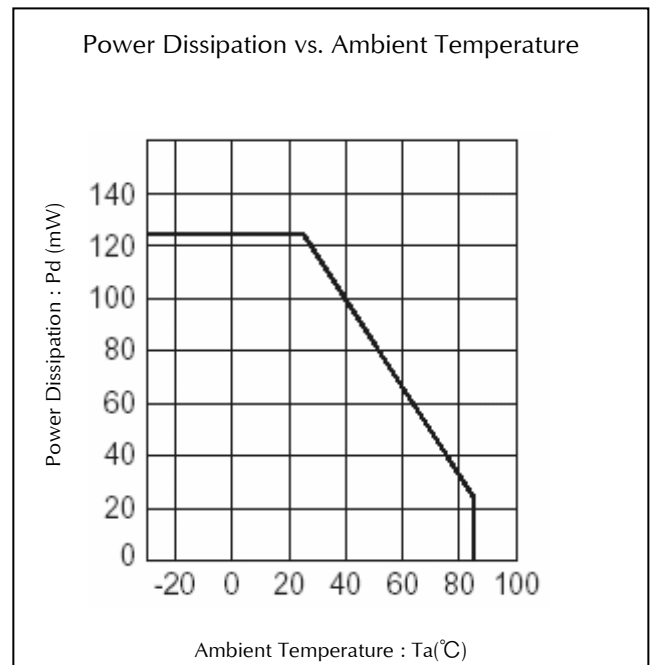
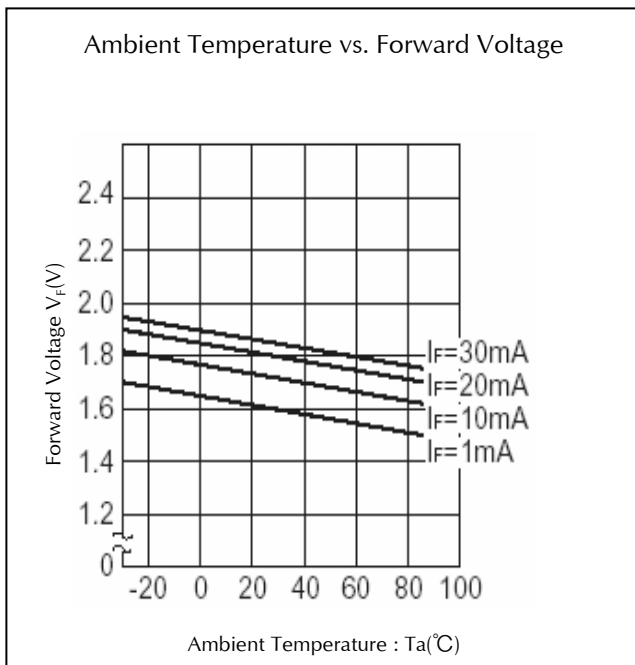
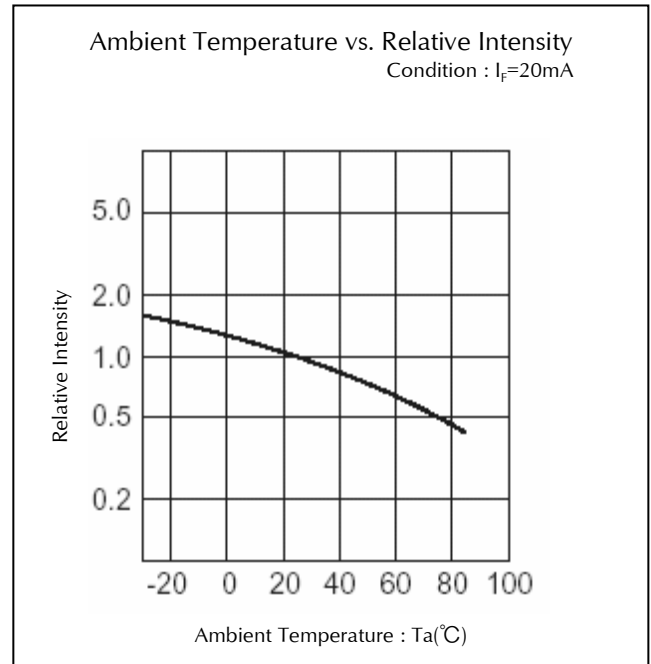
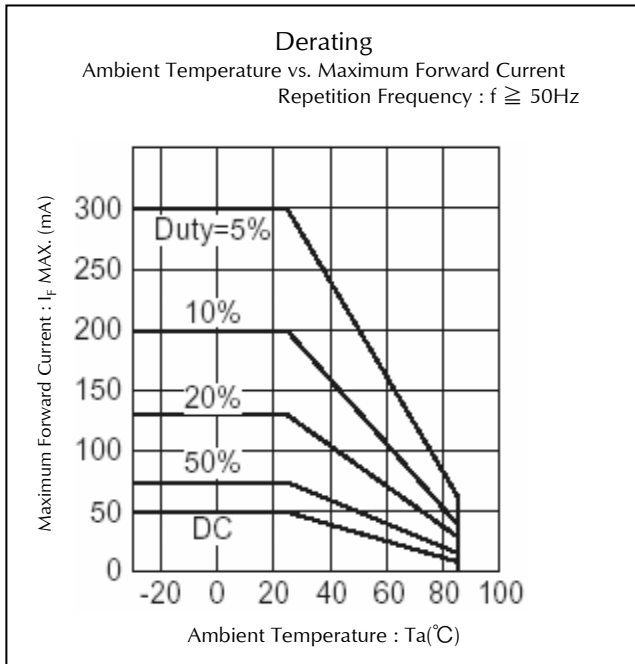
(Ta=25°C)

Item	Conditions	Symbol	Characteristics		Unit
Forward Voltage	I <sub>F</sub> =20mA	V <sub>F</sub>	TYP.	1.8	V
			MAX.	2.5	
Reverse Current	V <sub>R</sub> =4V	I <sub>R</sub>	MAX.	100	μ A
Peak Wavelength	I <sub>F</sub> =20mA	λ <sub>p</sub>	TYP.	660	nm
Dominant Wavelength	I <sub>F</sub> =20mA	λ <sub>d</sub>	TYP.	647	nm
Spectral Line Half Width	I <sub>F</sub> =20mA	Δλ	TYP.	25	nm
Half Intensity Angle	I <sub>F</sub> =20mA	2θ 1/2	TYP.	10	deg.

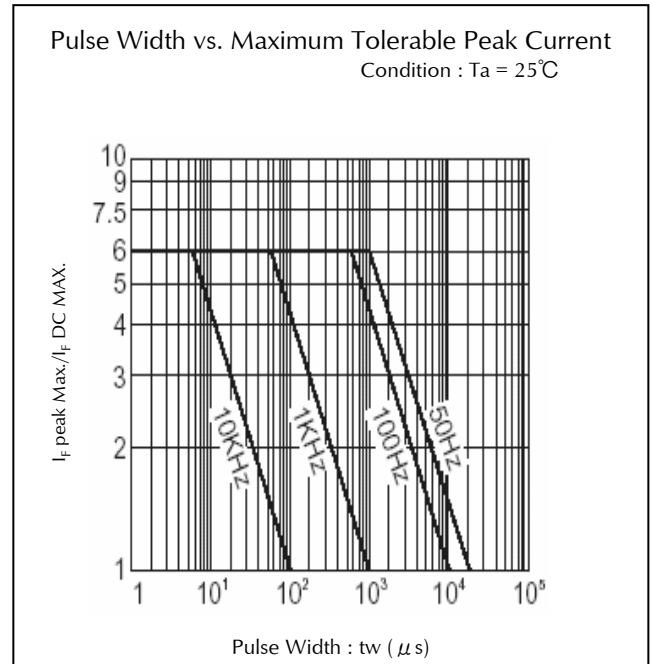
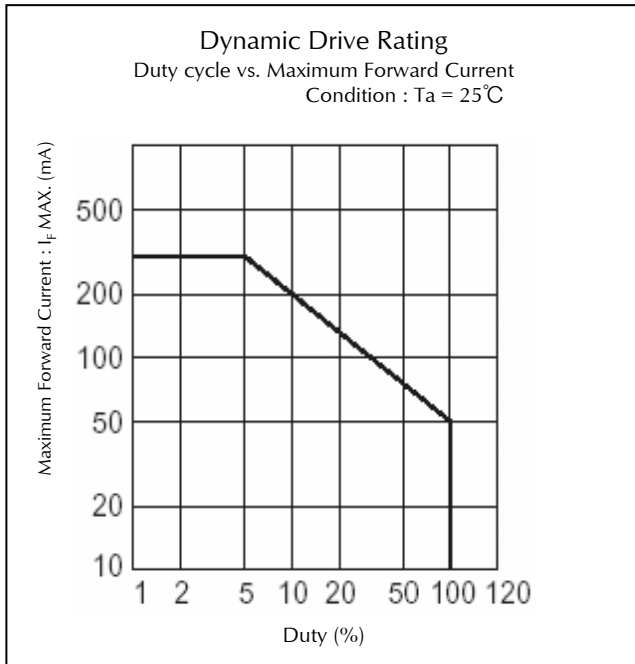
## Technical Data



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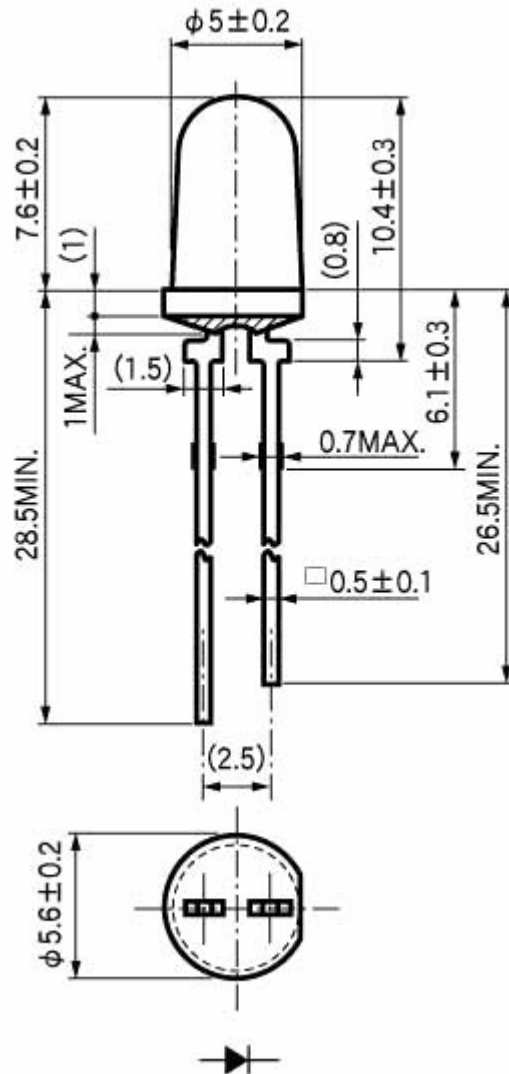


## Technical Data



## Package Dimensions

(Unit: mm)





## TTW (Through The Wave) soldering Conditions

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Pre-heating	100 °C	(MAX.)
Solder Bath Temp.	265°C	(MAX.)
Dipping Time	5 s	(MAX.)

- 1) The dip soldering process shall be 2 times maximum.
- 2) The product shall be cooled to room temp. before the second dipping process.
  - ※The detail is described to LED and Photodetector handling precautions of home page:  
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

## Manual Soldering Conditions

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Iron tip temp.	400°C	(MAX.)
Soldering time and frequency	3 s	(MAX.)
	2 times	(MAX.)

- ※The detail is described to LED and Photodetector handling precautions of home page:  
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

## Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25°C, If = Maximum Rated Current	1,000 h	0/25
Resistance to Soldering Heat	EIAJ ED-4701/300(302)	260±5°C, 3mm from package base	10s	0/25
Temperature Cycling	EIAJ ED-4701/100(105)	Minimum Rated Storage Temperature(30min) ~Normal Temperature(15min) ~Maximum Rated Storage Temperature(30min) ~Normal Temperature(15min)	5 cycles	0/25
Wet High Temp. Storage Life	EIAJ ED-4701/100(103)	Ta = 60±2°C, RH = 90±5%	1,000 h	0/25
High Temp. Storage Life	EIAJ ED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/25
Low Temp. Storage Life	EIAJ ED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/25
Lead Tension	EIAJ ED-4701/400(401)	10N, 1time (□0.4 and Flat Package : 5N)	10s	0/10
Vibration, Variable Frequency	EIAJ ED-4701/400(403)	98.1m/s <sup>2</sup> (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction	2 h	0/10

## Failure Criteria

Items	Symbols	Conditions	Failure criteria
Luminous Intensity	Iv	If Value of each product Luminous Intensity	Testing Min. Value < Spec. Min. Value x 0.5
Forward Voltage	V <sub>F</sub>	If Value of each product Forward Voltage	Testing Max. Value ≥ Spec. Max. Value x 1.2
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = Maximum Rated Reverse Voltage V	Testing Max. Value ≥ Spec. Max. Value x 2.5
Cosmetic Appearance	-	-	Occurrence of notable decoloration, deformation and cracking

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