

# SPECIFICATIONS

GLS R4-P13-V2

## 1. Part Code

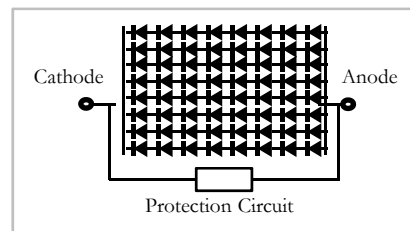
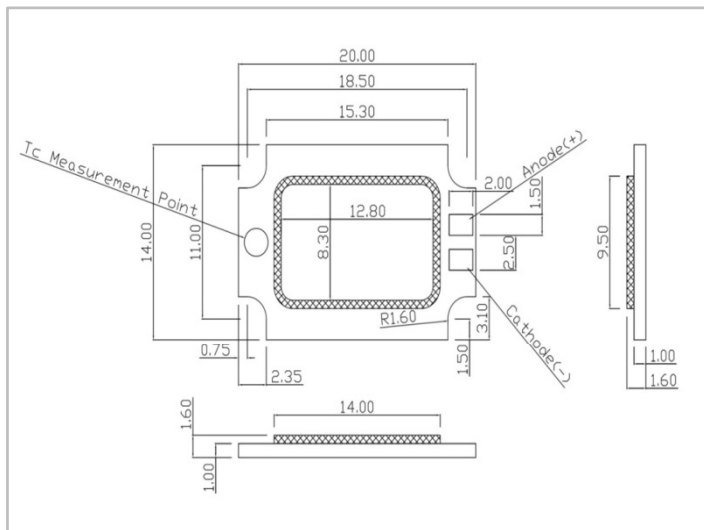
**GLS - R4 - P13 - V2**

Series \_\_\_\_\_  
R4: High Power LED for General Lighting

Power Class \_\_\_\_\_  
P13: 13 Watt Package

Revision Symbol \_\_\_\_\_  
V2: 2<sup>nd</sup> Edition

## 2. Drawing



# SPECIFICATIONS

GLS R4-P13-V2

## 3. Performance

### 3-1. Absolute Maximum Rating

Parameter	Symbol	Rating Value	Unit
Power Dissipation	$P_D$	18	W
Forward Current *	$I_F$	720	mA
Forward Pulse Current	$I_{FP}$	1,440	mA
Reverse Current **	$I_R$	0.1	mA
Operating Temperature	$T_{OP}$	-35 ~ +85	°C
Storage Temperature	$T_{ST}$	-40 ~ +100	°C
Junction Temperature ***	$T_{J\_MAX}$	120	°C

\* Forward Current : Duty  $\leq 1/10$ , Pulse Width  $\leq 10$  ms

\*\* Reverse Current : @  $V_R = 10$  V

\*\*\* Junction Temperature :  $T_j = T_c + R_{th(j-c)} \times P_D$

- $T_c$  : Case Temperature
- $R_{th(j-c)}$  : Thermal Resistance (Junction to Case) [°C/W]

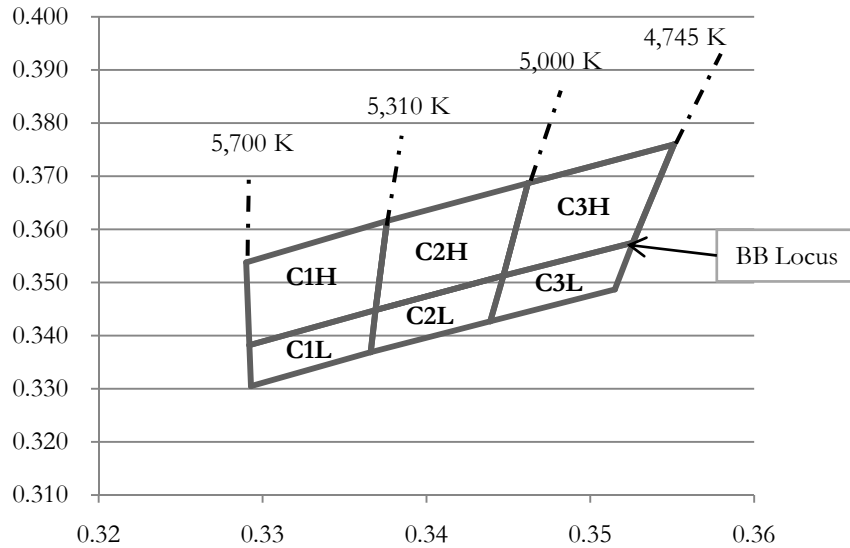
### 3-2. Electro-Optical Characteristics ( $I_F=540$ mA, $T_C=25$ °C)

Parameters	Symbol	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	22	24	26	V
Luminous Flux	$\Phi_V$	1,000	1,290	-	lm
Rendering Index	Ra		70		-
Thermal Resistance	$R_{th(j-c)}$	-	2	-	°C/W

# SPECIFICATIONS

GLS R4-P13-V2

### 3-3. Color Coordinates ( $I_F=540\text{mA}$ , $T_C=25\text{ }^\circ\text{C}$ )



Color Rank	x	y	Color Rank	x	y	Color Rank	x	y
C1H	0.3376	0.3616	C2H	0.3462	0.3687	C2H	0.3551	0.3760
	0.3290	0.3538		0.3376	0.3616		0.3462	0.3687
	0.3292	0.3382		0.3369	0.3448		0.3447	0.3513
	0.3369	0.3448		0.3447	0.3513		0.3526	0.3575
C1L	0.3369	0.3448	C2L	0.3447	0.3513	C2L	0.3526	0.3575
	0.3292	0.3382		0.3369	0.3448		0.3447	0.3513
	0.3293	0.3305		0.3366	0.3369		0.3439	0.3427
	0.3366	0.3369		0.3439	0.3427		0.3515	0.3487

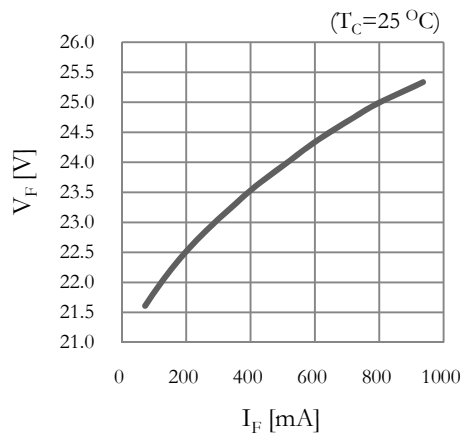
NOTE: The Tolerance of Measurement is  $V_F \pm 3\%$ ,  $\Phi_V \pm 5\%$ , C.I.E.(x, y)  $\pm 0.01$

# SPECIFICATIONS

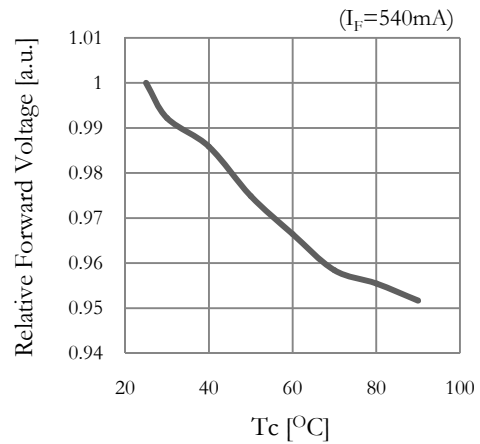
GLS R4-P13-V2

## 4. Characteristics

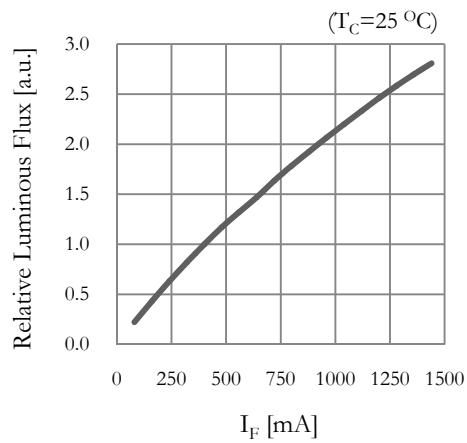
- Forward Current vs. Forward Voltage



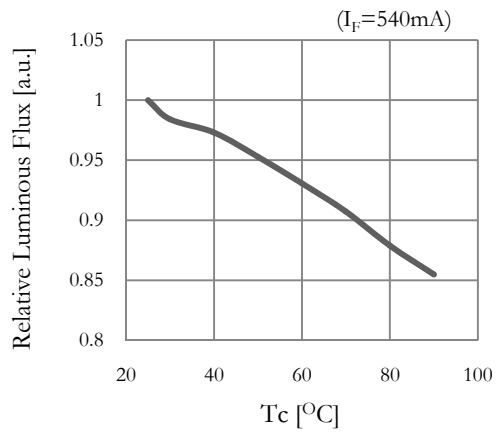
- Case Temp. vs. Relative Forward Voltage



- Forward Current vs. Relative Luminous Flux



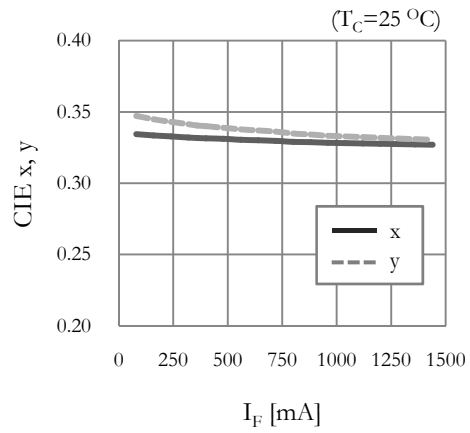
- Case Temp. vs. Relative Luminous Flux



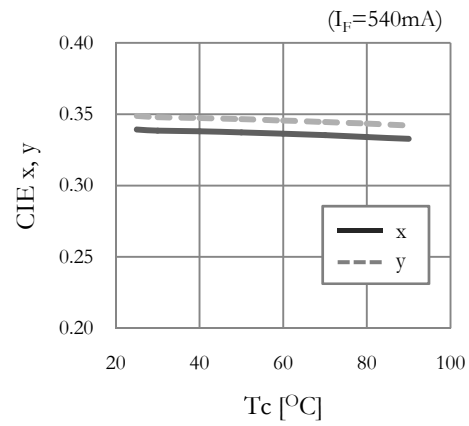
# SPECIFICATIONS

GLS R4-P13-V2

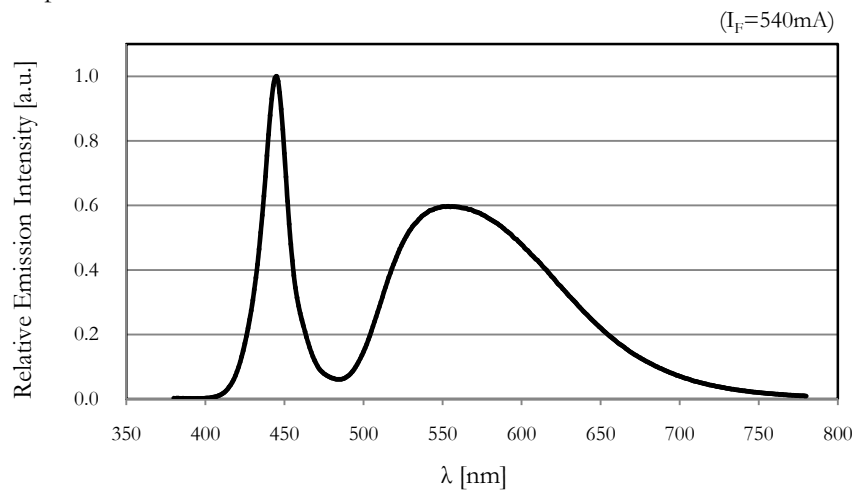
- Forward Current vs. Color Coordinates



- Case Temp. vs. Color Coordinates



- Spectrum



# SPECIFICATIONS

GLS R4-P13-V2

## 5. Reliability

### 5-1. Details of the Tests

Test Items	Test Condition
Continuous Operation Test	Ta=-25°C, IF=540 mA x 1,000 hours(with Al-fin)
	Ta=50°C, IF=540mA x 1,000 hours(with Al-fin)
Low Temp. Storage Test	-40°C x 1,000 hours
High Temp. Storage Test	100°C x 1,000 hours
Moisture-proof Test	60°C, 90% RH for 1,000 hours
Thermal Shock Test	-40°C x 30 minutes↔100°C x 30 minutes, 100 cycle

Ta: Ambient Temperature

### 5-2. Judgment Criteria of Failure for Reliability Test

Measuring Item	Symbol	Measuring Condition	Judgment Criteria for Failure
Forward Voltage	$V_F$	$I_F=540\text{mA}$	$> U \times 1.1$
Luminous Flux	$\Phi_V$	$I_F=540\text{mA}$	$< S \times 0.85$

U: The upper limit of the specified characteristics

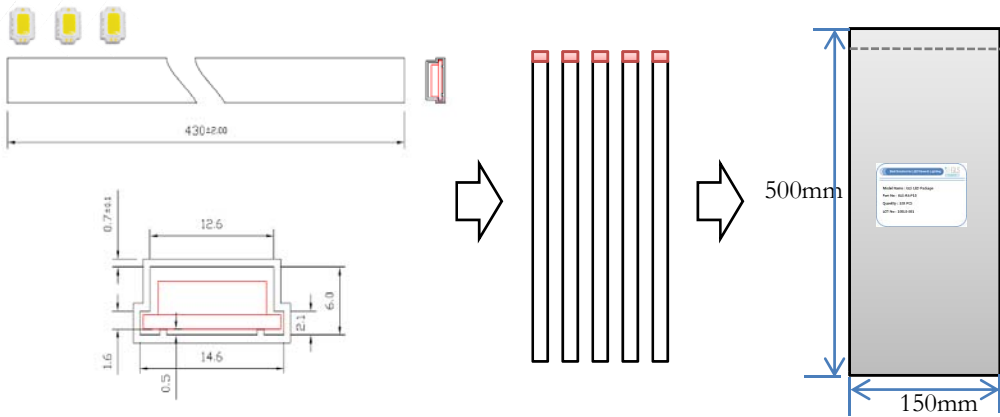
S: The initial value

# SPECIFICATIONS

GLS R4-P13-V2

## 6. Packing

A tube has 20 pieces and an AL bag contains 5 tubes.  
A box includes 2 AL bag.



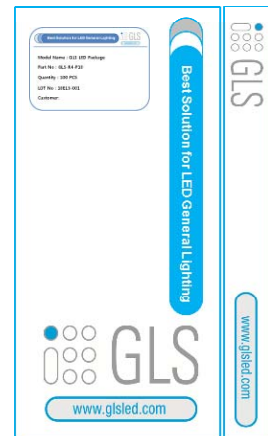
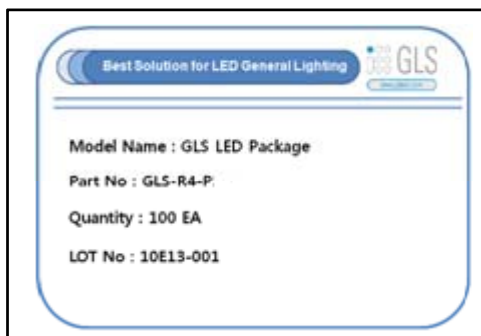
[Product 20 pcs/tube]

[Product 100 pcs/AL bag]

Tray (Dimension: 14.6 x 430 x 6.0mm<sup>3</sup> / Material: PET )



< Example of Label >



[Product 200pcs/Box]