

TOSHIBA LED Lamp InGaAlP Red Light Emission

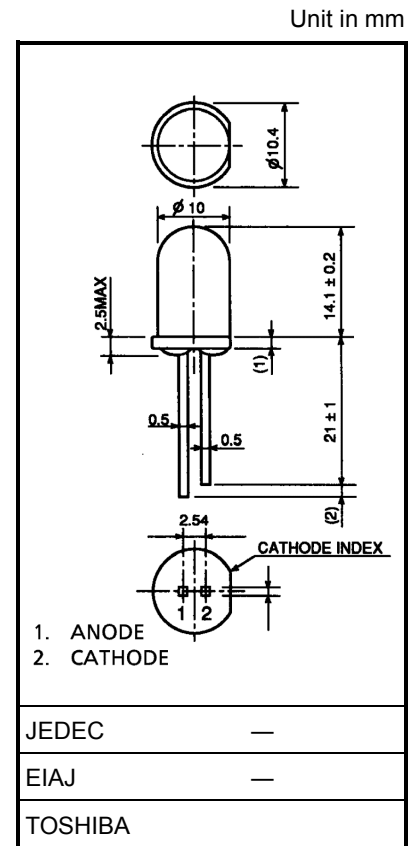
## TLRH190P

### Panel Circuit Indicator

- 10 mm diameter
- InGaAlP red LED
- All plastic mold type.
- Colorless clear lens
- Low drive current, high intensity red light emission  
Recommended forward current:  $I_F = 1 \sim 20 \text{ mA}$  (DC)
- All plastic molded lens, provides an excellent on-off contrast ratio.
- Fast response time, capable of pulse operation.
- High power luminous intensity
- Without stand-offs
- Applications: Suitable for outdoor message signboard, safety equipment.

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

Characteristic	Symbol	Rating	Unit
Forward current (DC)	$I_F$	50	mA
Reverse voltage	$V_R$	4	V
Power dissipation	$P_D$	125	mW
Operating temperature range	$T_{opr}$	$-30 \sim 85$	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	$-40 \sim 120$	$^\circ\text{C}$



Weight: 1.0 g

### Electrical And Optical Characteristics ( $T_a = 25^\circ\text{C}$ )

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage		$V_F$	$I_F = 20 \text{ mA}$	—	1.9	2.5	V
Reverse current		$I_R$	$V_R = 4 \text{ V}$	—	—	50	$\mu\text{A}$
Luminous intensity	TLRH190P	$I_V$	$I_F = 20 \text{ mA}$ (Note)	4760	19000	—	mcd
	TLRH190P (WX)			8500	—	41400	
Peak emission wavelength		$\lambda_P$	$I_F = 20 \text{ mA}$	—	644	—	nm
Spectral line half width		$\Delta\lambda$	$I_F = 20 \text{ mA}$	—	18	—	nm
Dominant wavelength		$\lambda_d$	$I_F = 20 \text{ mA}$	—	630	—	nm

(Note): Lamps are classified into the following ranks according to their luminous intensity.

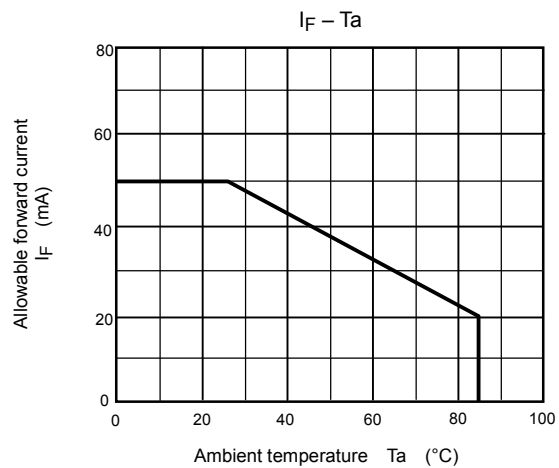
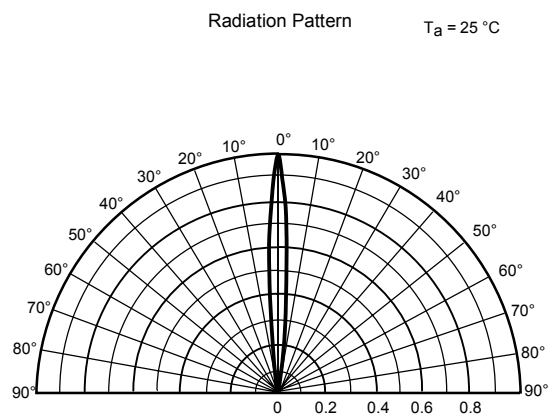
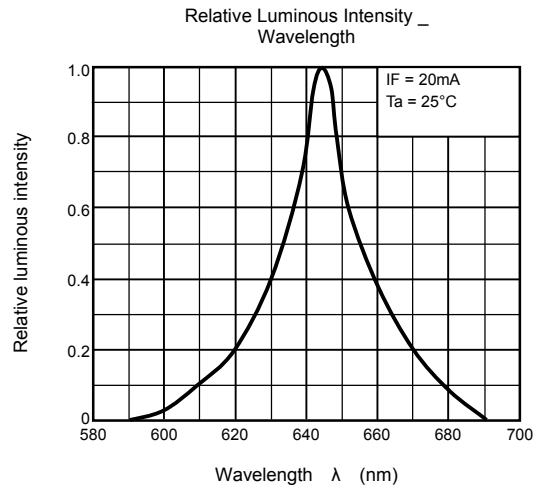
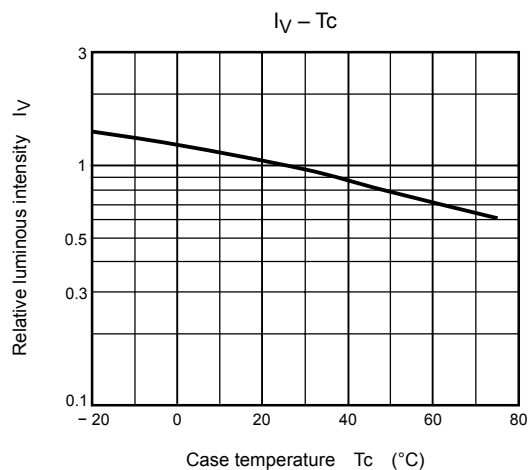
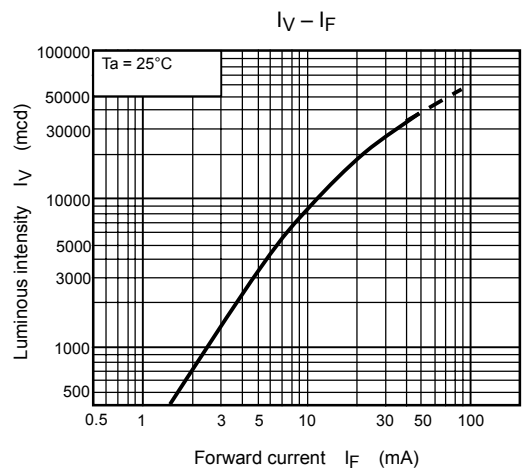
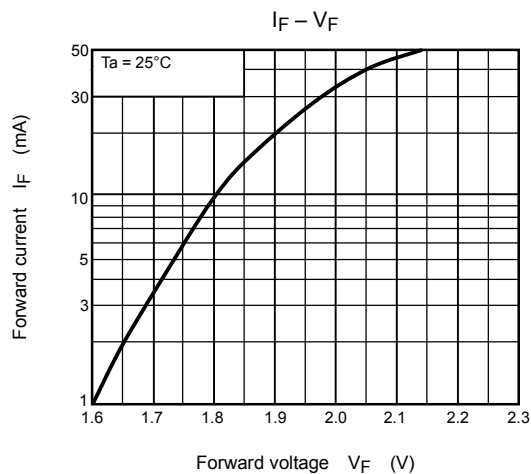
Measurement tolerance for each limit is  $\pm 15\%$ .

V: 5600–11200mcd, W: 10000–20000mcd, X: 18000–36000mcd.

**Precaution**

Please be careful of the followings

- Soldering temperature: 260°C max                      Soldering time: 3 s max  
(Soldering portion of lead: Up to 2 mm from the body of the device)
- If the lead is formed, the lead should be formed up to 5 mm from the body of the device without forming stress to the resin. Soldering should be performed after lead forming.
- This visible LED lamp also emits some IR light. If a photodetector is located near the LED lamp, please ensure that it will not be affected by this IR light.



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