

TOSHIBA LED Lamp InGaAlP Red Light Emission

# TLRMK31T(F)

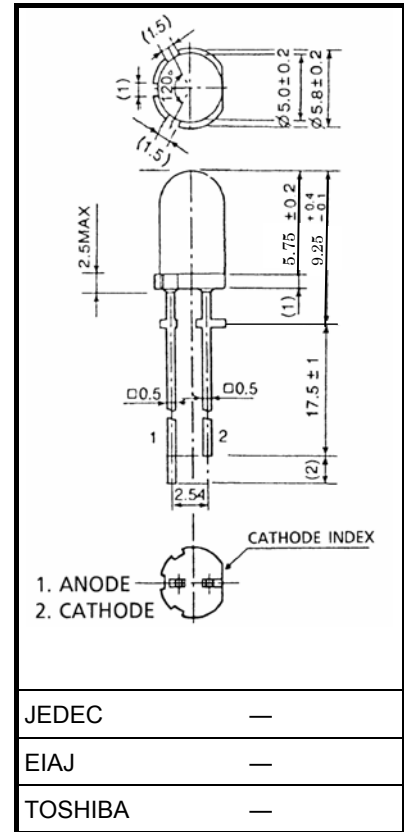
## Panel Circuit Indicator

- Lead(Pb)-free products (lead: Sn-Ag-Cu)
- 5 mm package
- InGaAlP technology
- Transparent lens
- Low drive current, high intensity red light emission  
 Recommended forward current:  $I_F = 10\sim 30$  mA (DC)
- All plastic molded lens, provides an excellent on-off contrast ratio.
- Fast response time, capable of pulse operation.
- Applications: outdoor message signboards, Traffic signals, Safety equipment, HMSL, etc
- Straight lead type is also available.      TLRMK31TP(F)

## Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Forward current (DC)	$I_F$	50	mA
Reverse voltage	$V_R$	4	V
Power dissipation	$P_D$	130	mW
Operating temperature range	$T_{opr}$	-40~100	°C
Storage temperature range	$T_{stg}$	-40~120	°C

Unit in mm



Weight: 0.28 g



For part availability and ordering information please call Toll Free: 800.984.5337  
 Website: [www.marktechopto.com](http://www.marktechopto.com) | Email: [info@marktechopto.com](mailto:info@marktechopto.com)

## Electrical And Optical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_F$	$I_F = 20 \text{ mA}$	1.9	2.4	2.6	V
Reverse current	$I_R$	$V_R = 4 \text{ V}$	—	—	50	$\mu\text{A}$
Luminous intensity	$I_V$	$I_F = 20 \text{ mA}$ (Note)	850	3000	—	mcd
Peak emission wavelength	$\lambda_P$	$I_F = 20 \text{ mA}$	—	(636)	—	nm
Spectral line half width	$\Delta\lambda$	$I_F = 20 \text{ mA}$	—	13	—	nm
Dominant wavelength	$\lambda_d$	$I_F = 20 \text{ mA}$ (Note)	—	626	—	nm

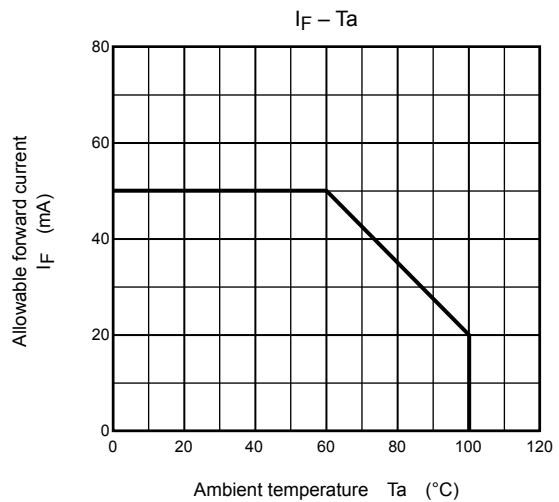
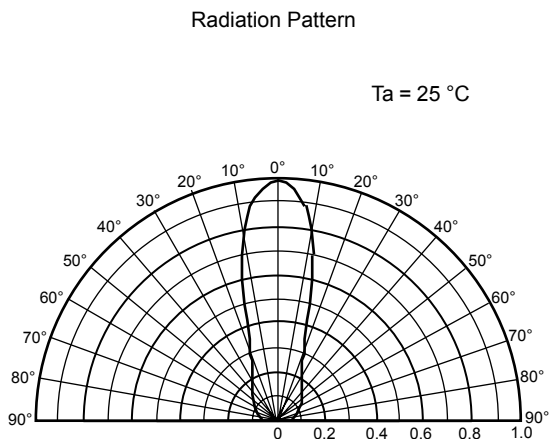
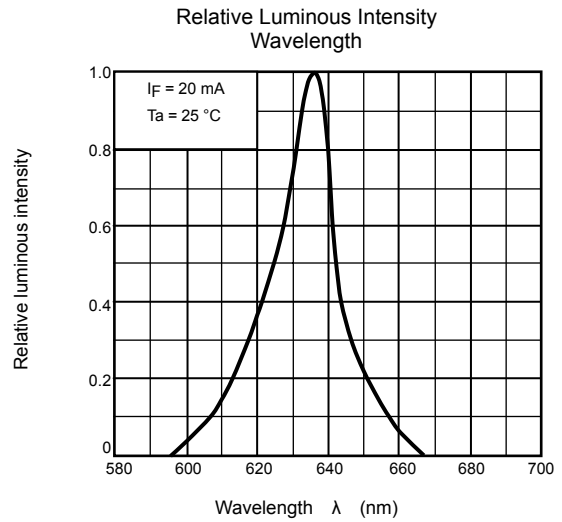
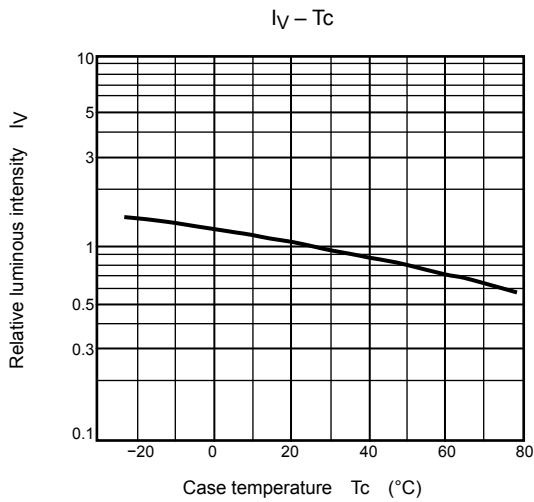
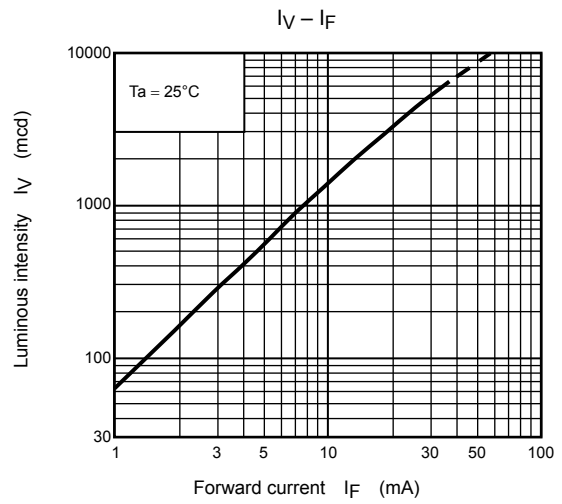
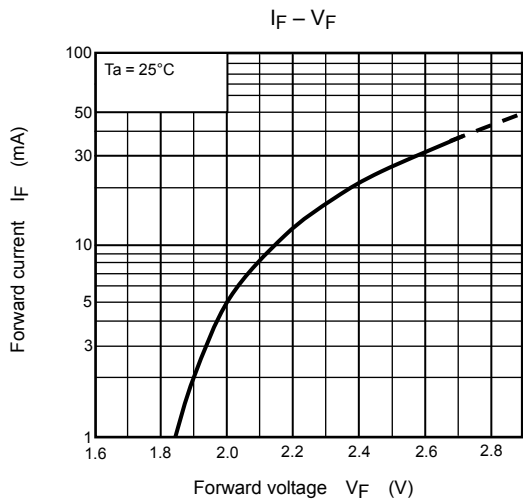
(Note): Lamps are classified into the following ranks according to  $I_V$ , and packed in boxes by each rank.

Iv-rank      S: 850 - 2300mcd,    T: 1530 - 4140mcd,    U: 2720mcd -

## Precaution

Please be careful of the followings

- Soldering temperature: 260°C max                      Soldering time: 3 s max  
(Soldering portion of lead: below the lead stopper of the device )
- If the lead is formed, the lead should be formed up to below the lead stopper 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.



**RESTRICTIONS ON PRODUCT USE**

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