

TOSHIBA Infrared LED GaAs Infrared Emitter

# TLN119(F)

Lead(Pb)-Free  
 Printers, Fax Machines  
 Home Electric Equipment  
 Opto-Electronic Switches

- φ3.1mm plastic package
- Radiant intensity:  $I_E = 5\text{mW} / \text{sr}$  (typ.)
- Half-angle value:  $\theta_{1/2} = \pm 30^\circ$ (typ.)

## Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Forward current	$I_F$	60	mA
Forward current derating (Ta > 25°C)	$\Delta I_F / ^\circ\text{C}$	-0.8	mA / °C
Pulse forward current (Note 1)	$I_{FP}$	600	mA
Reverse voltage	$V_R$	5	V
Operating temperature range	$T_{opr}$	-25~85	°C
Storage temperature range	$T_{stg}$	-30~100	°C
Soldering temperature (3 s)	$T_{sol}$ (Note 2)	260	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.  
 Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

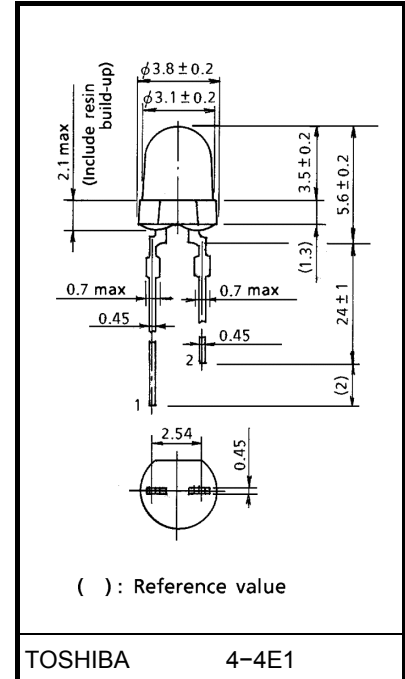
Note 1: Pulse width  $\leq 100\mu\text{s}$ , repetitive frequency = 100Hz

Note 2: Soldering must be performed 2mm from the bottom of the package body.

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

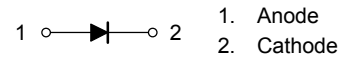
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit	
Forward voltage	$V_F$	$I_F = 10\text{ mA}$	1.00	1.15	1.30	V	
Reverse current	$I_R$	$V_R = 5\text{ V}$	—	—	10	$\mu\text{A}$	
Radiant intensity	$I_E$	$I_F = 20\text{ mA}$	TLN119 (F)	2.5	5.0	10.0	mW / sr
			TLN119 (B,F)	4.2	—	10.0	
Radiant power	$P_O$	$I_F = 20\text{ mA}$	—	4.5	—	mW	
Peak emission wavelength	$\lambda_P$	$I_F = 20\text{ mA}$	—	945	—	nm	
Spectral line half width	$\Delta\lambda$	$I_F = 20\text{ mA}$	—	50	—	nm	
Half value angle	$\theta_{1/2}$	$I_F = 20\text{ mA}$	—	$\pm 30$	—	°	

Unit: mm



Weight: 0.12 g (typ.)

## Pin Connection

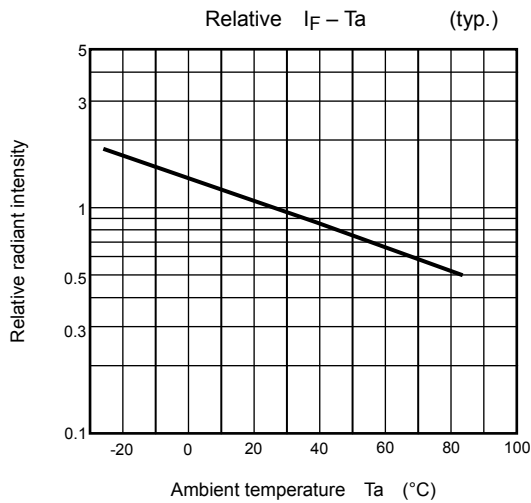
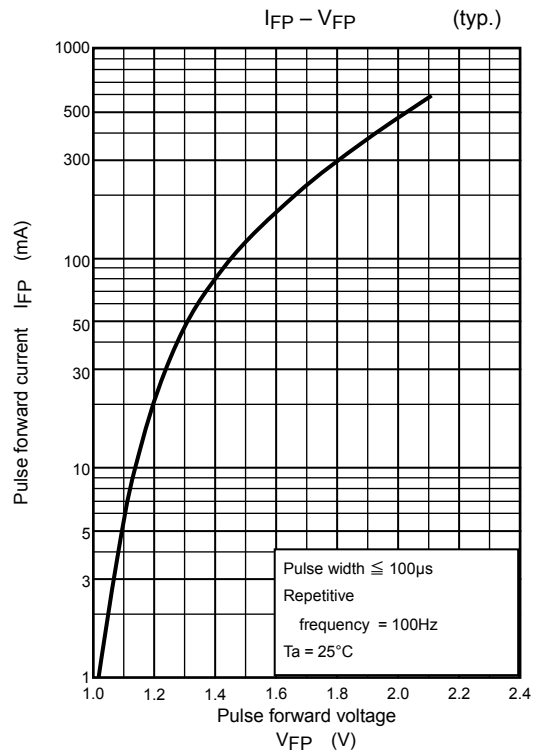
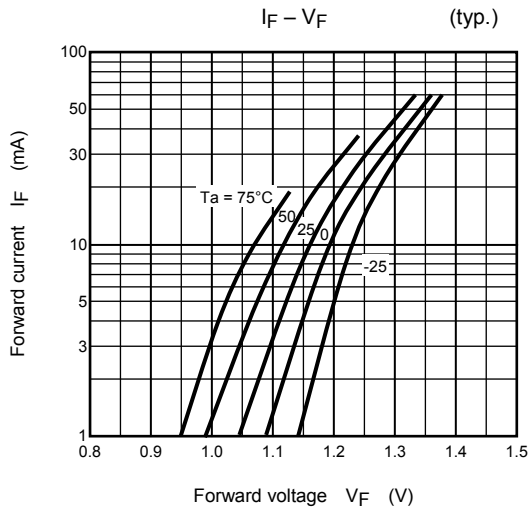
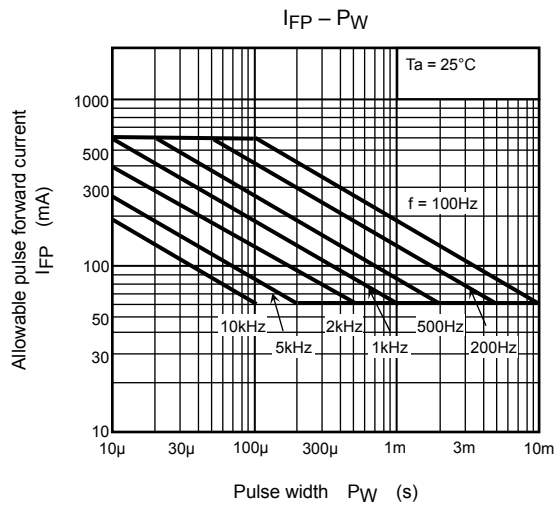
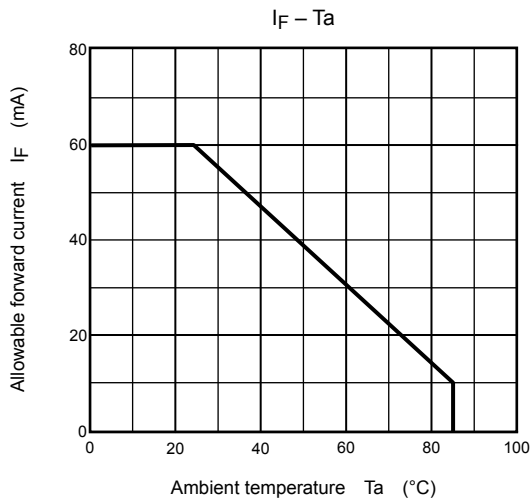


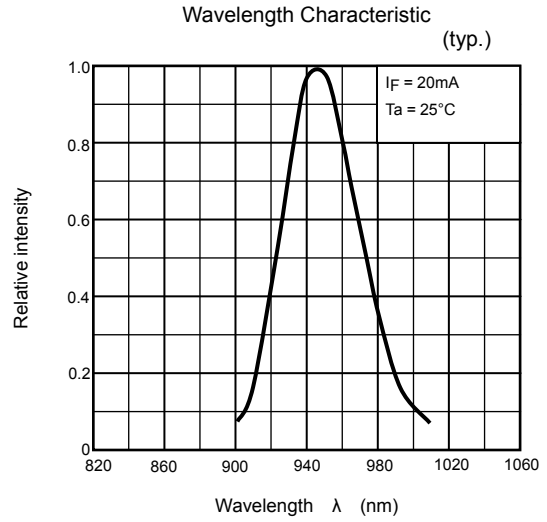
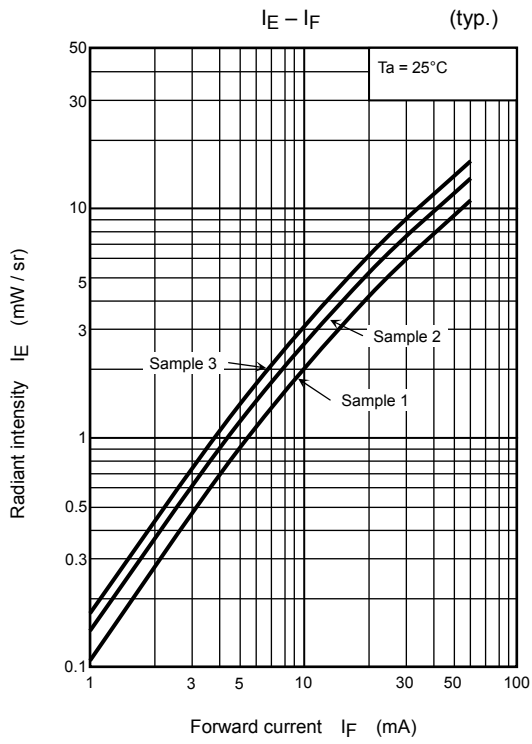
**Precautions**

Please be careful of the followings.

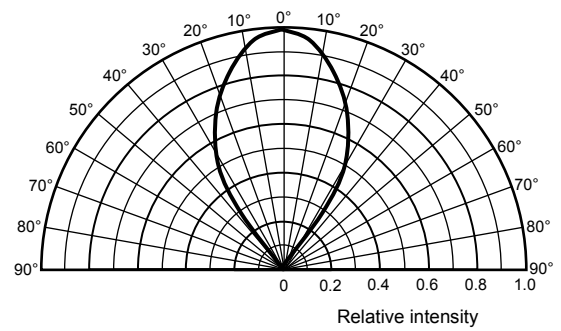
1. When forming the leads, bend each lead under the 2mm from the body of the device. Soldering must be performed after the leads have been formed.
2. Radiant intensity falls over time due to the current which flows in the infrared LED. When designing a circuit, take into account this change in radiant power over time. The ratio of fluctuation in radiation intensity to fluctuation in optical output is 1: 1.

$$\frac{I_E(t)}{I_E(0)} = \frac{P_o(t)}{P_o(0)}$$





Radiation Pattern (typ.)  
(Ta = 25°C)



**RESTRICTIONS ON PRODUCT USE**

20070701-EN

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