

TOSHIBA Infrared LED GaAs Infrared Emitter

# TLN115A(F)

Lead(Pb)-Free

Remote-control Systems

- High radiant intensity:  $I_E = 26\text{mW / sr}$  (typ.)
- Wide half-angle value:  $\theta_{1/2} = \pm 21^\circ$  (typ.)
- Excellent radiant-intensity linearity. Modulation by pulse operation and high frequency is possible.
- TPS703(F) pin photodiode with resin to screen out visible light available as detector for remote control

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

Characteristic	Symbol	Rating	Unit
Forward current	$I_F$	100	mA
Forward current derating (Ta > 25°C)	$\Delta I_F / ^\circ\text{C}$	-1.33	mA / °C
Pulse forward current (Note 1)	$I_{FP}$	1	A
Reverse voltage	$V_R$	5	V
Power dissipation	$P_D$	150	mW
Operating temperature range	$T_{opr}$	-20~75	°C
Storage temperature range	$T_{stg}$	-30~85	°C

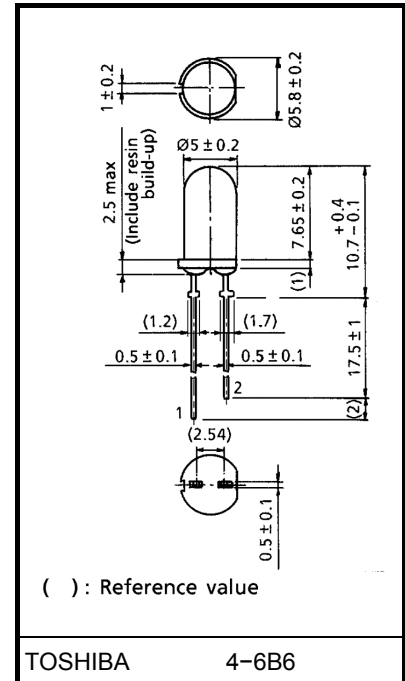
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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 = 100 Hz

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

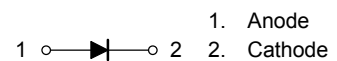
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit	
Forward voltage	$V_F$	$I_F = 100 \text{ mA}$	—	1.35	1.5	V	
Reverse current	$I_R$	$V_R = 5 \text{ V}$	—	—	10	$\mu\text{A}$	
Radiant intensity	$I_E$	$I_F = 50 \text{ mA}$	TLN115A (F)	15	26	—	mW / sr
			TLN115A (B,F)	19	—	—	
Radiant power	$P_O$	$I_F = 50 \text{ mA}$	—	13	—	mW	
Capacitance	$C_T$	$V_R = 0, f = 1 \text{ MHz}$	—	20	—	pF	
Peak emission wavelength	$\lambda_P$	$I_F = 50 \text{ mA}$	—	950	—	nm	
Spectral line half width	$\Delta\lambda$	$I_F = 50 \text{ mA}$	—	50	—	nm	
Half value angle	$\theta_{1/2}$	$I_F = 50 \text{ mA}$	—	$\pm 21$	—	°	

Unit: mm



Weight: 0.3 g (typ.)

## Pin Connection

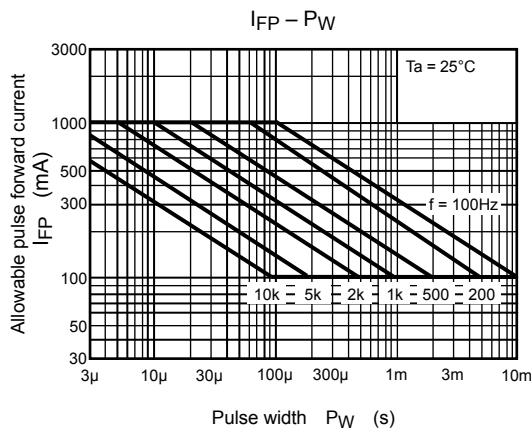
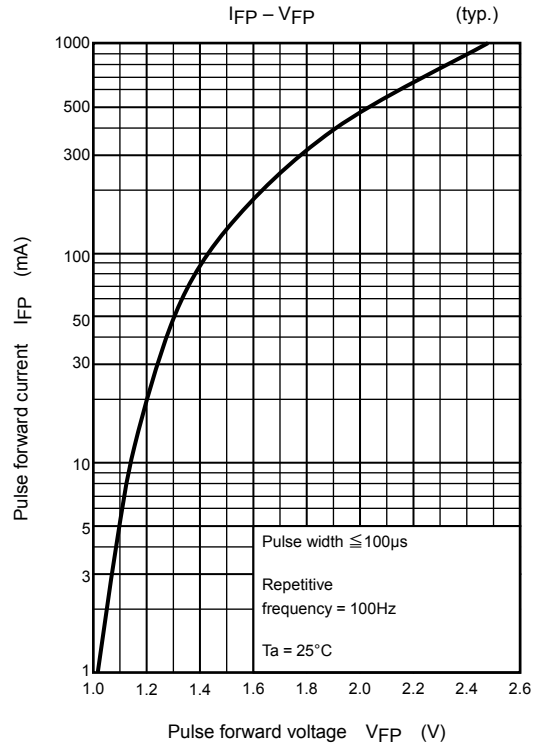
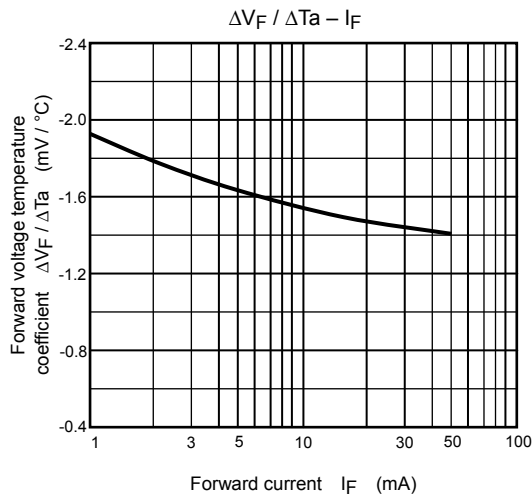
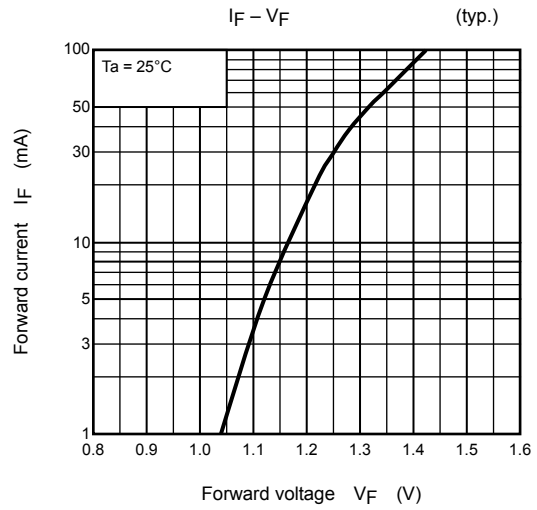
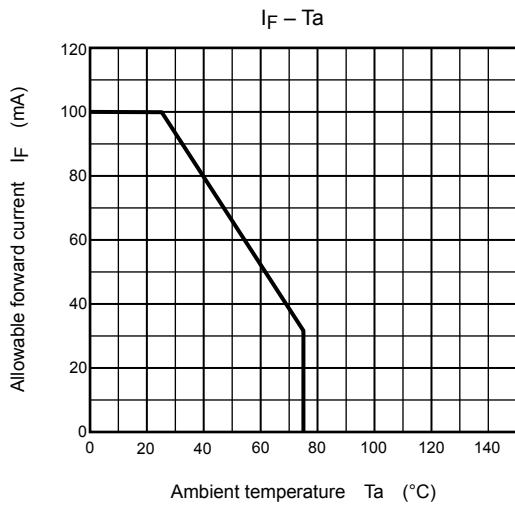


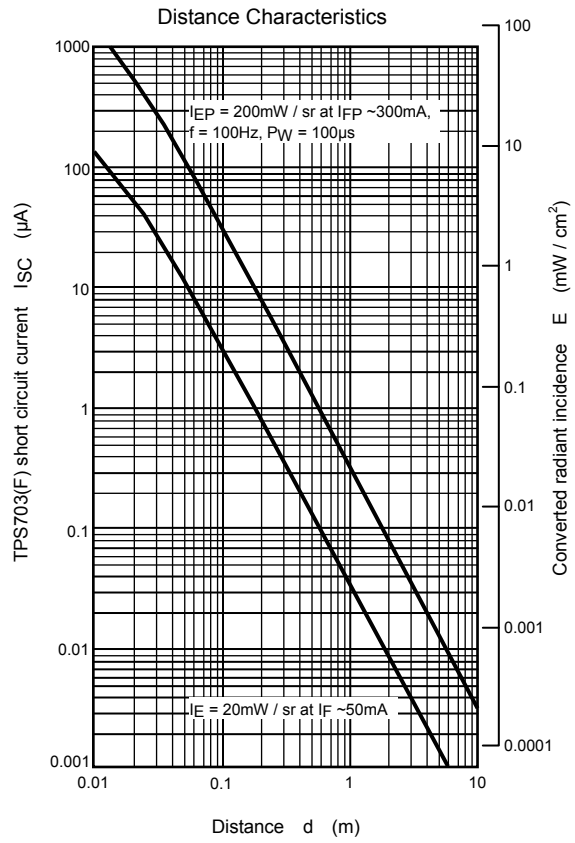
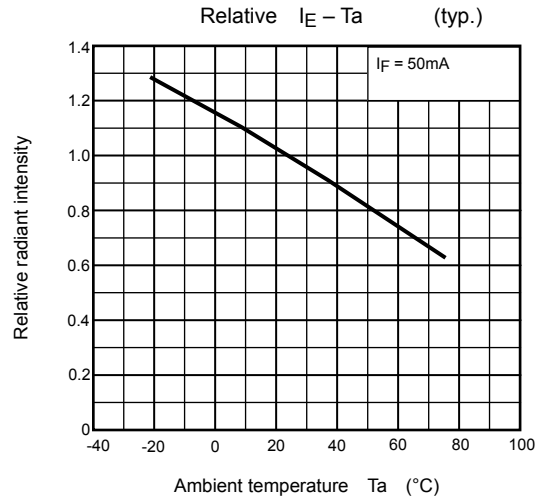
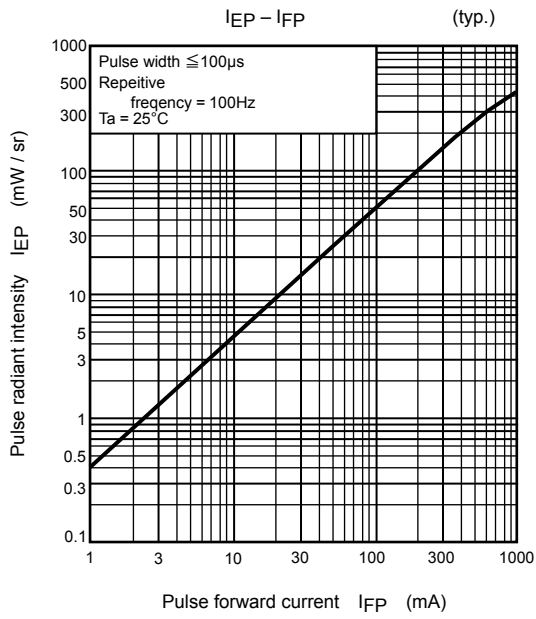
**Precautions**

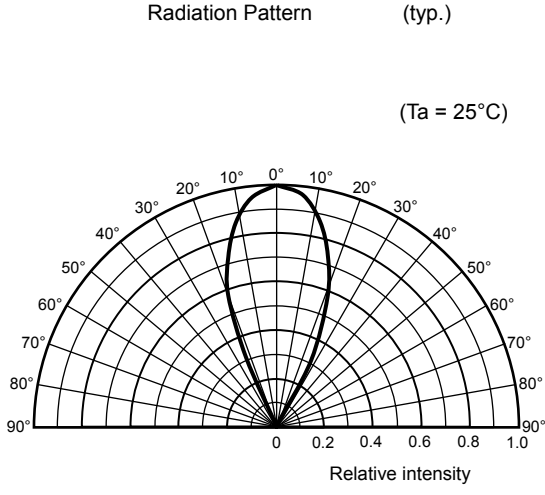
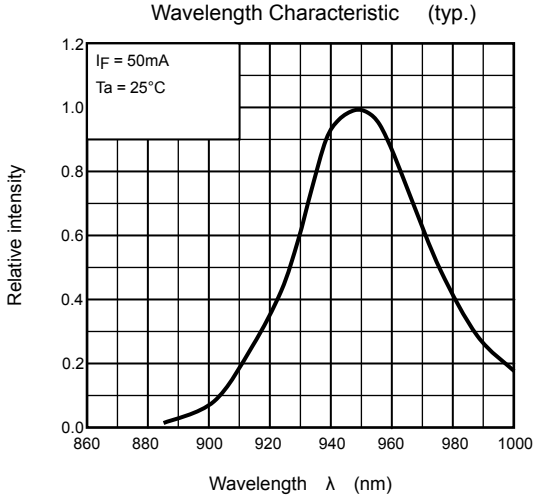
Please be careful of the followings.

1. Soldering must be performed under the stopper.
2. Soldering temperature : 260°C max  
Soldering time : 5 s max
3. When forming the leads, bend each lead under the 2 mm from the body of the device.  
Soldering must be performed after the leads have been formed.
4. 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.

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







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