

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

**TLN117**

OPTO-ELECTRONIC SWITCHES

FLOPPY DISK DRIVES

OPTICAL MISE

OPTICAL TOUCH SENSORS

- Small-side-view epoxy-resin package
- High radiant intensity:  $I_F = 0.8 \text{ mW/sr (min)}$  at  $I_F = 20 \text{ mA}$
- Half-angle value :  $\theta_{\frac{1}{2}} = \pm 15^\circ$  (typ.)
- Ideal for use in combination with the following photodetectors which have identical external dimensions

Phototransistor	TPS621, TPS622
Photodarlington transistors	TPS625, TPS626

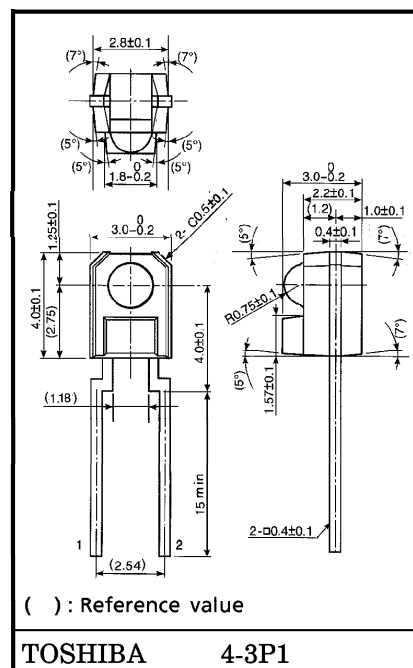
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	$I_F$	50	mA
Pulse Forward Current	$I_{FP}$	600 (Note 1)	mA
Forward Current Derating ( $T_a > 25^\circ\text{C}$ )	$\Delta I_F / ^\circ\text{C}$	-0.33	mA / $^\circ\text{C}$
Reverse Voltage	$V_R$	5	V
Operating Temperature	$T_{opr}$	-25~85	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40~100	$^\circ\text{C}$
Soldering Temperature (5 s)	$T_{sol}$	260 (Note 2)	$^\circ\text{C}$

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

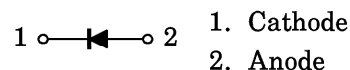
(Note 2) : Soldering must be performed 2 mm from the bottom of the package body.

Unit : mm



Weight : 0.1 g (typ.)

PIN CONNECTION



## OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

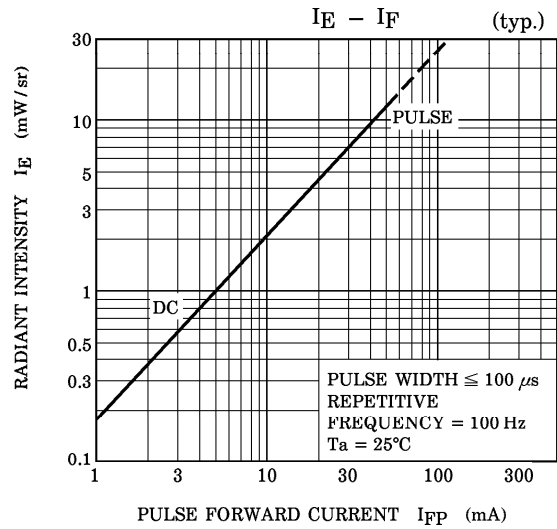
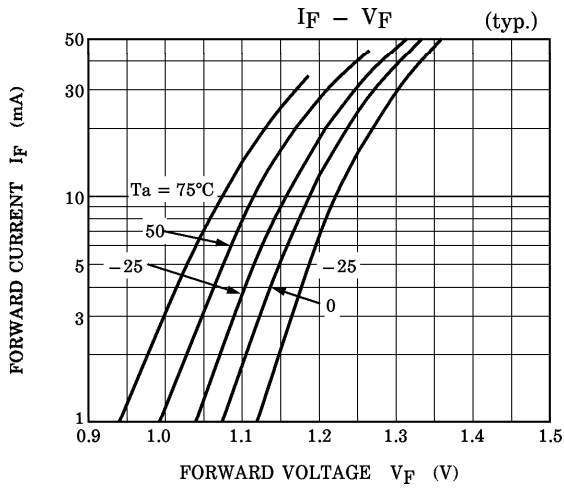
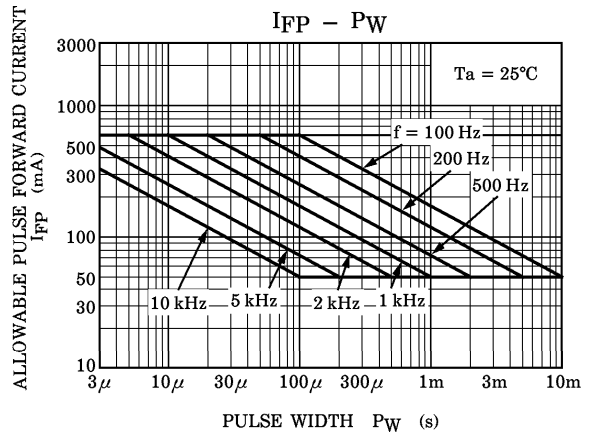
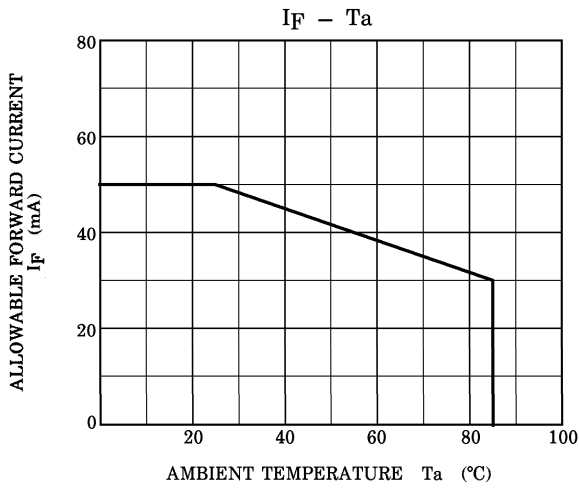
CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 10 mA	1.0	1.15	1.3	V	
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5 V	—	—	10	μA	
Radiant Intensity	I <sub>E</sub>	I <sub>F</sub> = 20 mA	TLN117	0.8	—	—	mW / sr
			TLN117 (A)	0.8	—	3	
			TLN117 (B)	2	—	7.5	
			TLN117 (C)	5	—	18.7	
Radiant Power	P <sub>O</sub>	I <sub>F</sub> = 20 mA	—	2.5	—	mW	
Capacitance	C <sub>T</sub>	V <sub>R</sub> = 0, f = 1 MHz	—	30	—	pF	
Peak Emission Wavelength	λ <sub>P</sub>	I <sub>F</sub> = 20 mA	—	940	—	nm	
Spectral Line Half Width	Δλ	I <sub>F</sub> = 20 mA	—	50	—	nm	
Half Value Angle	θ <sub>1/2</sub>	I <sub>F</sub> = 20 mA	—	±15	—	°	

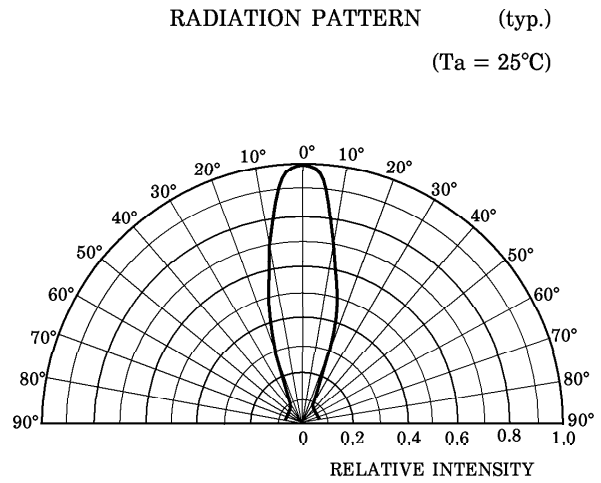
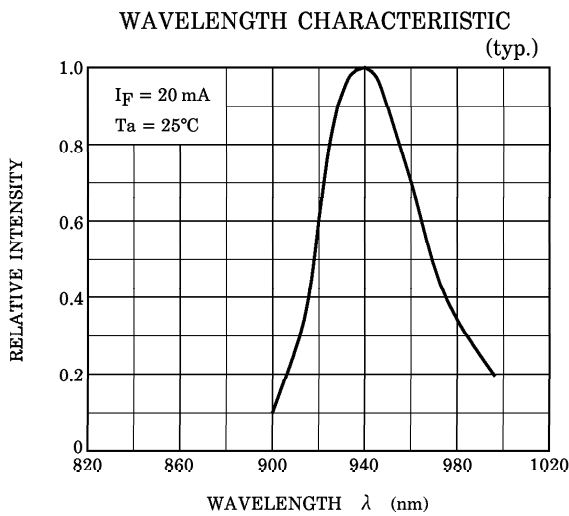
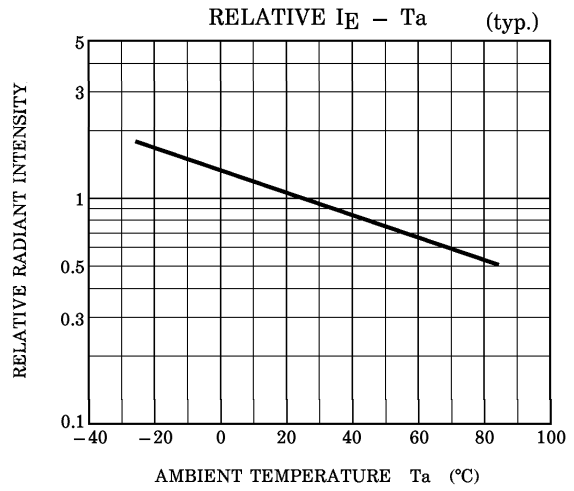
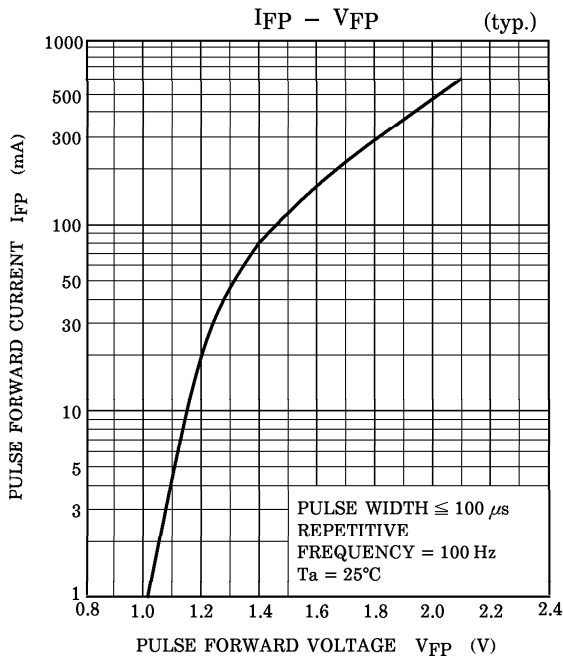
## PRECAUTIONS

Please be careful of the followings.

1. 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.
2. Radiation 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.

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





**RESTRICTIONS ON PRODUCT USE**

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