TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN117

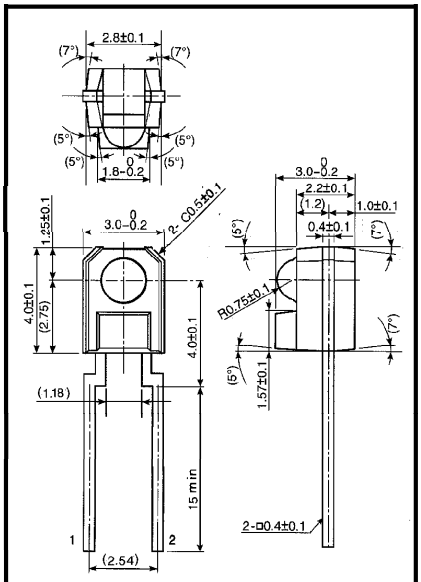
OPTO-ELECTRONIC SWITCHES

FLOPPY DISK DRIVES

OPTICAL MISE

OPTICAL TOUCH SENSORS

Unit : mm



( ) : Reference value

TOSHIBA	4-3P1

Weight : 0.1 g (typ.)

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

Phototransistor	TPS621, TPS622
Photodarlington transistors	TPS625, TPS626

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	50	mA
Pulse Forward Current	I_{FP}	600 (Note 1)	mA
Forward Current Derating (Ta > 25°C)	ΔI_F / °C	−0.33	mA / °C
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	−25~85	°C
Storage Temperature	T_{stg}	−40~100	°C
Soldering Temperature (5 s)	T_{sol}	260 (Note 2)	°C

PIN CONNECTION

1. Cathode
2. Anode

(Note 1) : Pulse width ≦ 100 μs, repetitive frequency = 100 Hz

(Note 2) : Soldering must be performed 2 mm 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 mA		1.0	1.15	1.3	V
Reverse Current	I_R	V_R = 5 V		—	—	10	μA
Radiant Intensity	I_E	I_F = 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_O	I_F = 20 mA		—	2.5	—	mW
Capacitance	C_T	V_R = 0, f = 1 MHz		—	30	—	pF
Peak Emission Wavelength	λ_P	I_F = 20 mA		—	940	—	nm
Spectral Line Half Width	$\Delta\lambda$	I_F = 20 mA		—	50	—	nm
Half Value Angle	$\theta_{\frac{1}{2}}$	I_F = 20 mA		—	±15	—	°

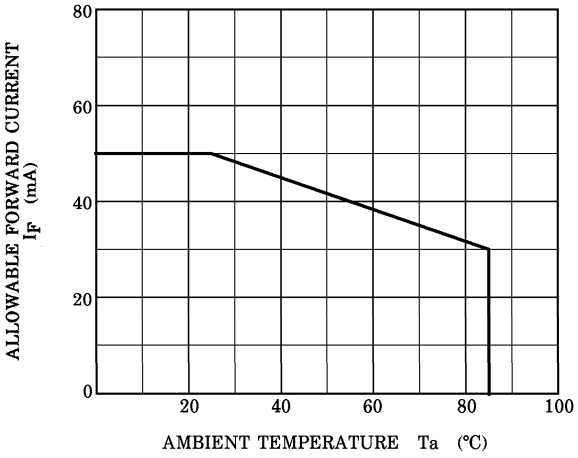
PRECAUTIONS

Please be careful of the followings.

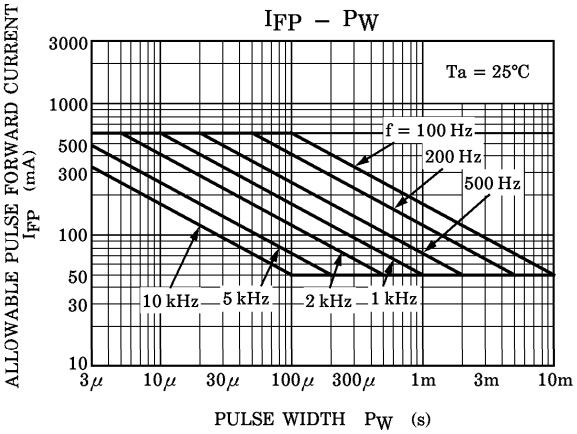
1. When forming the leads, bend each lead under the 2 mm from the body of the device. Soldering must be performed after the leads have been formed.
2. Radiation intensity falls over time due to the current which flows in the infrared LED. When designing a circuit, take into account this change in radiant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

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

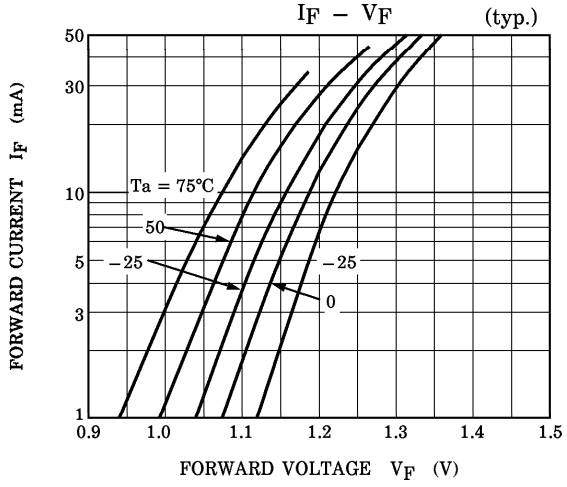
I_F – Ta



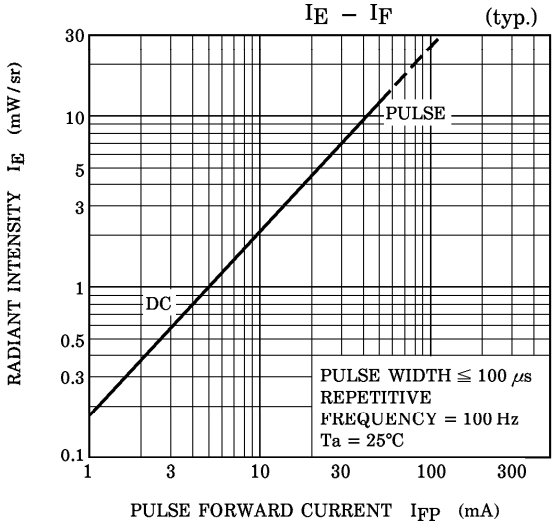
I_{FP} – P_W



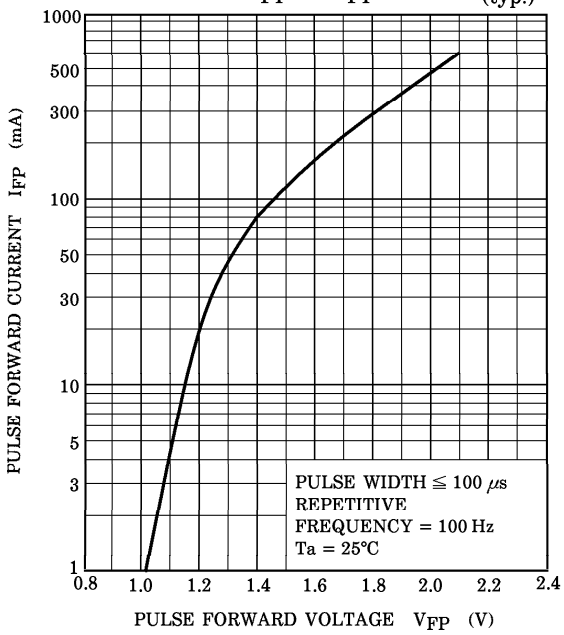
I_F – V_F (typ.)



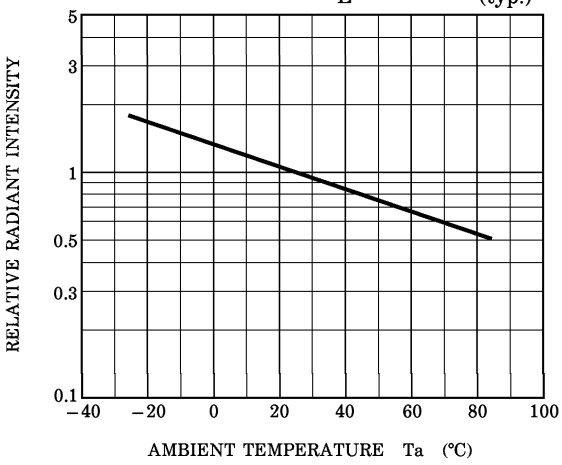
I_E – I_F (typ.)



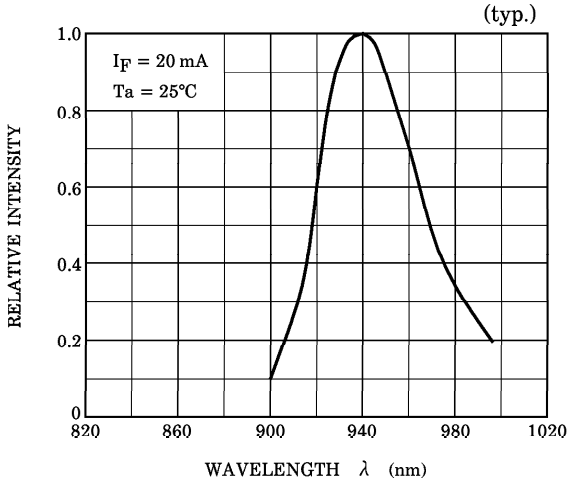
I_{FP} – V_{FP} (typ.)



RELATIVE I_E – Ta (typ.)

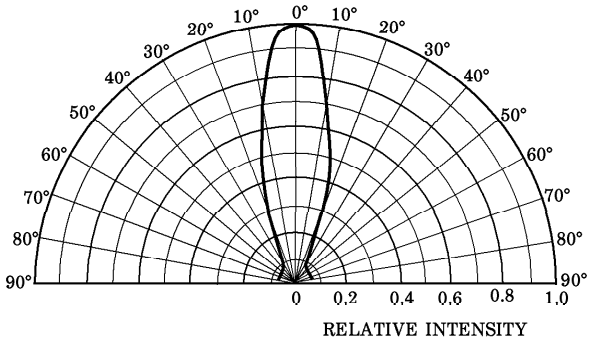


WAVELENGTH CHARACTERIISTIC (typ.)



RADIATION PATTERN (typ.)

(Ta = 25°C)



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