TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN113

INFRARED LED FOR PHOTOSENSORS

OPTO-ELECTRONIC SWITCHES

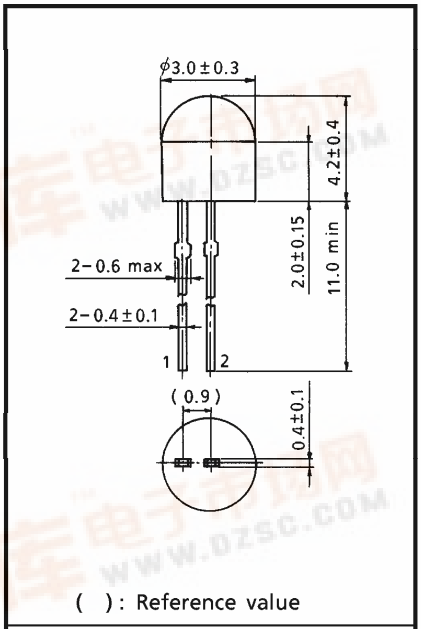
TAPE AND CARD READERS

ROTARY ENCODERS

FDD (FLOPPY DISK DRIVE) DETECTION

- High radiant intensity
- Ideal for use in combination TPS613 with phototransistor

Unit : mm



( ) : Reference value

TOSHIBA 4-3G1

Weight : 0.08 g (typ.)

PIN CONNECTION

1. Anode
2. Cathode

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	40	mA
Forward Current Derating (Ta > 25°C)	ΔI_F / °C	−0.53	mA / °C
Pulse Forward Current (Note)	I_{FP}	400	mA
Reverse Voltage	V_R	5	V
Operating Temperature Range	T_{opr}	−20~75	°C
Storage Temperature Range	T_{stg}	−30~100	°C

(Note) : Pulse width ≦ 100 μs, 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 = 10 mA		—	1.15	1.30	V
Reverse Current	I_R	V_R = 5 V		—	—	10	μA
Radiant Intensity)	I_E	I_F = 20 mA	TLN113	0.8	—	4.8	mW / sr
			TLN113 (B)	1.25	—	3.0	
			TLN113 (C)	2	—	4.8	
			TLN113 (BC)	1.25	—	4.8	
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		—	±40	—	°

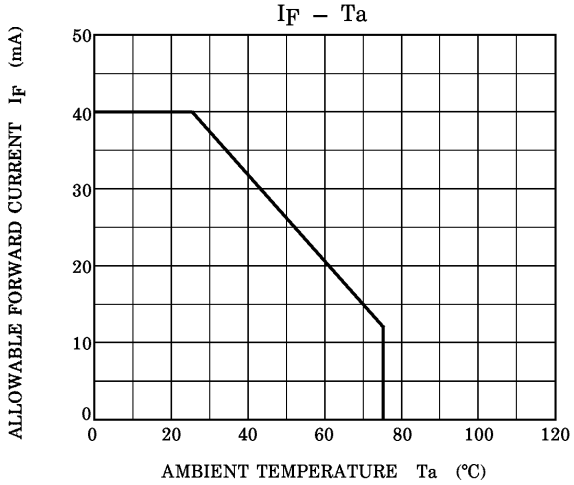
PRECAUTIONS

Please be careful of the followings.

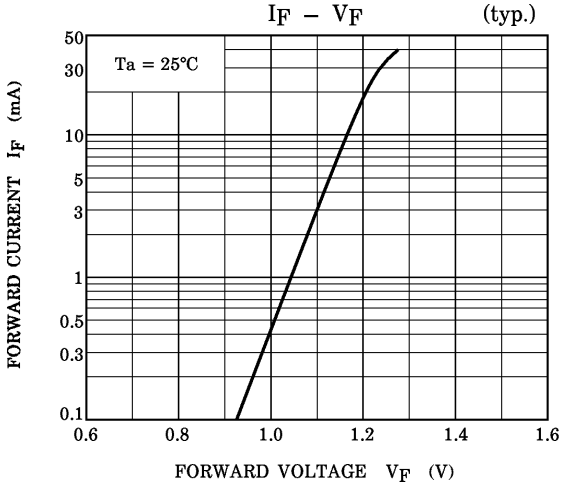
1. Soldering temperature : 260°C max
   Soldering time : 3 s max
   (Soldering must be performed under the stopper.)
2. When forming the leads, bend each lead under the 2 mm from the body of the device.
   Soldering must be performed after the leads have been formed.
3. Radiant intensity falls over time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

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

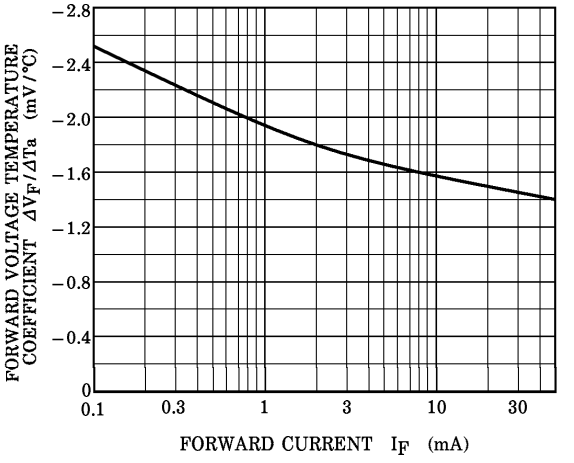
I_F – Ta



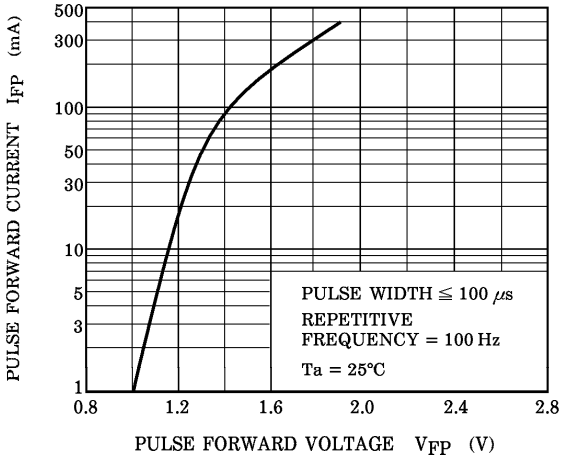
I_F – V_F (typ.)



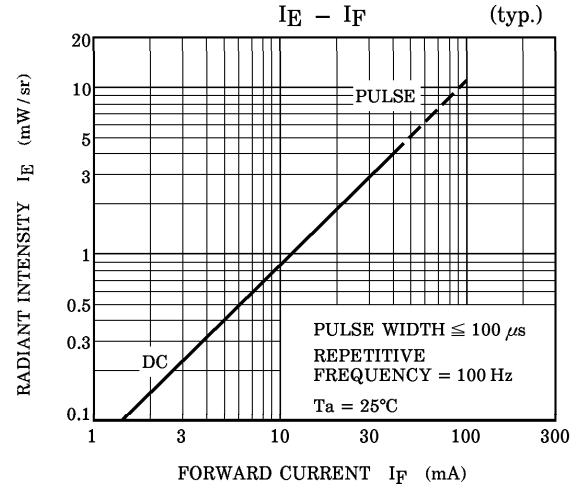
$\Delta V_F / \Delta Ta$ – I_F



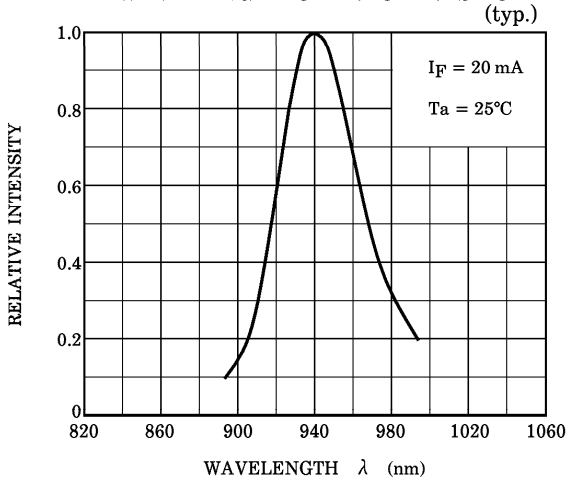
I_{FP} – V_{FP} (typ.)



I_E – I_F (typ.)

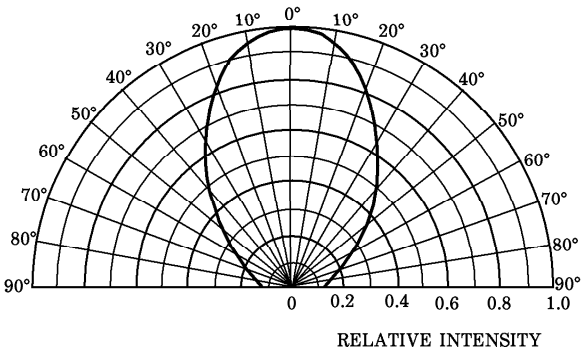


WAVELENGTH CHARACTERIISTIC (typ.)

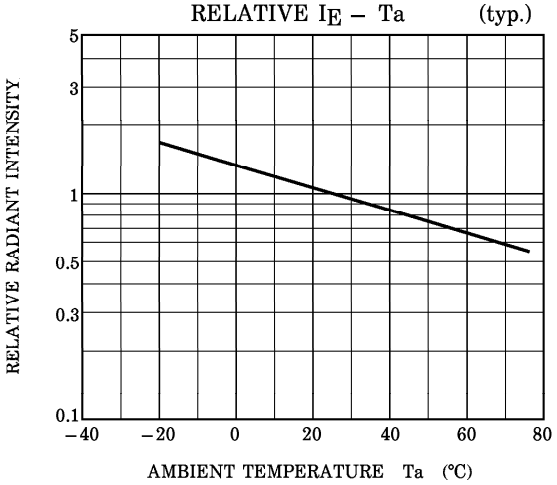


RADIATION PATTERN (typ.)

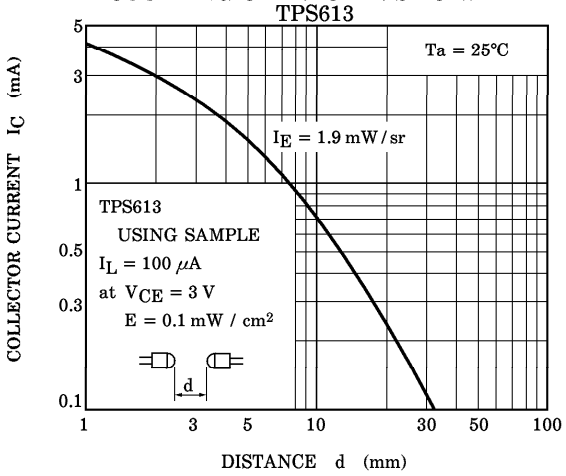
(Ta = 25°C)



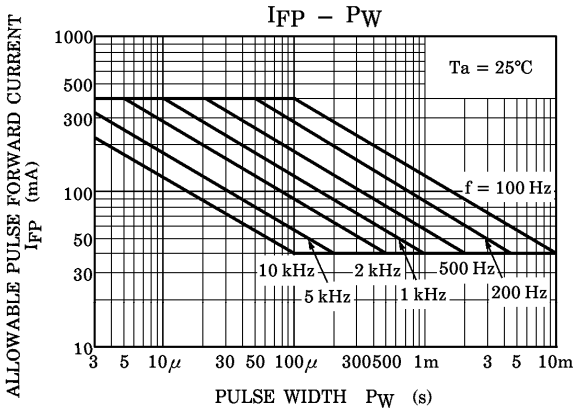
RELATIVE I_E – Ta (typ.)



COUPLING CHARACTERISTIC WITH TPS613



I_{FP} – P_W



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