

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN113

INFRARED LED FOR PHOTODETECTORS

Unit : mm

OPTO-ELECTRONIC SWITCHES

TAPE AND CARD READERS

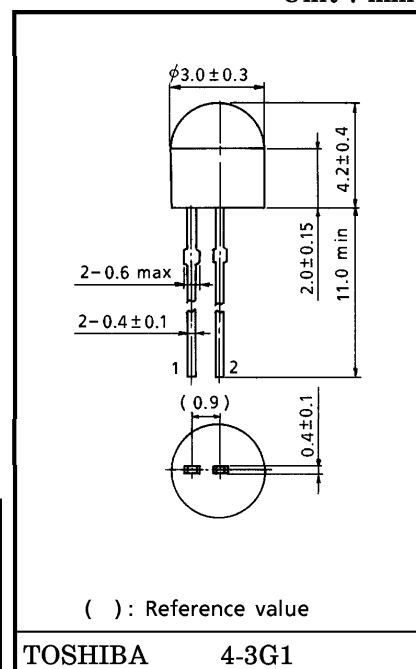
ROTARY ENCODERS

FDD (FLOPPY DISK DRIVE) DETECTION

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

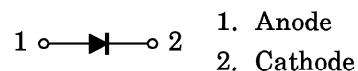
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	40	mA
Forward Current Derating (Ta > 25°C)	$\Delta I_F / ^\circ\text{C}$	-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 $\leq 100 \mu\text{s}$, repetitive frequency = 100 Hz

Weight : 0.08 g (typ.)

PIN CONNECTION



OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

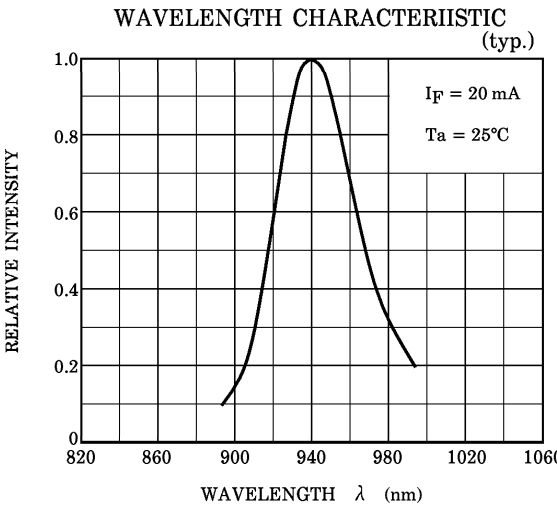
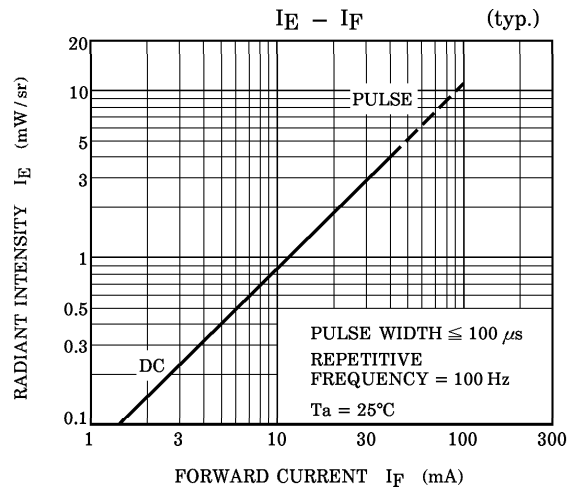
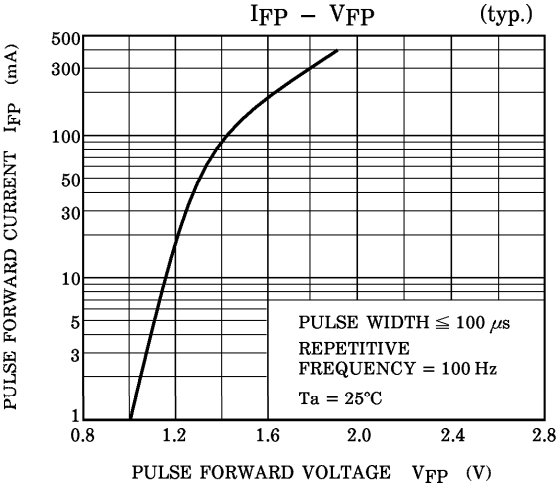
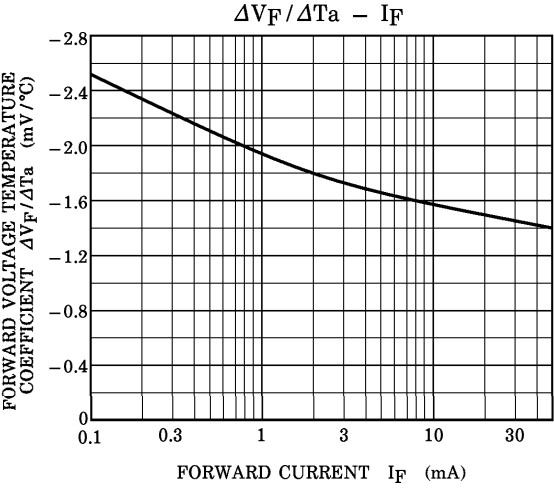
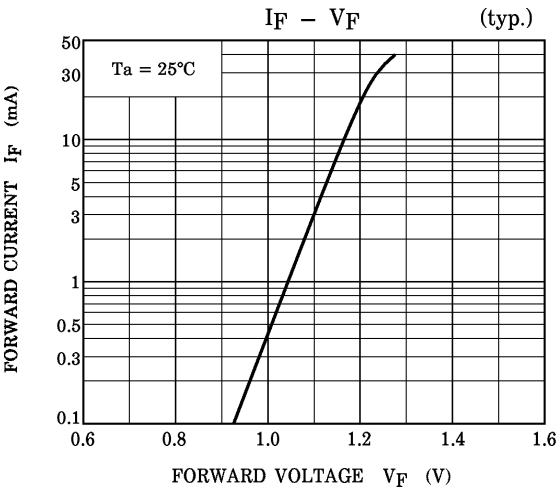
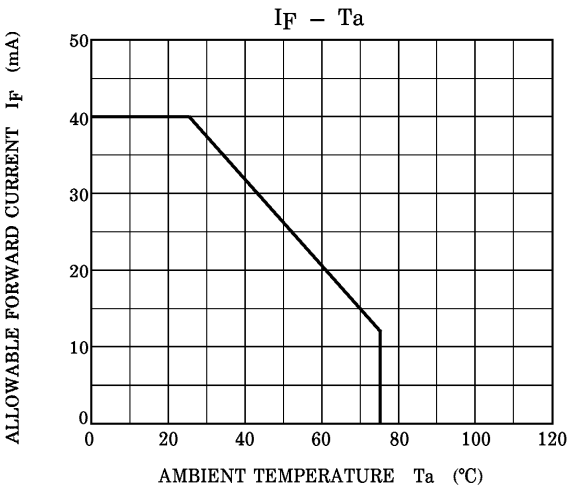
CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT
Forward Voltage	V_F	$I_F = 10 \text{ mA}$	—	1.15	1.30	V
Reverse Current	I_R	$V_R = 5 \text{ V}$	—	—	10	μA
Radiant Intensity)	I_E	$I_F = 20 \text{ mA}$	TLN113	0.8	—	4.8
			TLN113 (B)	1.25	—	3.0
			TLN113 (C)	2	—	4.8
			TLN113 (BC)	1.25	—	4.8
Radiant Power	P_o	$I_F = 20 \text{ mA}$	—	2.5	—	mW
Capacitance	C_T	$V_R = 0, f = 1 \text{ MHz}$	—	30	—	pF
Peak Emission Wavelength	λ_P	$I_F = 20 \text{ mA}$	—	940	—	nm
Spectral Line Half Width	$\Delta\lambda$	$I_F = 20 \text{ mA}$	—	50	—	nm
Half Value Angle	$\theta_{\frac{1}{2}}$	$I_F = 20 \text{ mA}$	—	± 40	—	°

PRECAUTIONS

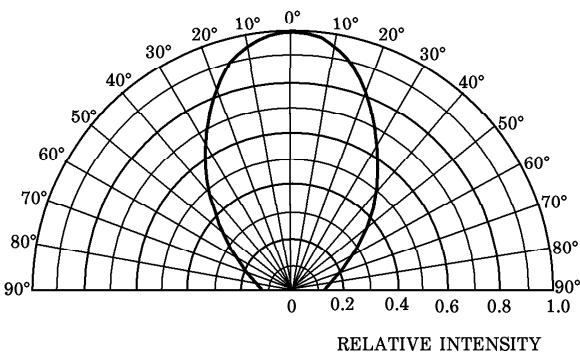
Please be careful of the followings.

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.

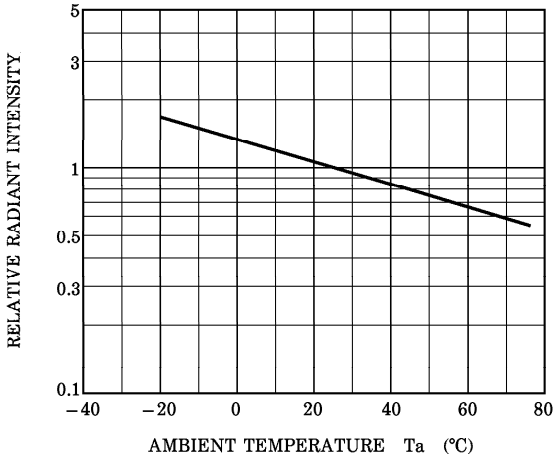
$$\frac{I_E(t)}{I_E(0)} = \frac{P_O(t)}{P_O(0)}$$



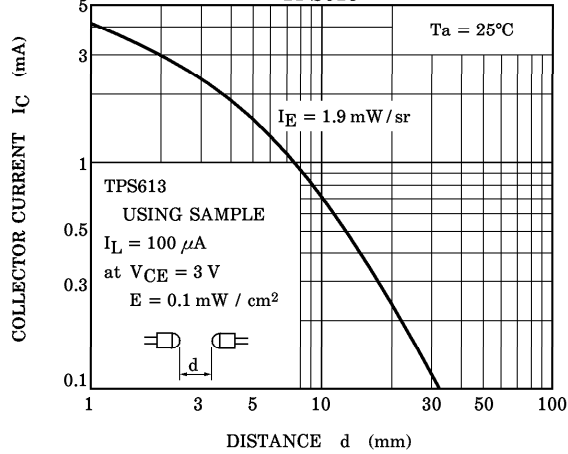
RADIATION PATTERN (typ.)
(Ta = 25°C)



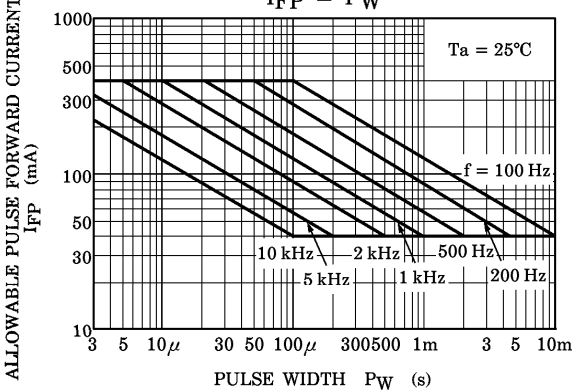
RELATIVE $I_E - T_a$ (typ.)



COUPLING CHARACTERISTIC WITH
TPS613



$I_{FP} - P_W$



RESTRICTIONS ON PRODUCT USE

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