

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN113

INFRARED LED FOR PHOTSENSORS

OPTO-ELECTRONIC SWITCHES

TAPE AND CARD READERS

ROTARY ENCODERS

FDD (FLOPPY DISK DRIVE) DETECTION

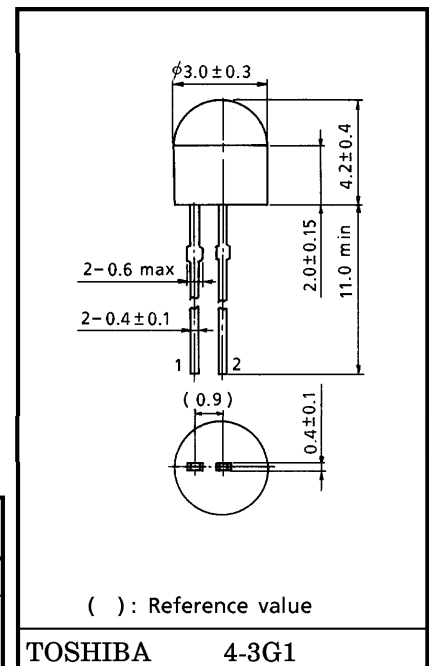
- High radiant intensity
- Ideal for use in combination TPS613 with phototransistor

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I _F	40	mA
Forward Current Derating (Ta > 25°C)	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

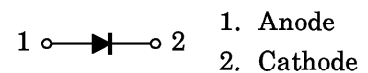
(Note) : Pulse width ≤ 100 μs, repetitive frequency = 100 Hz

Unit : mm



Weight : 0.08 g (typ.)

PIN CONNECTION



OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

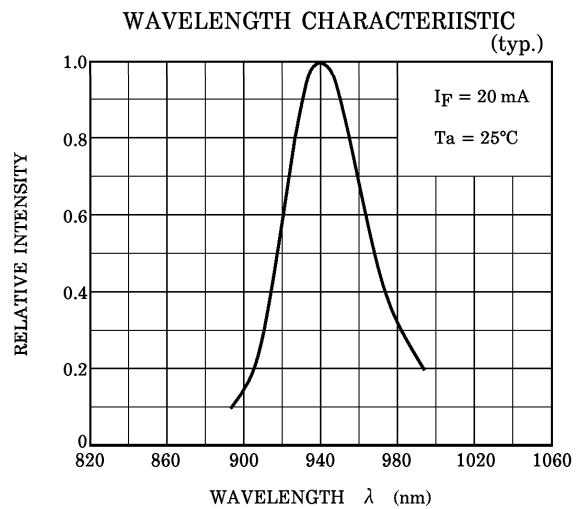
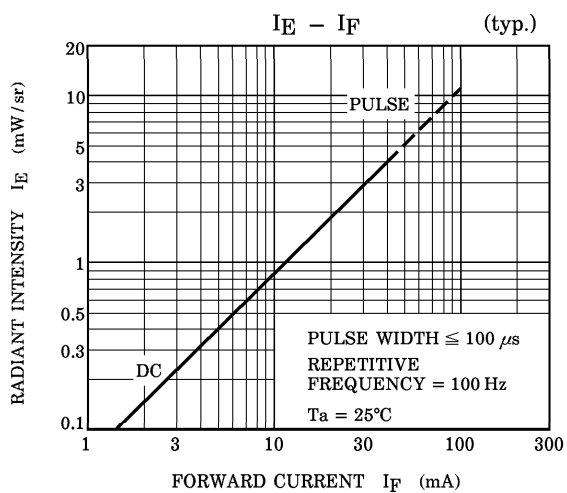
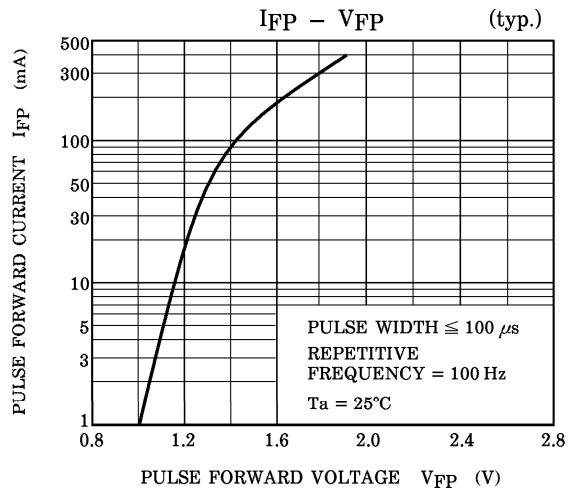
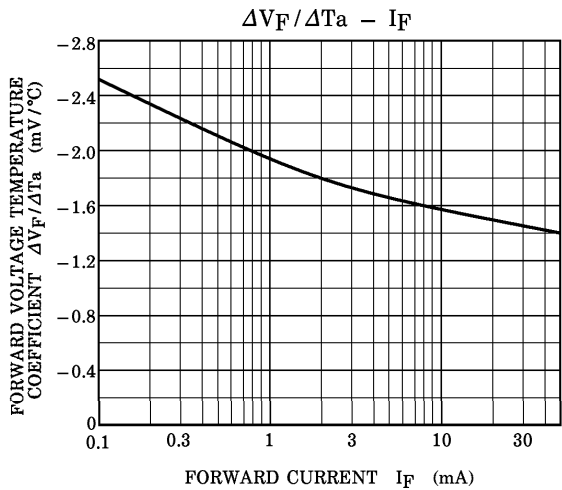
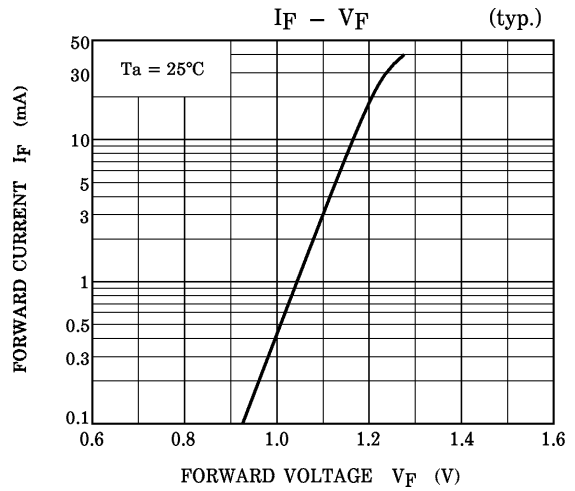
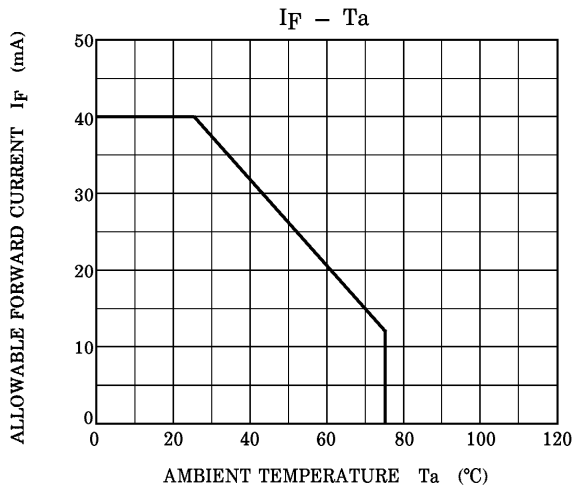
CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT	
Forward Voltage	V _F	I _F = 10 mA	—	1.15	1.30	V	
Reverse Current	I _R	V _R = 5 V	—	—	10	μA	
Radiant Intensity)	I _E	I _F = 20 mA	TLN113	0.8	—	4.8	mW / sr
			TLN113 (B)	1.25	—	3.0	
			TLN113 (C)	2	—	4.8	
			TLN113 (BC)	1.25	—	4.8	
Radiant Power	P _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	Δλ	I _F = 20 mA	—	50	—	nm	
Half Value Angle	θ _{1/2}	I _F = 20 mA	—	±40	—	°	

PRECAUTIONS

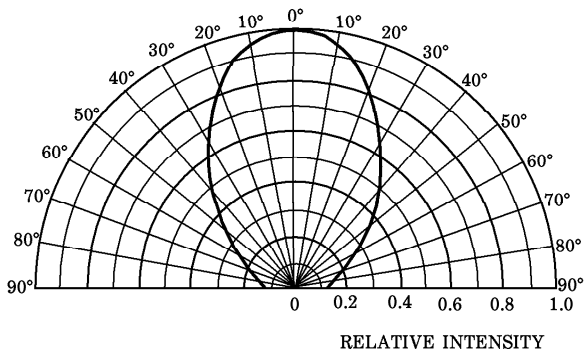
Please be careful of the followings.

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.

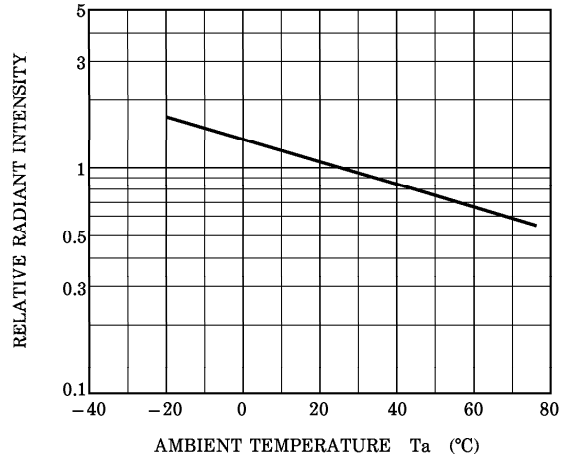
$$\frac{I_E(t)}{I_E(0)} = \frac{P_O(t)}{P_O(0)}$$



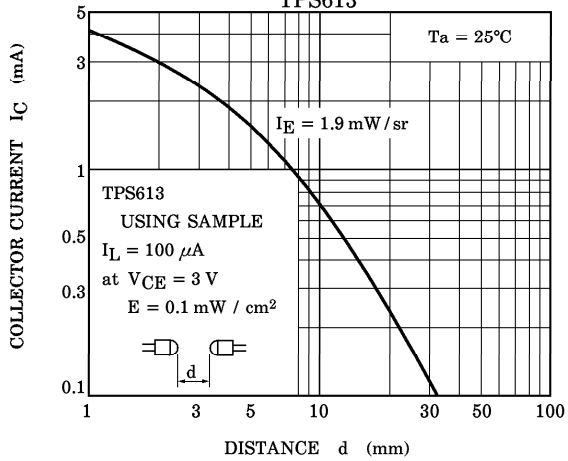
RADIATION PATTERN (typ.)
($T_a = 25^\circ\text{C}$)



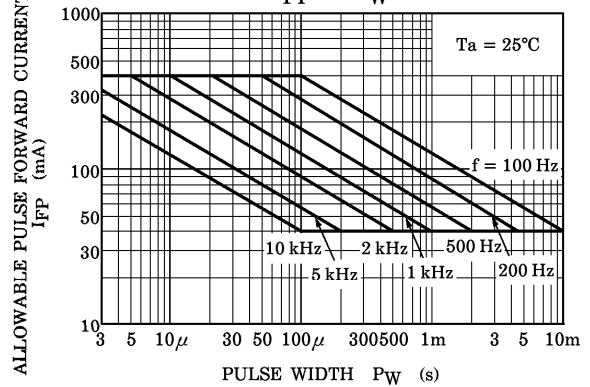
RELATIVE $I_E - T_a$ (typ.)



COUPLING CHARACTERISTIC WITH TPS613



$I_{FP} - P_W$



RESTRICTIONS ON PRODUCT USE

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