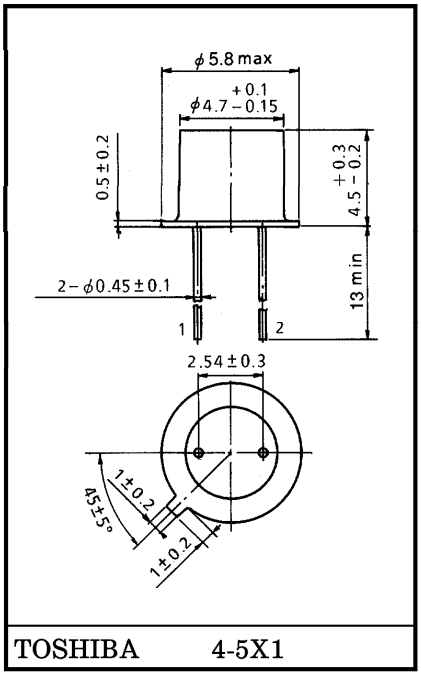
TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN102

INFRARED LED FOR PHOTOSENSORS

Unit : mm



TOSHIBA 4-5X1

Weight : 0.29 g (typ.)

OPTO-ELECTRONIC SWITCHES

EQUIPMENT USING INFRARED TRANSMISSION

- Wide half value angle : $\theta\frac{1}{2} = \pm 31°$ (typ.)
- Excellent radiant-intensity linearilty and modulation by pulse operation and high frequency is possible.
- Hyghly reliable due to hermetic seal.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	100	mA
Forward Current Derating (Ta > 25°C)	ΔI_F / °C	−1	mA / °C
Pulse Forward Current	I_{FP} (Note)	1	A
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	−40~125	°C
Storage Temperature	T_{stg}	−55~150	°C

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

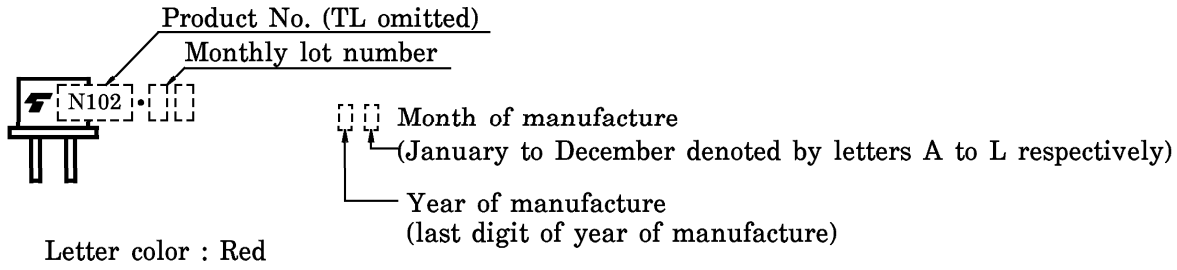
PIN CONNECTION

1. Anode
2. Cathode (case)

OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT
Forward Voltage	V_F	I_F = 50 mA	—	1.3	1.4	V
Pulse Forward Voltage	V_{FP}	I_{FP} = 1 A	—	2.4	—	V
Reverse Current	I_R	V_R = 5 V	—	—	10	μA
Radiant Intensity	I_E	I_F = 50 mA	2	4	—	mW / sr
Radiant Power	P_O	I_F = 50 mA	—	4.2	—	mW
Capacitance	C_T	V_R = 0, f = 1 MHz	—	30	—	pF
Peak Emission Wavelength	λ_P	I_F = 50 mA	—	940	—	nm
Spectral Line Half Width	$\Delta\lambda$	I_F = 50 mA	—	50	—	nm
Half Value Angle	$\theta\frac{1}{2}$	I_F = 50 mA	—	±31	—	°

MARKINGS



Letter color : Red

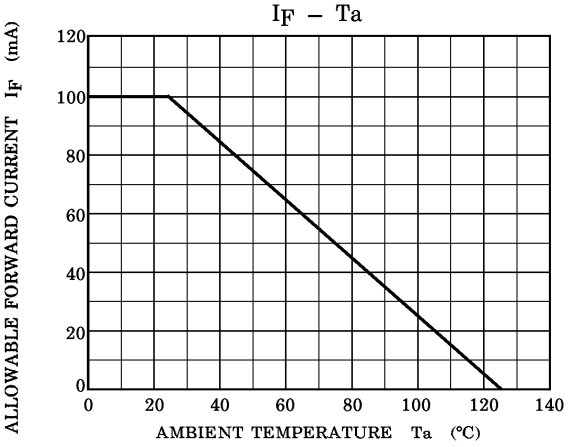
PRECAUTIONS

Please be careful of the followings.

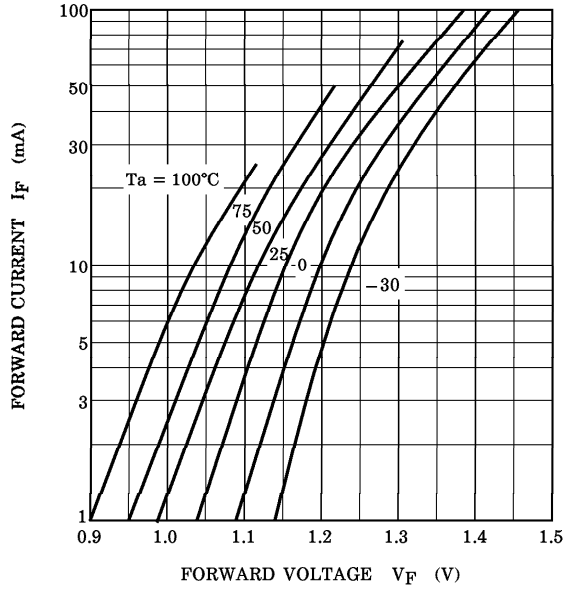
1. Soldering temperature : 260°C max
   Soldering time : 5 s max
   (Soldering must be performed 1.5 m from the bottom of the package.)
2. When forming the leads, bend each lead under the 2 mm from the body of the device.
   Soldering must be performed after the leads have been formed.
3. Radiant intensity 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.

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

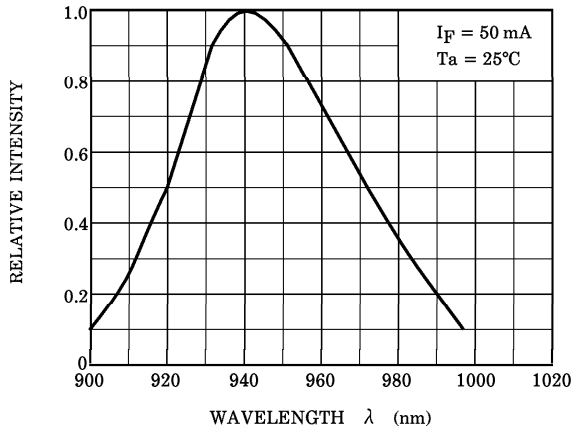
I_F – Ta



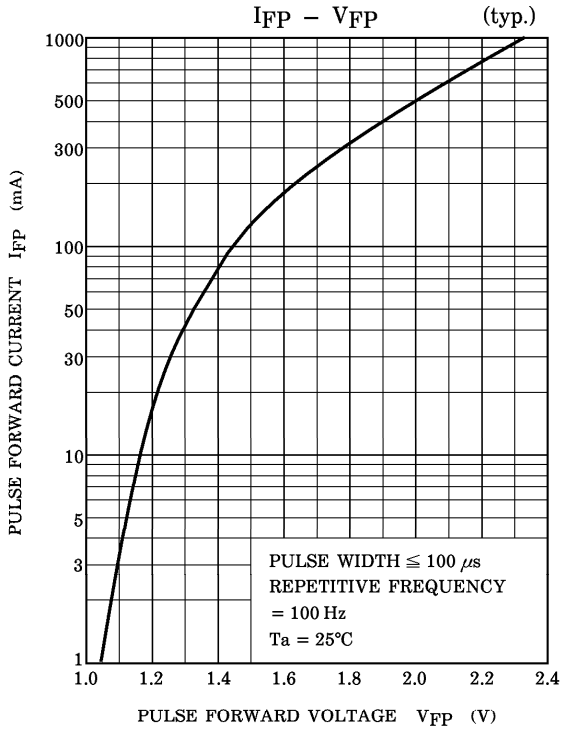
I_F – V_F (typ.)



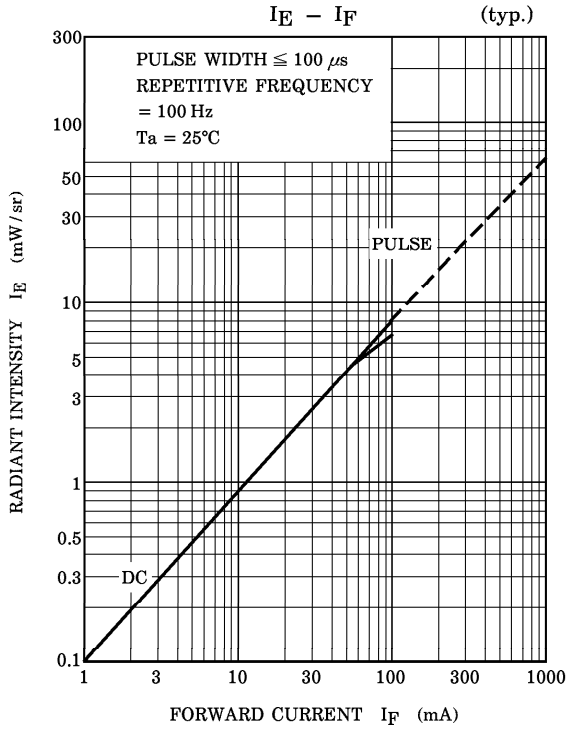
WAVELENGTH CHARACTERIISTIC (typ.)



I_{FP} – V_{FP} (typ.)

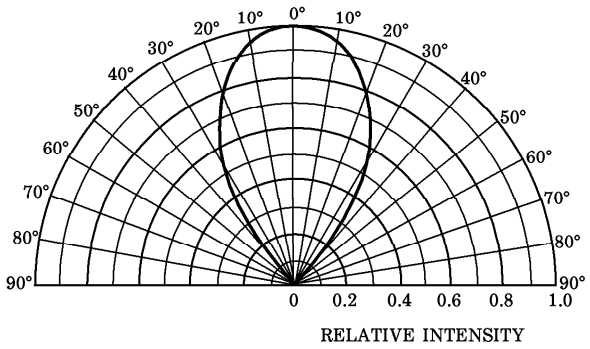


I_E – I_F (typ.)

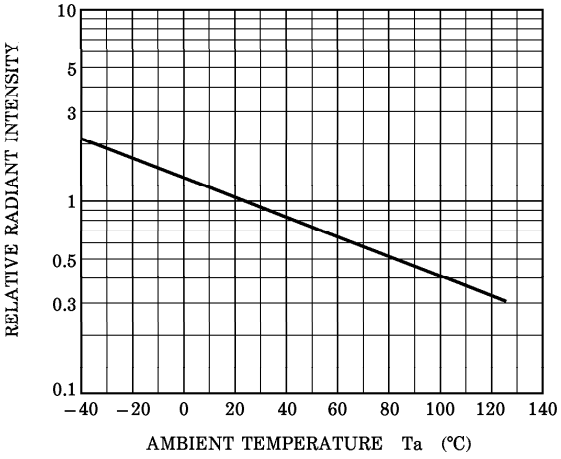


RADIATION PATTERN (typ.)

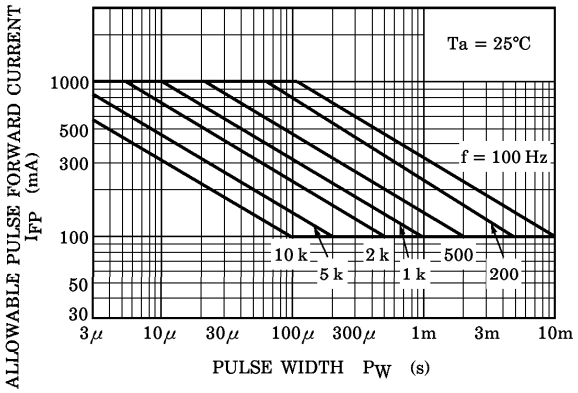
(Ta = 25°C)



RELATIVE I_E – Ta (typ.)



I_{FP} – P_W



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