

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN102

INFRARED LED FOR PHOTSENSORS

Unit : mm

OPTO-ELECTRONIC SWITCHES

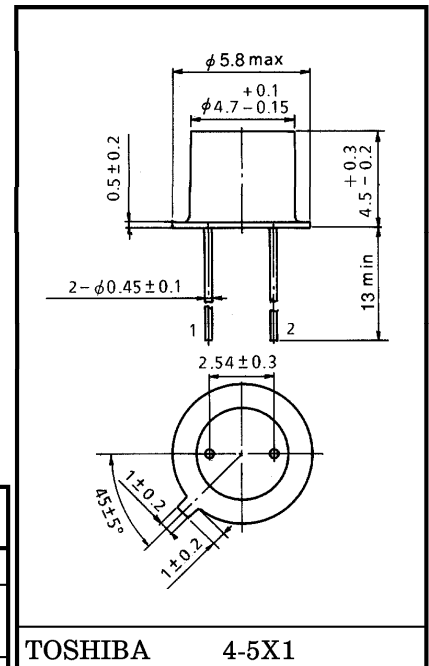
EQUIPMENT USING INFRARED TRANSMISSION

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

MAXIMUM RATINGS (Ta = 25°C)

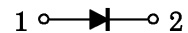
CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	100	mA
Forward Current Derating (Ta > 25°C)	$\Delta I_F / ^\circ C$	-1	mA / °C
Pulse Forward Current	I_{FP} (Note)	1	A
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	-40~125	°C
Storage Temperature	T_{stg}	-55~150	°C

(Note) : Pulse width $\leq 100 \mu s$, repetitive frequency = 100 Hz



Weight : 0.29 g (typ.)

PIN CONNECTION

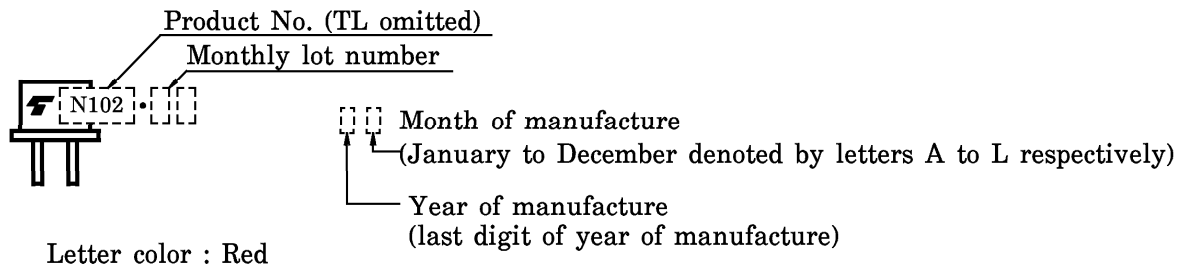


1. Anode
2. Cathode (case)

OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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

MARKINGS

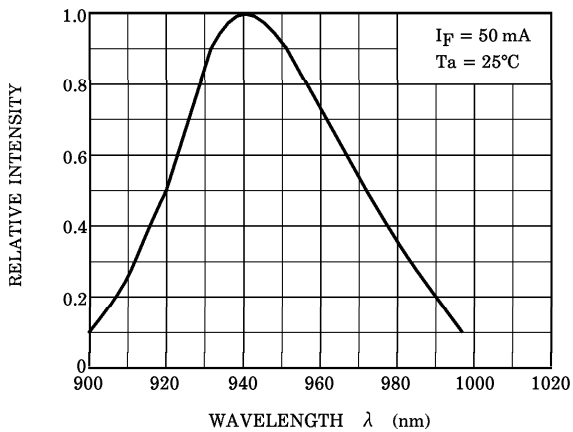
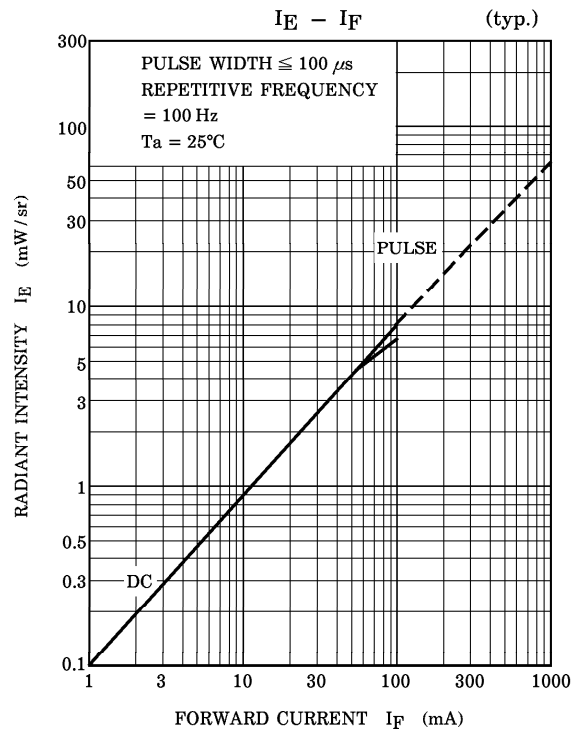
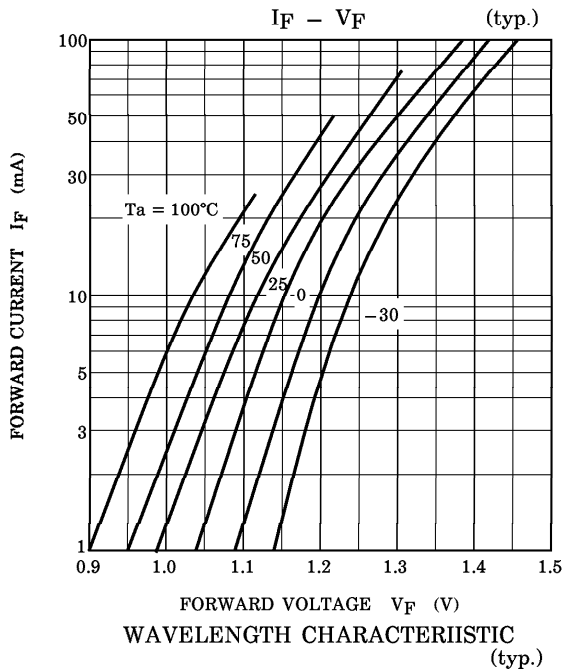
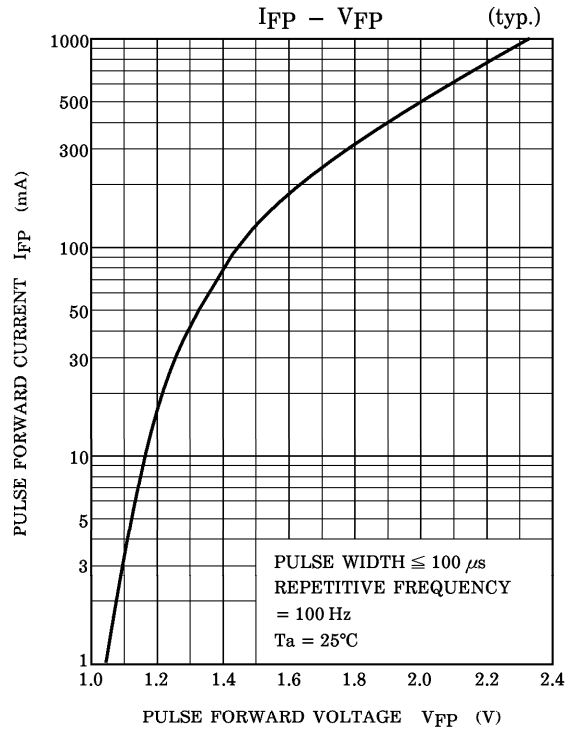
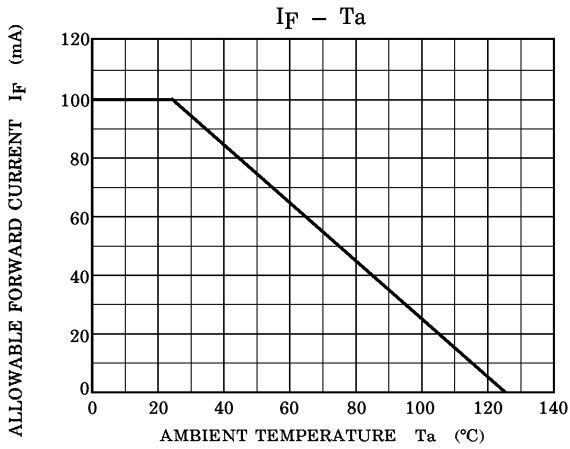


PRECAUTIONS

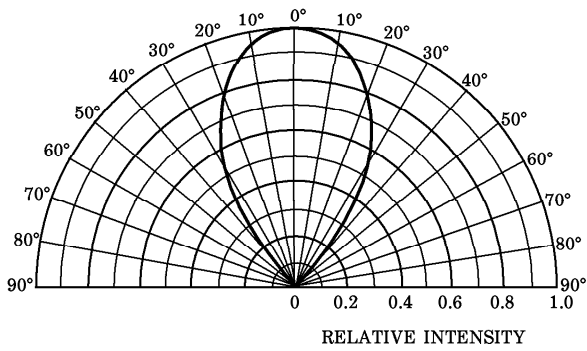
Please be careful of the followings.

1. Soldering temperature : 260°C max
Soldering time : 5 s max
(Soldering must be performed 1.5 mm 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.

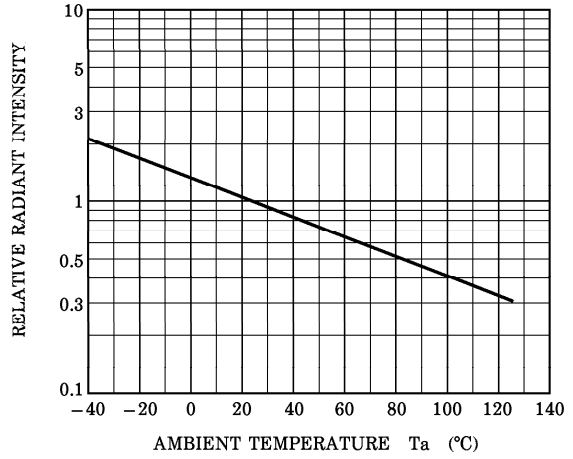
$$\frac{I_E(t)}{I_E(0)} = \frac{P_O(t)}{P_O(0)}$$



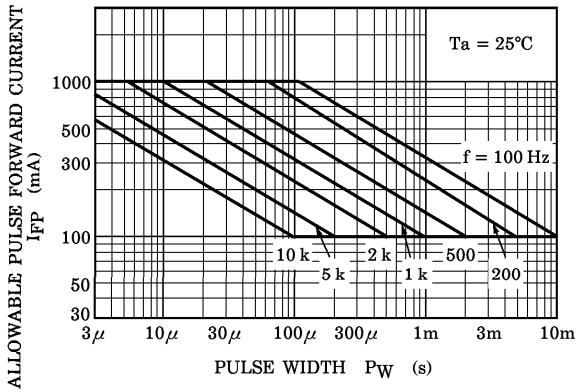
RADIATION PATTERN (typ.)
($T_a = 25^\circ\text{C}$)



RELATIVE $I_E - T_a$ (typ.)



$I_{FP} - P_W$



RESTRICTIONS ON PRODUCT USE

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