

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN103A

INFRARED LED FOR PHOTOSENSORS

Unit : mm

OPTO-ELECTRONIC SWITCHES

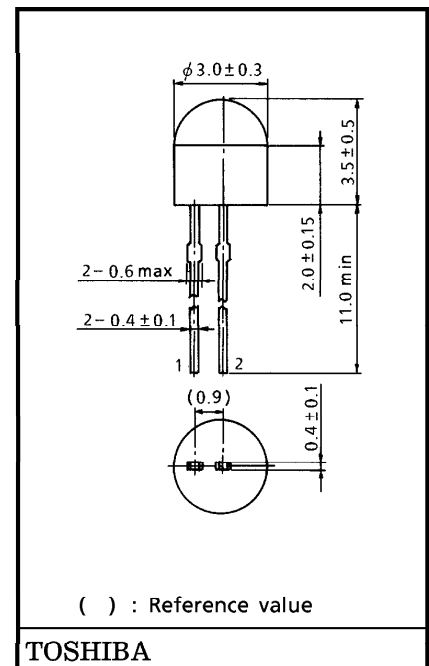
SELECTORS

TAPE AND CARD READERS

EQUIPMENT USING INFRARED TRANSMISSION

- Wide half-angle value : $\theta_{\frac{1}{2}} = \pm 80^\circ$ (typ.)
- Excellent radiant-intensity linearity. Modulation by pulse operation and high frequency is possible.
- Same external shape as TPS603A phototransistors
- Maximum distance when used as photosensor :

with DC drive ≈ 5 mm	}	When TPS603A $I_L \approx 100 \mu A$
with pulse drive ≈ 30 mm		



TOSHIBA

Weight : 0.08 g (typ.)

MAXIMUM RATINGS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	60	mA
Pulse Forward Current (Note)	I_{FP}	1	A
Reverse Voltage	V_R	5	V
Forward Current Derating ($T_a > 25^\circ C$)	$\Delta I_F / ^\circ C$	-0.8	mA / $^\circ C$
Operating Temperature Range	T_{opr}	-20~75	$^\circ C$
Storage Temperature Range	T_{stg}	-30~100	$^\circ C$

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

PIN CONNECTION



1. Anode
2. Cathode

OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

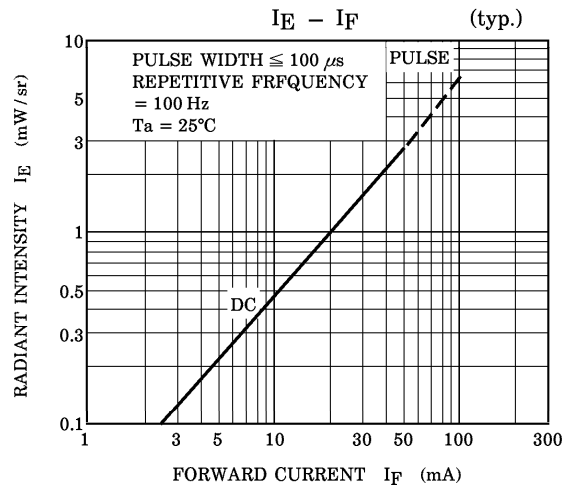
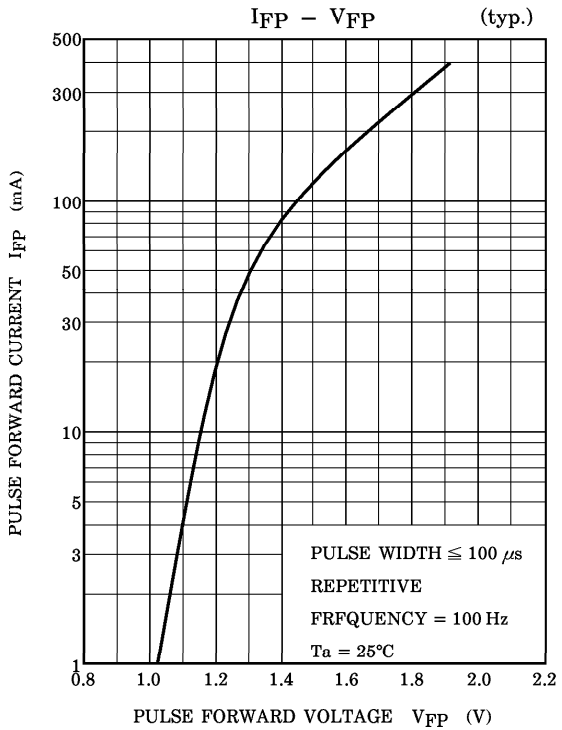
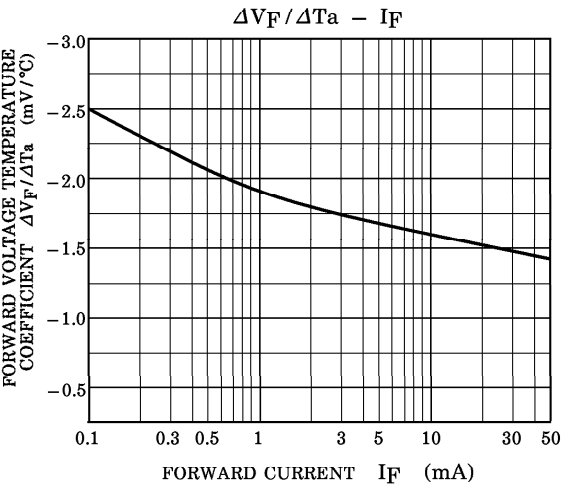
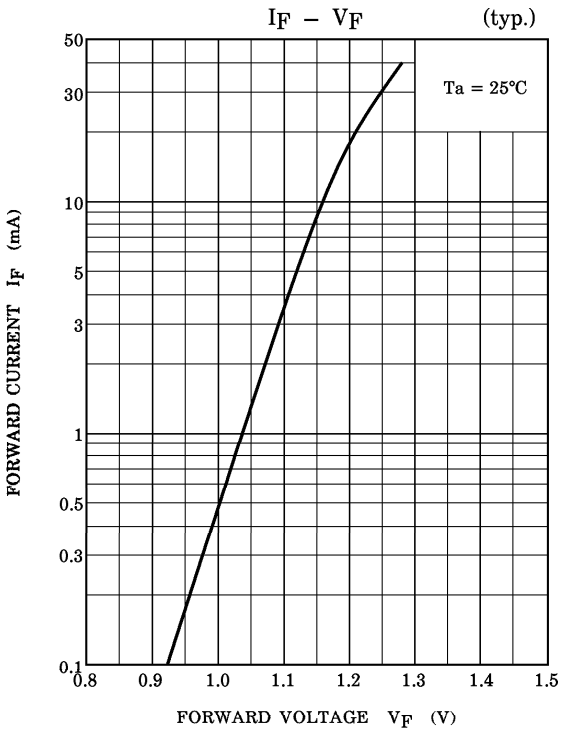
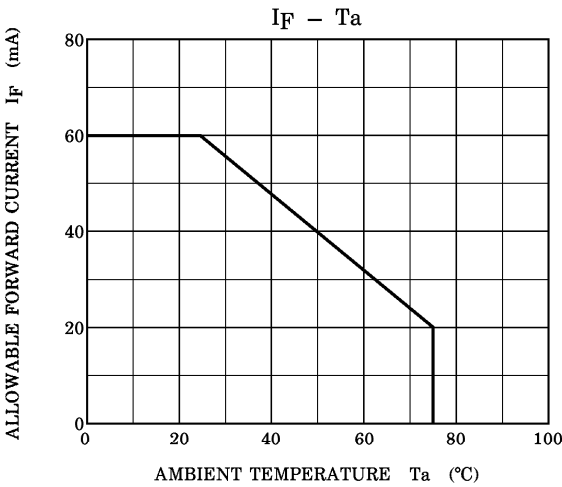
CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT
Forward Voltage	V_F	$I_F = 10$ mA	1.00	1.15	1.30	V
Reverse Current	I_R	$V_R = 5$ V	—	—	10	μA
Radiant Intensity	I_E	$I_F = 20$ mA	0.5	1.0	—	mW / sr
Radiant Power	P_o	$I_F = 20$ mA	—	2.5	—	mW
Half Value Angle	$\theta_{\frac{1}{2}}$	$I_F = 20$ mA	—	± 80	—	$^\circ$
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

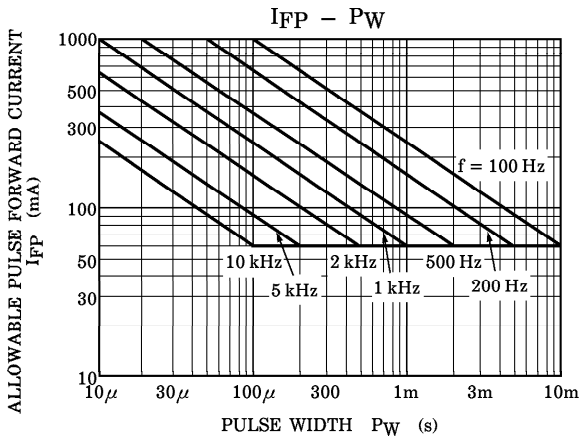
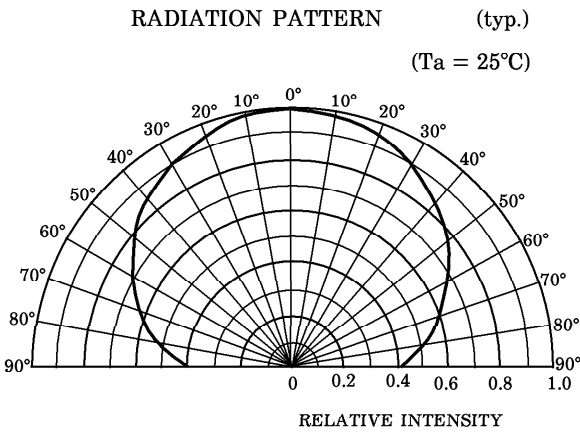
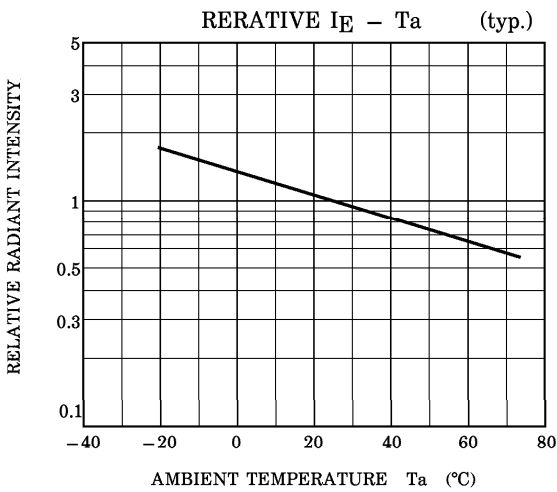
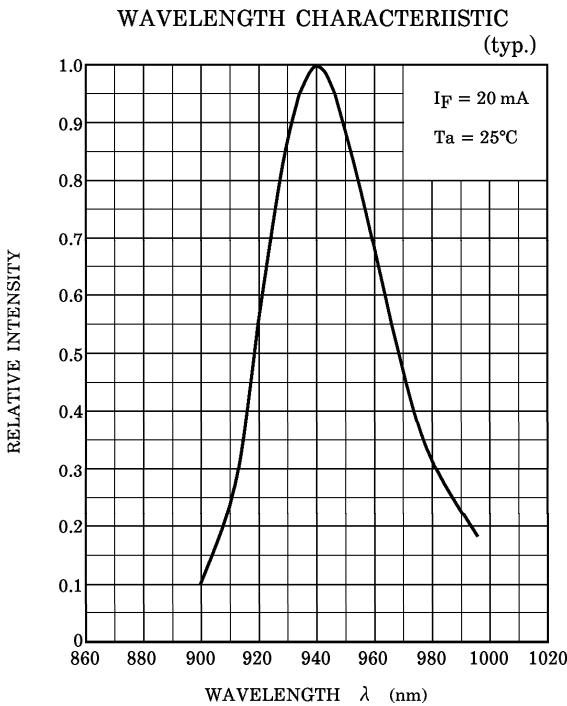
PRECAUTIONS

Please be careful of the followings.

1. Soldering temperature : 260°C max
Soldering time : 3 s max
(Soldering must be performed 2 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. Radiation 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.

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





RESTRICTIONS ON PRODUCT USE

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