

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

# TLN110

INFRARED LED FOR REMOTE-CONTROL SYSTEMS

Unit : mm

REMOTE-CONTROL SYSTEMS

SMOKE SENSORS

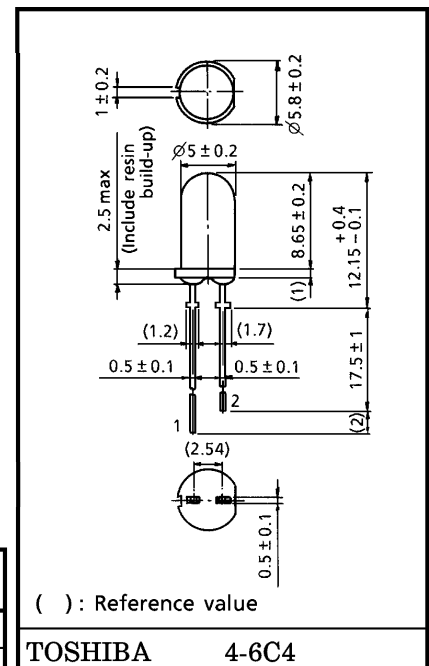
OPTO-ELECTRONIC SWITCHES

- High radiant intensity :  $I_E = 30\text{mW/sr}$  (typ.)
- Excellent radiant-intensity linearity. Modulation by pulse operation and high frequency is possible.
- TPS703 PIN photodiode with resin to acreen out visible light available as detector for remote control

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	$I_F$	100	mA
Forward Current Derating ( $T_a > 25^\circ\text{C}$ )	$\Delta I_F / ^\circ\text{C}$	-1.33	mA / $^\circ\text{C}$
Pulse Forward Current	$I_{FP}$ (Note)	1	A
Reverse Voltage	$V_R$	5	V
Power Dissipation	$P_D$	150	mW
Operating Temperature Range	$T_{opr}$	-20~75	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-30~100	$^\circ\text{C}$

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

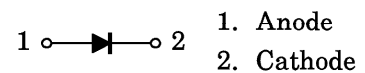


( ) : Reference value

TOSHIBA 4-6C4

Weight : 0.32 g (typ.)

PIN CONNECTION



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

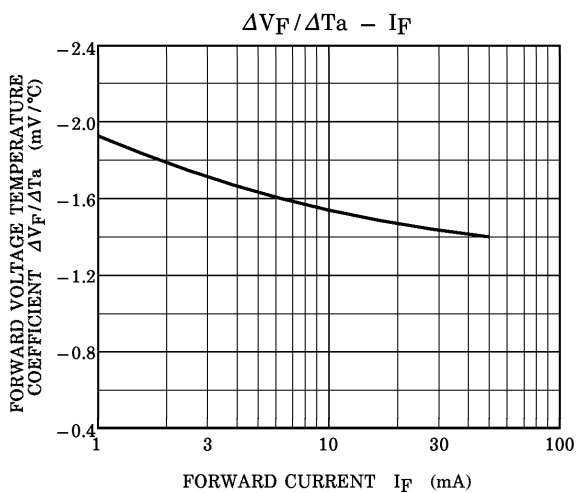
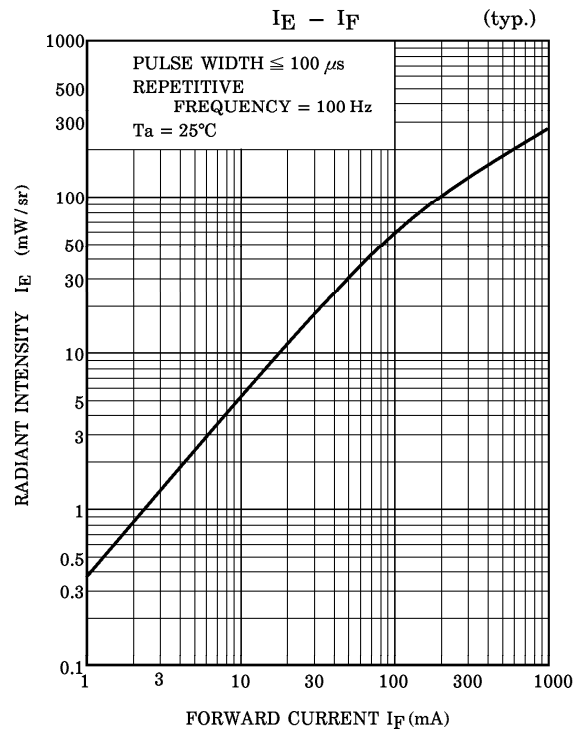
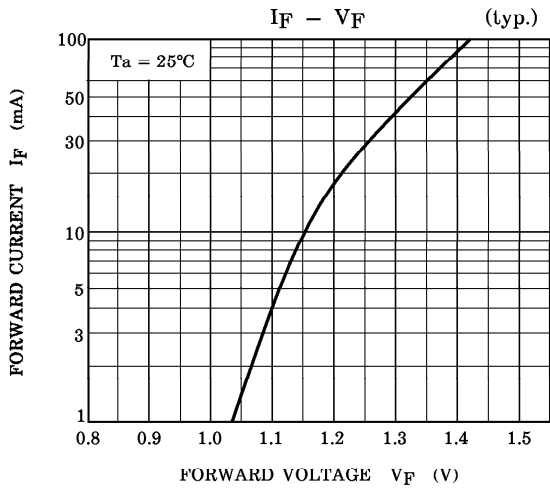
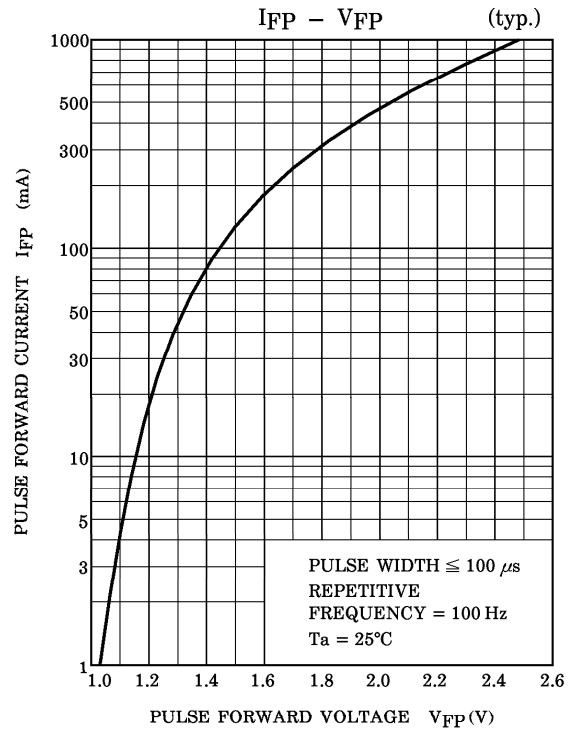
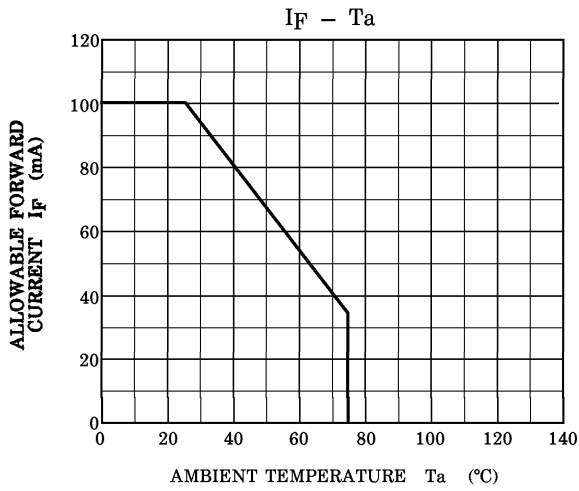
CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT
Forward Voltage	$V_F$	$I_F = 100 \text{ mA}$	—	1.35	1.5	V
Reverse Current	$I_R$	$V_R = 5 \text{ V}$	—	—	10	$\mu\text{A}$
Radiant Intensity	$I_E$	$I_F = 50 \text{ mA}$	15	30	—	mW / sr
Radiant Power	$P_O$	$I_F = 50 \text{ mA}$	—	9	—	mW
Capacitance	$C_T$	$V_R = 0, f = 1 \text{ MHz}$	—	20	—	pF
Peak Emission Wavelength	$\lambda_P$	$I_F = 50 \text{ mA}$	—	940	—	nm
Spectral Line Half Width	$\Delta\lambda$	$I_F = 50 \text{ mA}$	—	45	—	nm
Half Value Angle	$\theta_{\frac{1}{2}}$	$I_F = 50 \text{ mA}$	—	$\pm 8$	—	$^\circ$

**PRECAUTIONS**

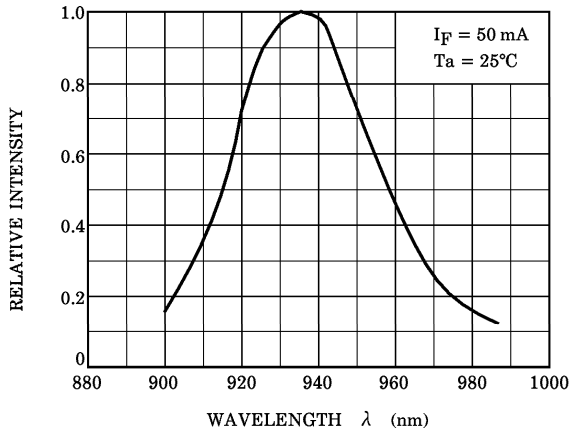
Please be careful of the followings.

1. Soldering temperature : 260°C max  
Soldering time : 5 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.

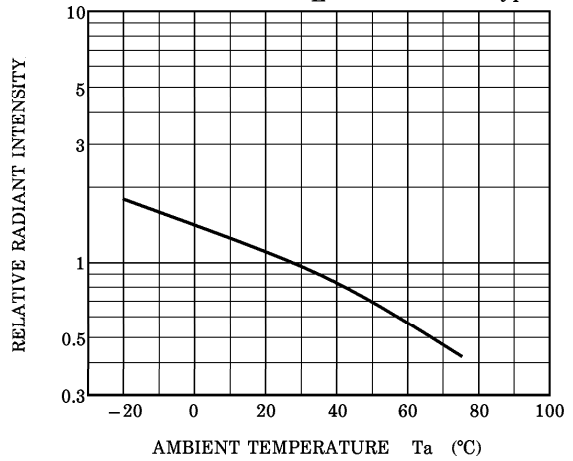
$$\frac{I_E(t)}{I_E(0)} = \frac{P_O(t)}{P_O(0)}$$



WAVELENGTH CHARACTERISTIC (typ.)

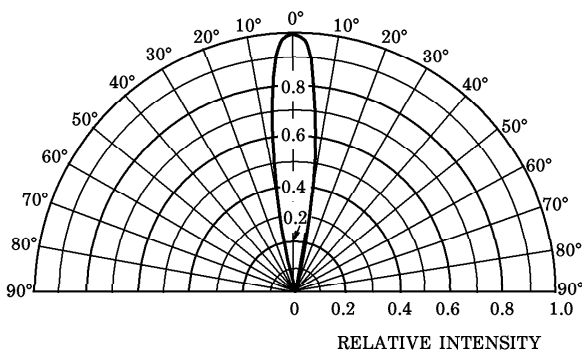


RELATIVE  $I_E - T_a$  (typ.)

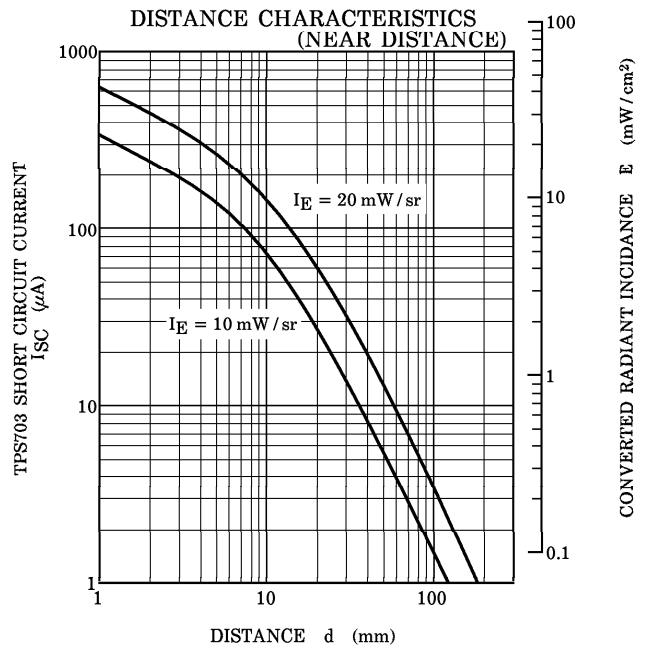


RADIATION PATTERN (typ.)

( $T_a = 25^\circ\text{C}$ )

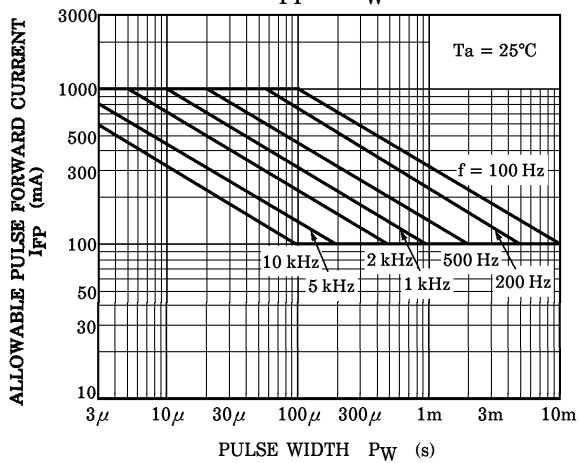


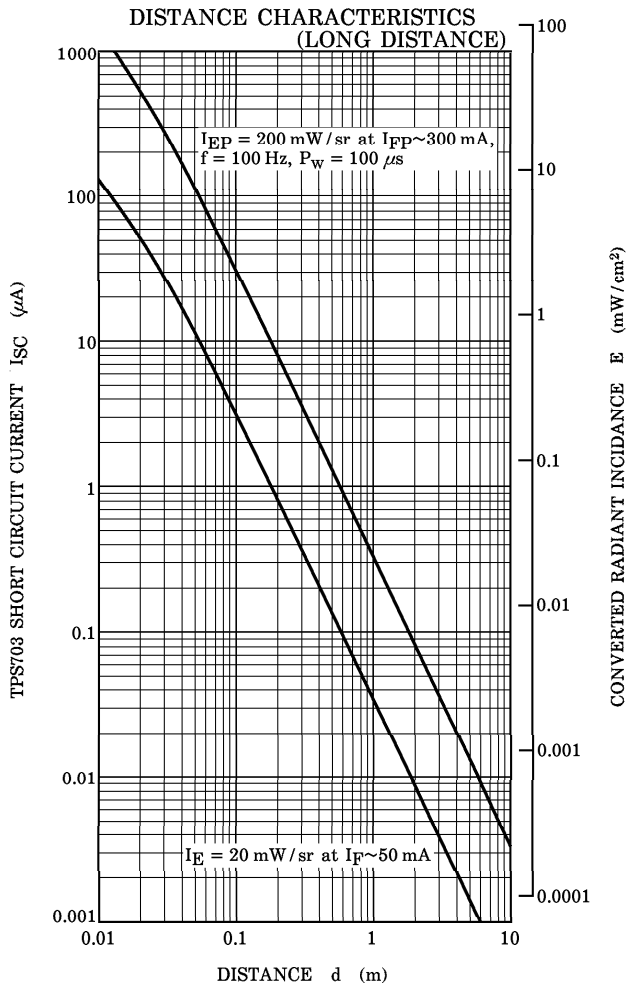
DISTANCE CHARACTERISTICS (NEAR DISTANCE)



$I_{FP} - P_W$

$T_a = 25^\circ\text{C}$





**RESTRICTIONS ON PRODUCT USE**

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