

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

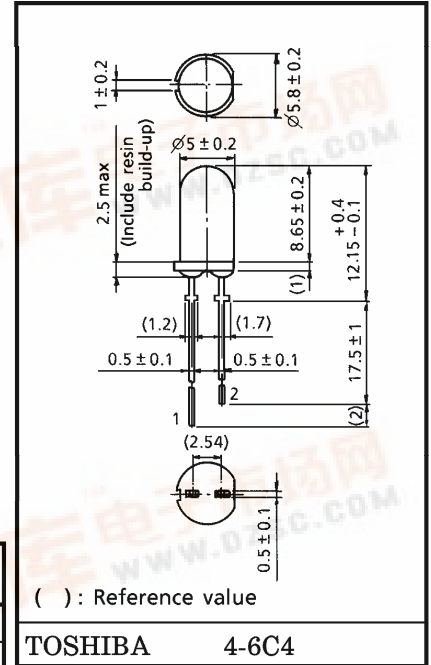
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	100	mA
Forward Current Derating (Ta > 25°C)	$\Delta I_F / ^\circ\text{C}$	-1.33	mA / °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	°C
Storage Temperature Range	T_{stg}	-30~100	°C

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

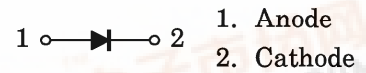
OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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	μA
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	λ_P	$I_F = 50 \text{ mA}$	—	940	—	nm
Spectral Line Half Width	$\Delta\lambda$	$I_F = 50 \text{ mA}$	—	45	—	nm
Half Value Angle	$\theta_{\frac{1}{2}}$	$I_F = 50 \text{ mA}$	—	± 8	—	°



Weight : 0.32 g (typ.)

PIN CONNECTION

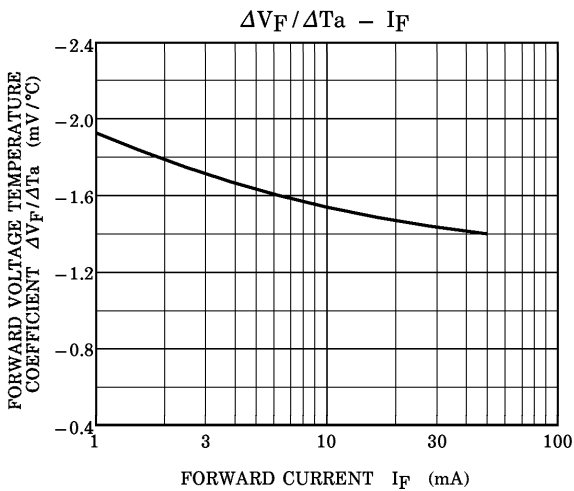
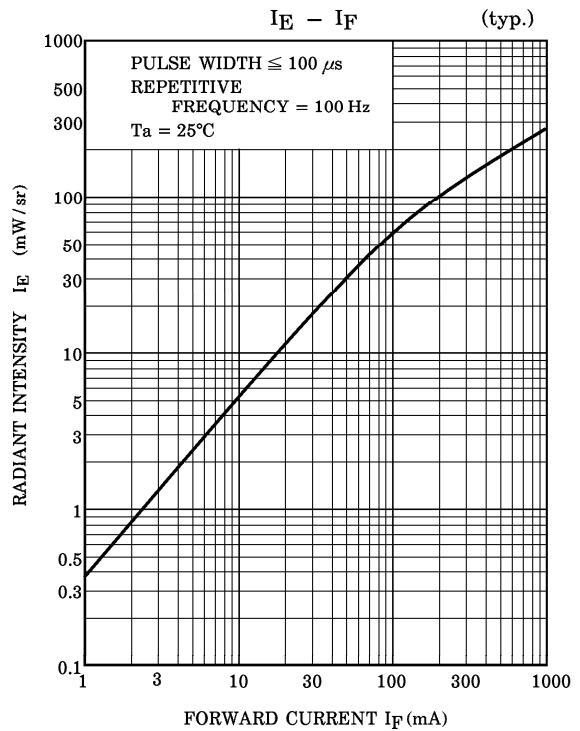
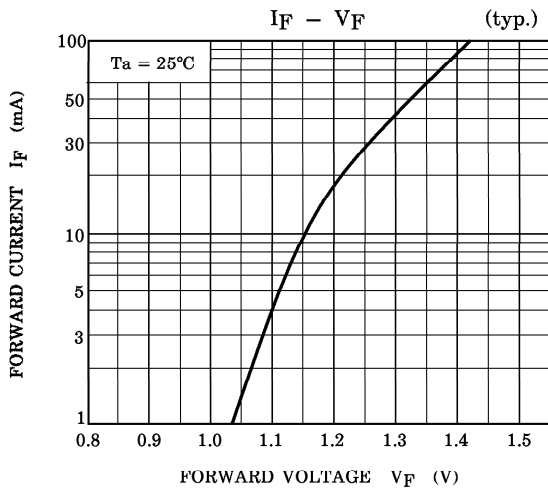
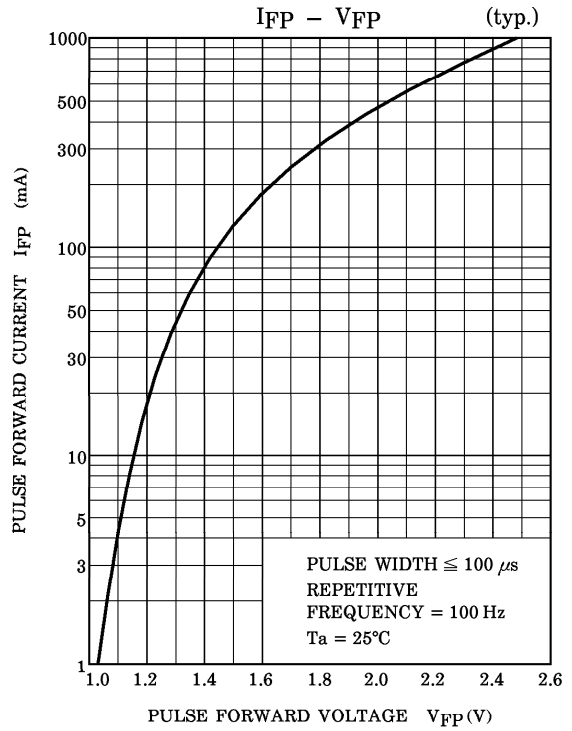
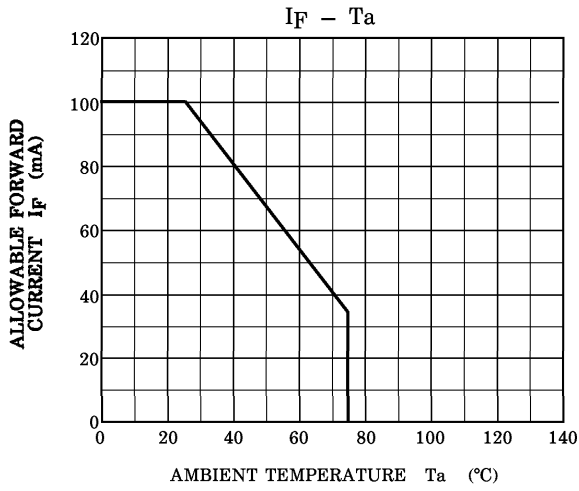


PRECAUTIONS

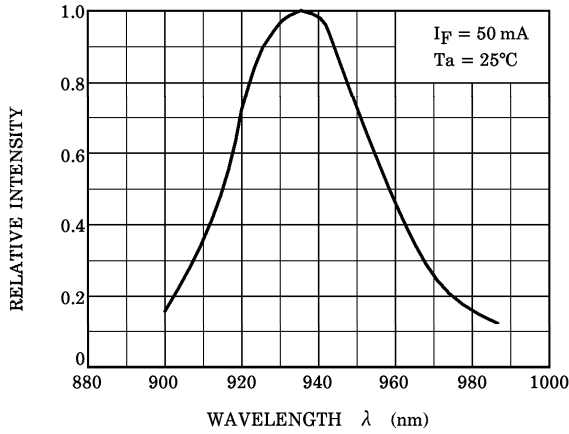
Please be careful of the followings.

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.

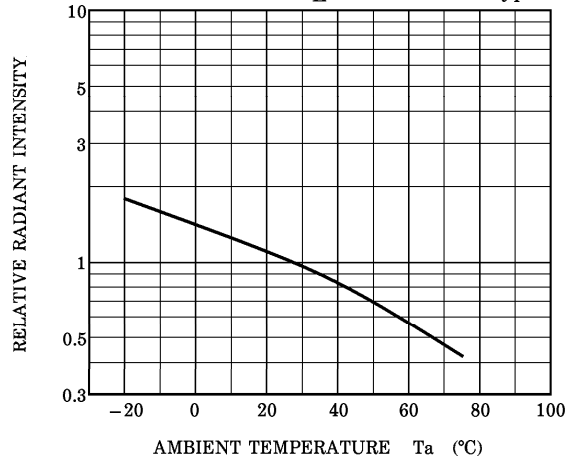
$$\frac{I_E(t)}{I_E(0)} = \frac{P_O(t)}{P_O(0)}$$



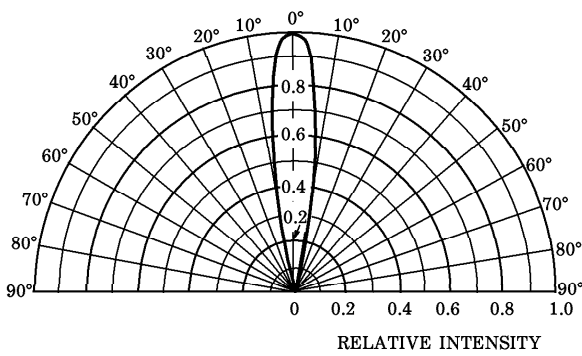
WAVELENGTH CHARACTERISTIC (typ.)



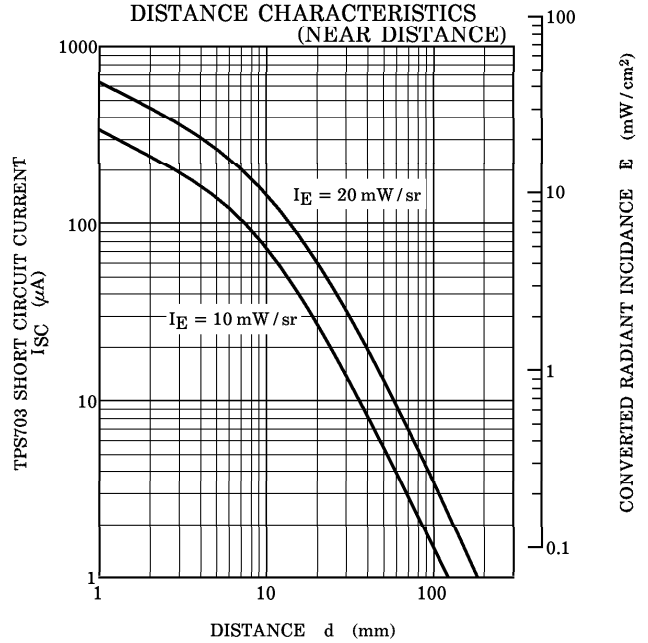
RELATIVE $I_E - T_a$ (typ.)



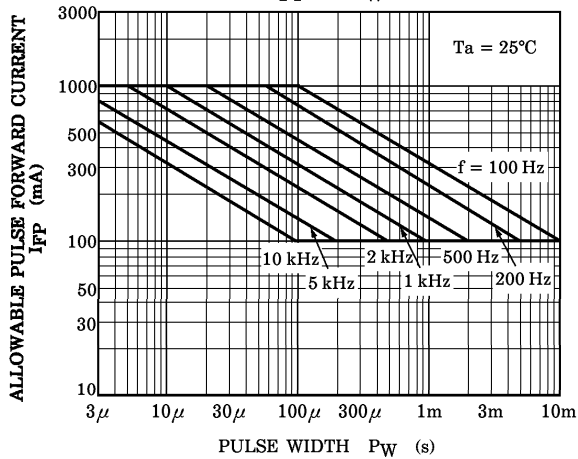
RADIATION PATTERN (typ.)
($T_a = 25^\circ\text{C}$)

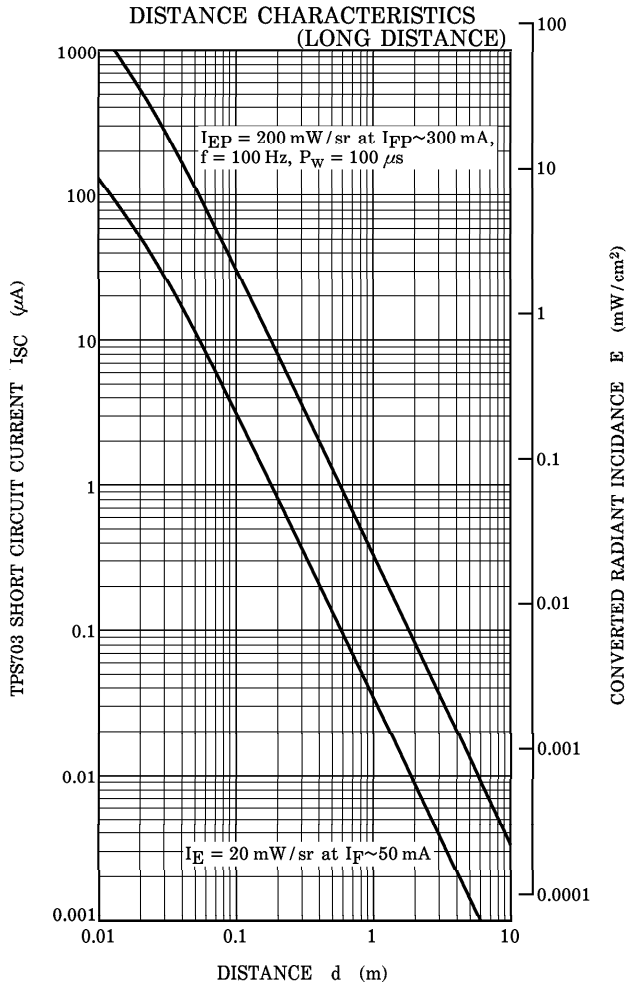


DISTANCE CHARACTERISTICS (NEAR DISTANCE)



$I_{FP} - P_W$





RESTRICTIONS ON PRODUCT USE

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