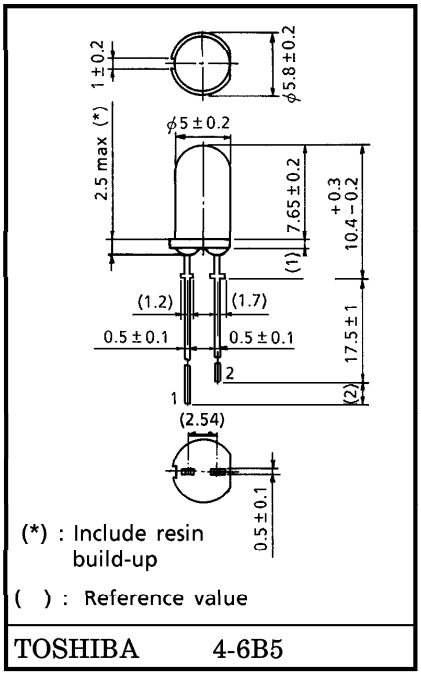
TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN105B

INFRARED LED FOR REMOTE-CONTROL SYSTEMS

Unit : mm



TOSHIBA 4-6B5

Weight : 0.3 g (typ.)

REMOTE-CONTROL SYSTEMS

SMOKE SENSORS

OPTO-ELECTRONIC SWITCHES

- High radiant intensity : I_E = 20 mW / sr (typ.)
- Wide half-angle value : $\theta_{\frac{1}{2}} = \pm 23.5°$ (typ.)
- Excellent radiant-intensity linearity. Modulation by pulse operation and high frequency is possible.
- TPS703 PIN photodiode with filter to screen 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)	ΔI_F / °C	−1.33	mA / °C
Pulse Forward Current (Note)	I_{FP}	1	A
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	150	mW
Operating Temperature	T_{opr}	−20~75	°C
Storage Temperature	T_{stg}	−30~100	°C

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

PIN CONNECTION

1. Anode
2. Cathode

OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT
Forward Voltage	V_F	I_F = 100 mA	—	1.35	1.5	V
Reverse Current	I_R	V_R = 5 V	—	—	10	μA
Radiant Intensity	I_E	I_F = 50 mA	12	20	—	mW / sr
Radiant Power	P_O	I_F = 50 mA	—	11	—	mW
Capacitance	C_T	V_R = 0, f = 1 MHz	—	20	—	pF
Peak Emission Wavelength	λ_P	I_F = 50 mA	—	950	—	nm
Spectral Line Half Width	$\Delta\lambda$	I_F = 50 mA	—	50	—	nm
Half Vaule Angle	$\theta_{\frac{1}{2}}$	I_F = 50 mA	—	±23.5	—	°

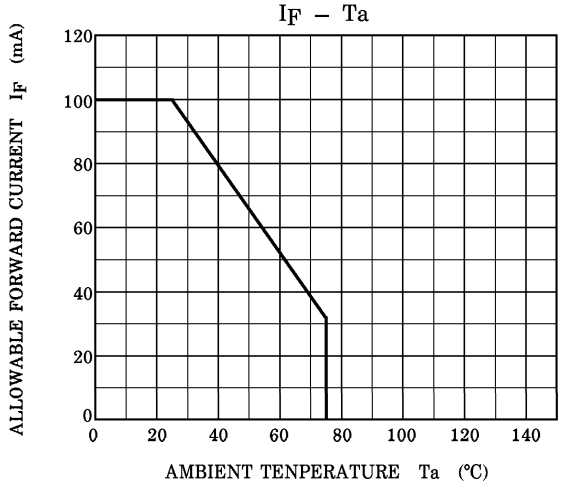
PRECAUTIONS

Please be careful of the followings.

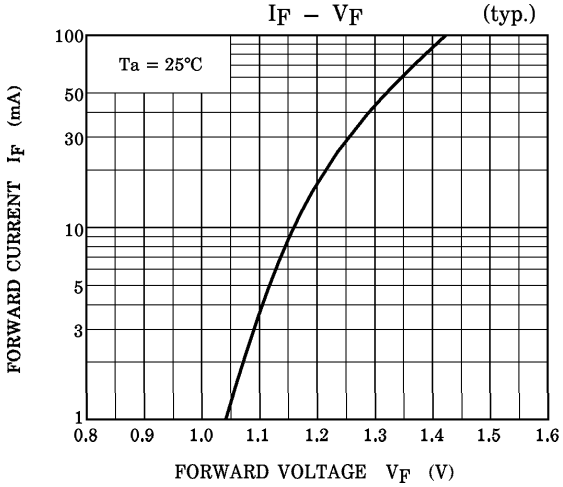
1. Soldering must be performed under the lead stopper.
2. Soldering temperature : 260°C max
   Soldering time : 5 s max
3. When forming the leads, bend each lead under the stopper without leaving forming stress to the body of the device. Soldering must be performed after the leads have been formed.
4. 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.

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

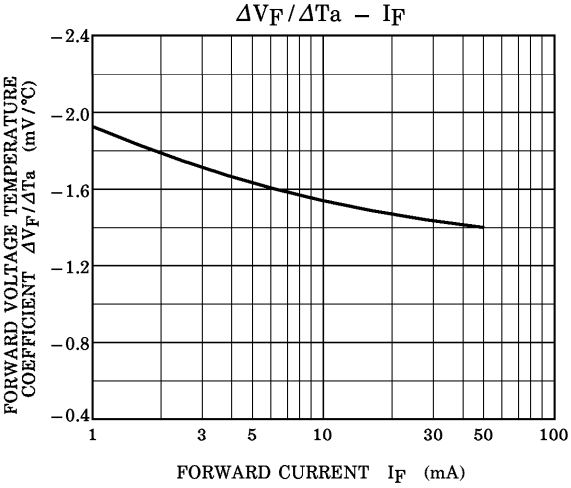
I_F – Ta



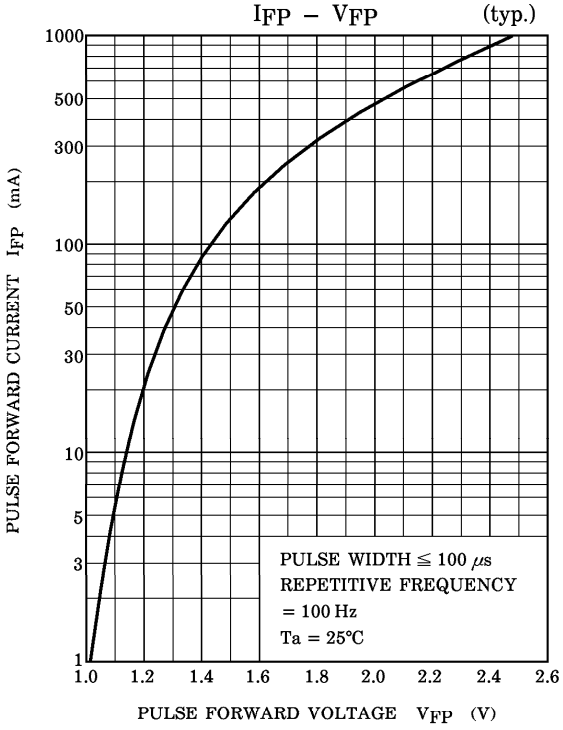
I_F – V_F (typ.)



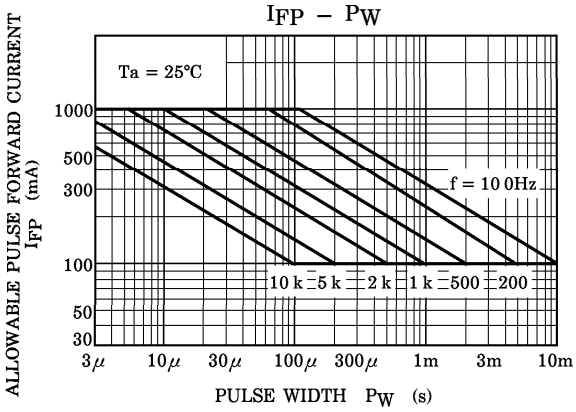
$\Delta V_F / \Delta Ta$ – I_F



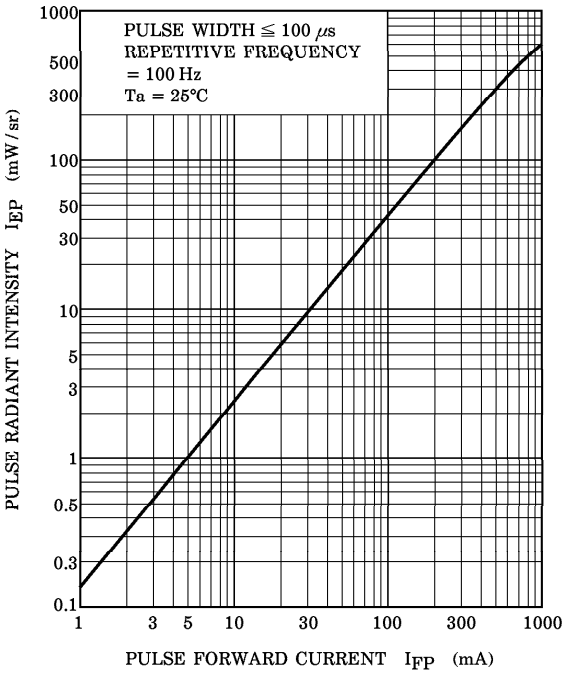
I_{FP} – V_{FP} (typ.)



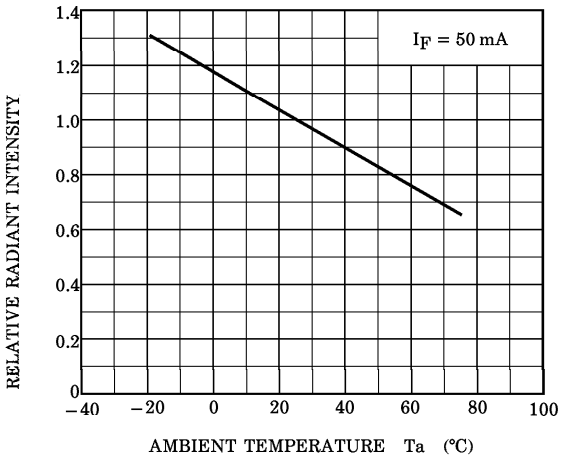
I_{FP} – P_W



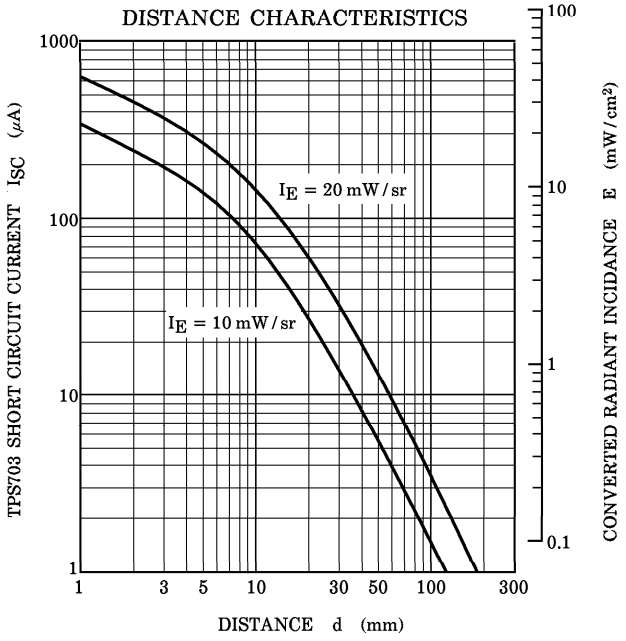
I_{EP} – I_{FP} (typ.)



RELATIVE I_E – Ta (typ.)



DISTANCE CHARACTERISTICS



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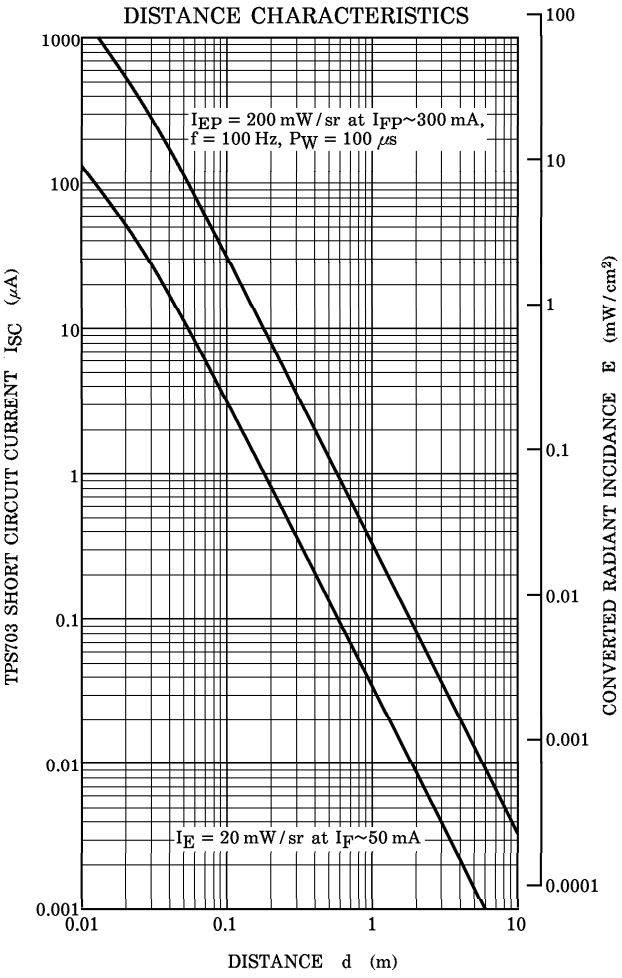
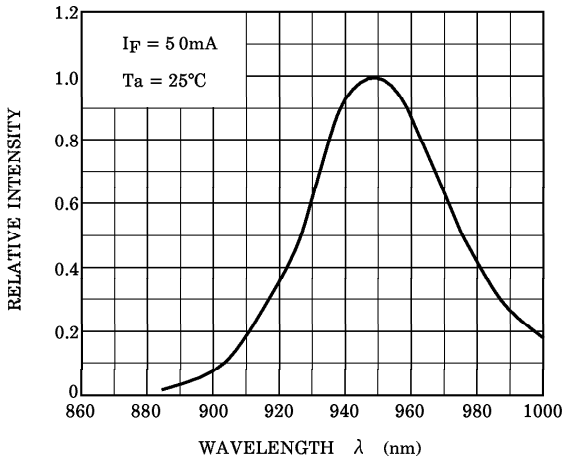
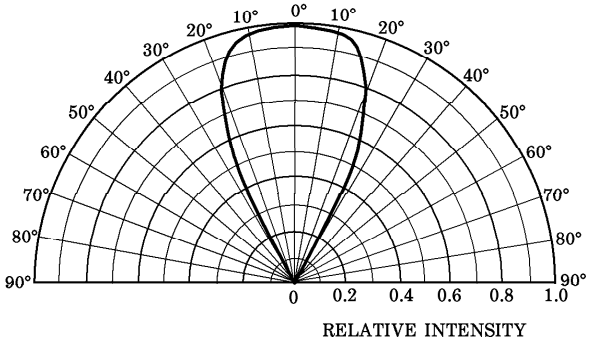


WAVELENGTH CHARACTERIISTIC (typ.)



RADIATION PATTERN (typ.)

(Ta = 25°C)



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