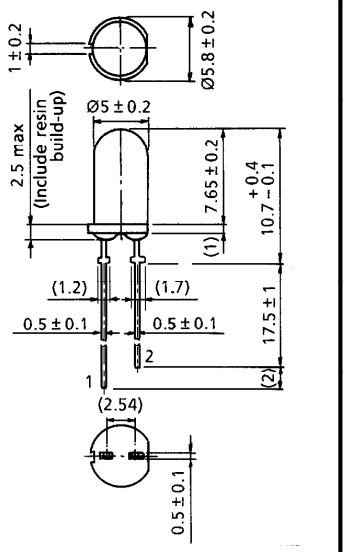
TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN115A

INFRARED LED FOR REMOTE-CONTROL SYSTEMS

Unit : mm



( ) : Reference value

TOSHIBA 4-6B6

Weight : 0.3 g (typ.)

REMOTE-CONTROL SYSTEMS

- High radiant intensity : I_E = 26mW / sr (typ.)
- Wide half-angle value : $\theta\frac{1}{2} = \pm 21°$ (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

PIN CONNECTION

1. Anode
2. Cathode

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
Operation Temperature Range	T_{opr}	−20~75	°C
Storage Temperature Range	T_{stg}	−30~85	°C

(Note) : Pulse width ≦ 100 μs, 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 mA		—	1.35	1.5	V
Reverse Current	I_R	V_R = 5 V		—	—	10	μA
Radiant Intensity	I_E	I_F = 50 mA	TLN115	15	26	—	mW / sr
			TLN115 (A)	19	—	—	
Radiant Power	P_O	I_F = 50 mA		—	13	—	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 Value Angle	$\theta\frac{1}{2}$	I_F = 50 mA		—	±21	—	°

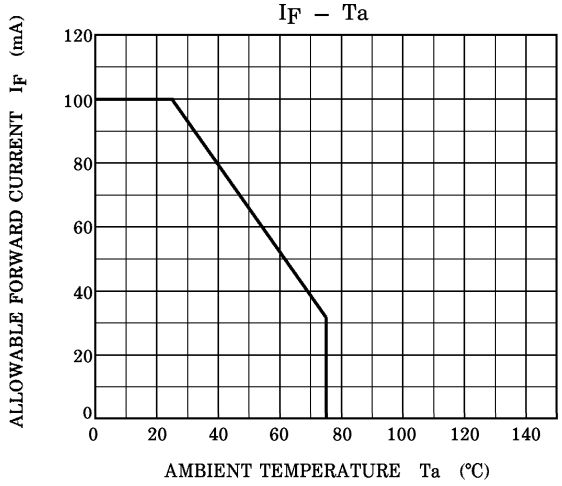
PRECAUTIONS

Please be careful of the followings.

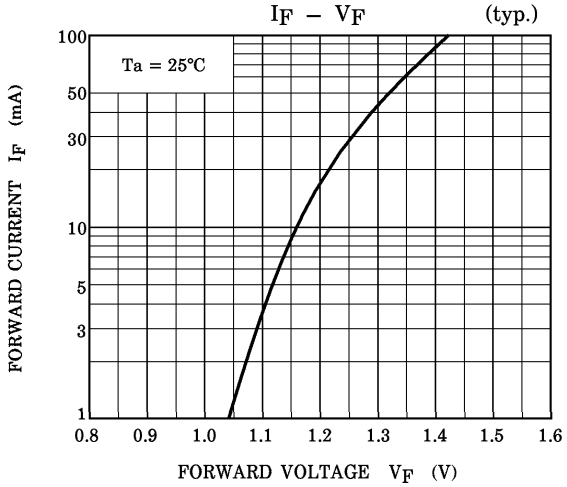
1. Soldering must be performed under the stopper.
2. Soldering temperature : 260°C max
   Solderint time : 5 s max
3. When forming the leads, bend each lead under the 2 mm from the body of the device.
   Soldering must be performed after the leads have been formed.
4. Radiant intensity falls over time 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.

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

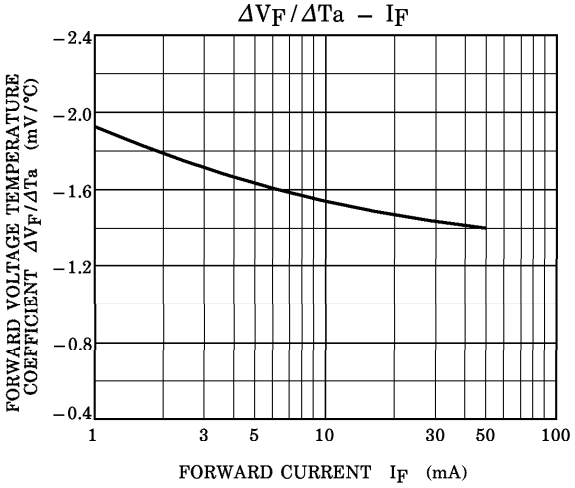
I_F – Ta



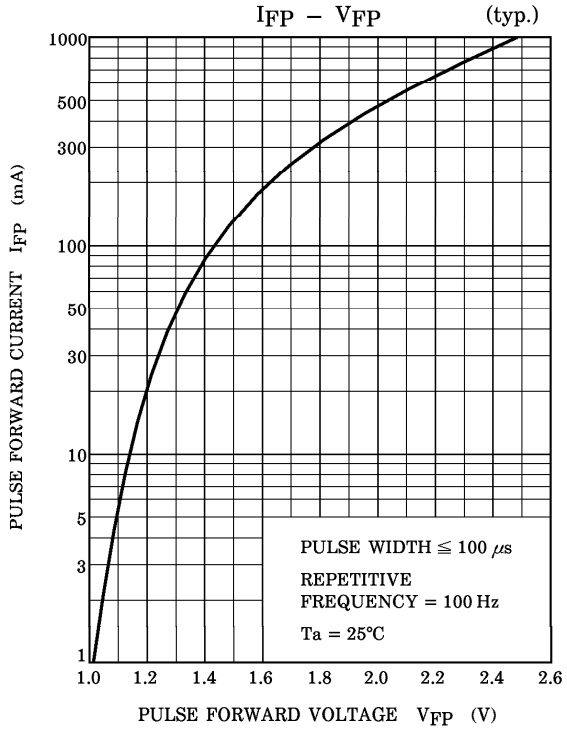
I_F – V_F (typ.)



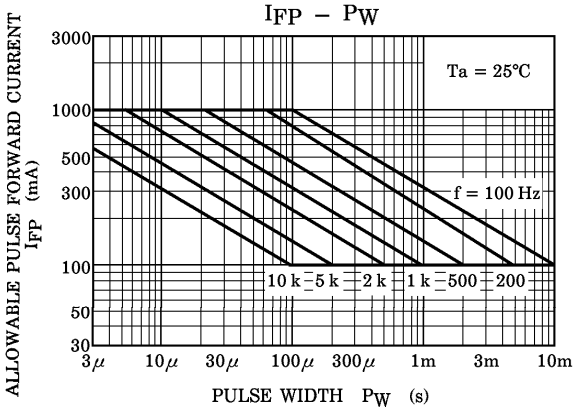
$\Delta V_F / \Delta Ta$ – I_F



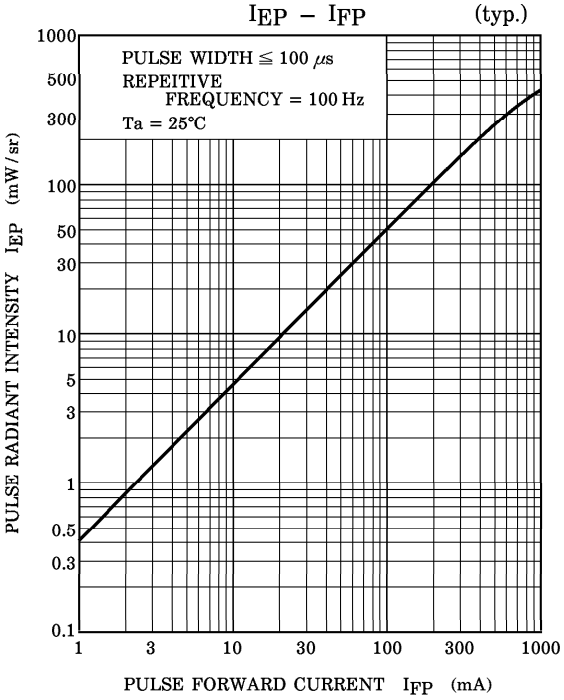
I_{FP} – V_{FP} (typ.)



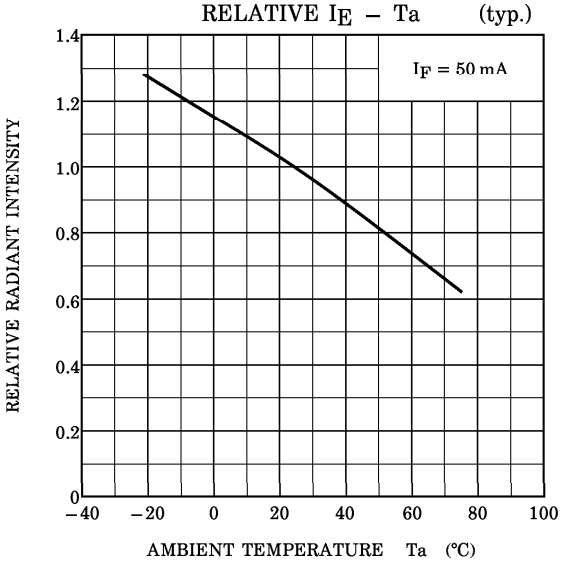
I_{FP} – P_W



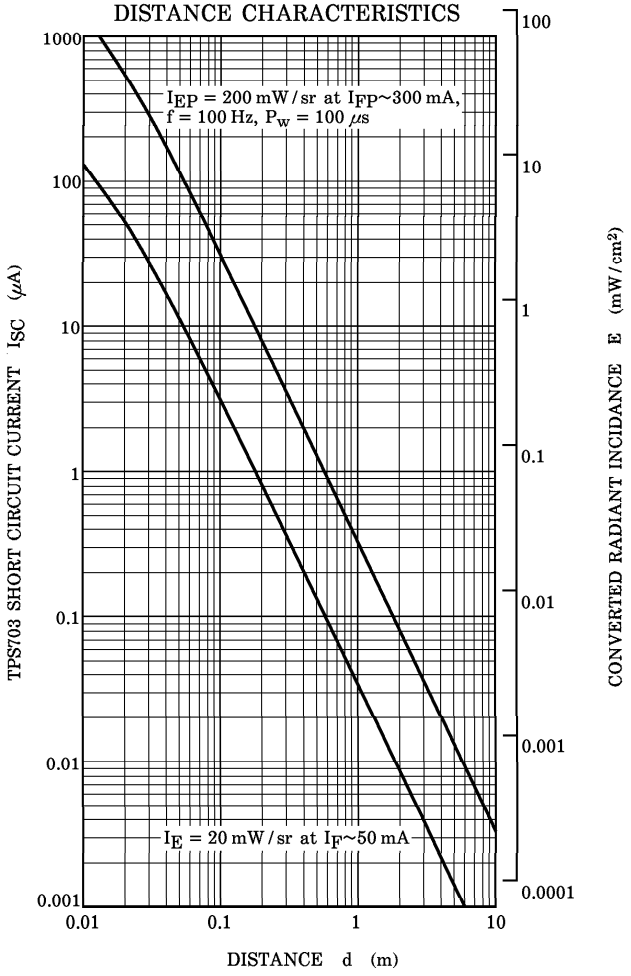
I_{EP} – I_{FP} (typ.)



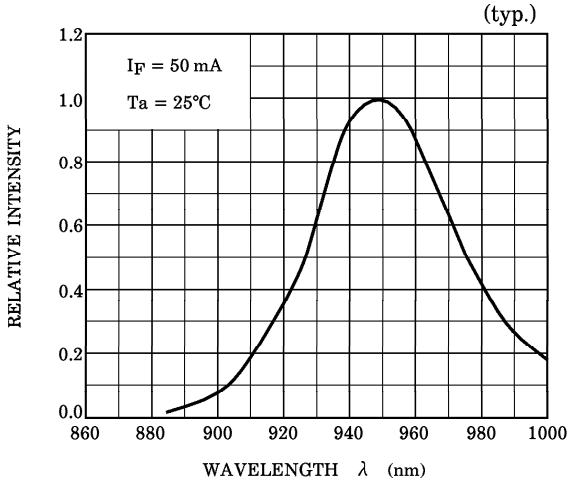
RELATIVE I_E – Ta (typ.)



DISTANCE CHARACTERISTICS

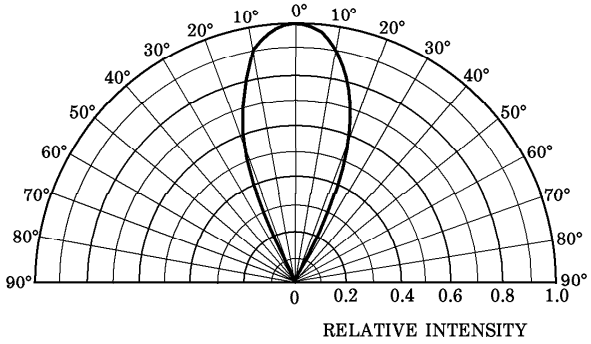


WAVELENGTH CHARACTERIISTIC (typ.)



RADIATION PATTERN (typ.)

(Ta = 25°C)



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