

TOSHIBA Infrared LED GaAs Infrared Emitter

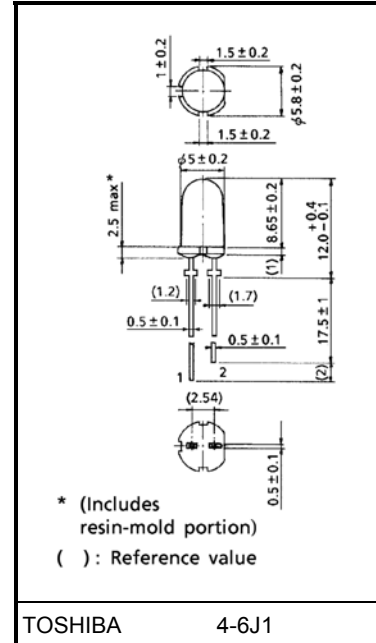
# TLN227(F)

Lead Free Product

For Space-Optical-Transmission

- High radiant power:  $P_o = 18\text{mW}$  (typ.) at  $I_F = 50\text{mA}$
- Wide half-angle value:  $= \theta_{1/2} \pm 21^\circ$  (typ.)
- High-speed response:  $t_r, t_f = 30\text{ns}$  (typ.)
- Light source for remote control
- Designed for transmission of wireless AV signals purpose.
- Designed for high-speed data transmission

Unit: mm

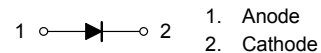


## Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Forward current	$I_F$	100	mA
Pulse forward current	$I_{FP}$	1000 (Note 1)	mA
Power dissipation	$P_D$	220	mW
Reverse voltage	$V_R$	4	V
Operating temperature	$T_{opr}$	-25~85	°C
Storage temperature	$T_{stg}$	-30~100	°C
Soldering temperature (5s)	$T_{sol}$	260	°C

(Note 1): Frequency = 100kHz, duty = 1%

## Pin Connection



## Optical And Electrical Characteristics (Ta = 25°C)

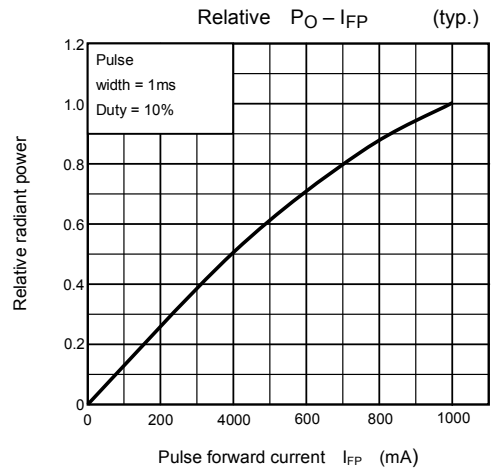
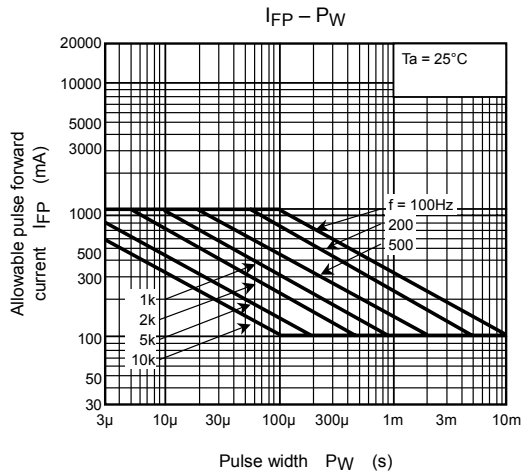
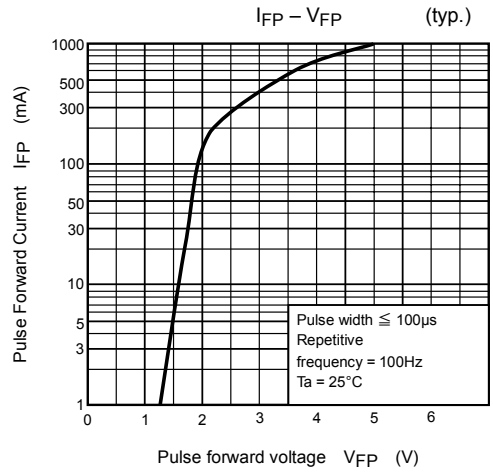
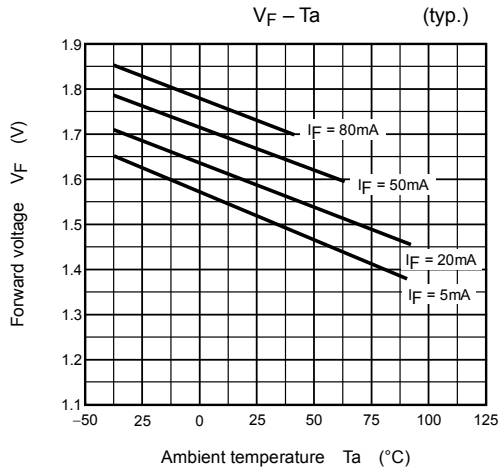
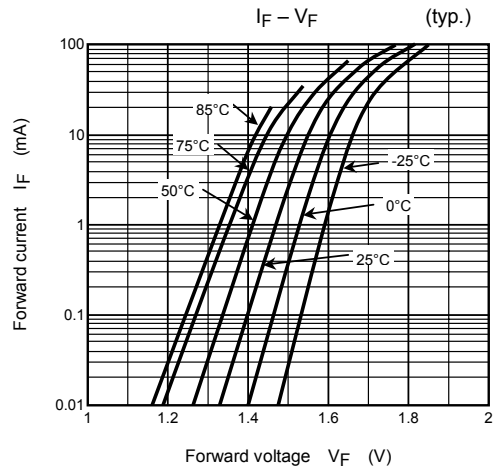
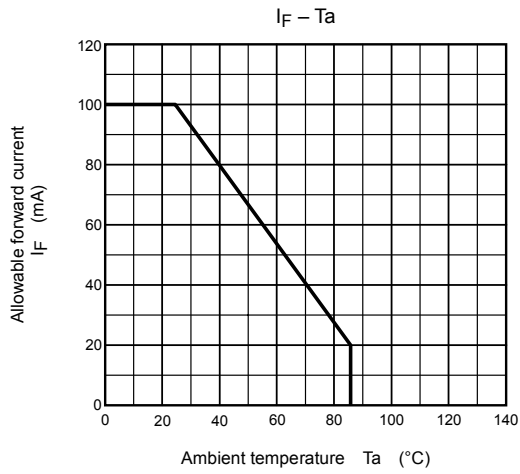
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_F$	$I_F = 100\text{mA}$	—	1.8	2.2	V
Reverse current	$I_R$	$V_R = 4\text{V}$	—	—	60	$\mu\text{A}$
Radiant power	$P_O$	$I_F = 50\text{mA}$	14	18	—	mW
Radiant intensity	$I_E$	$I_F = 50\text{mA}$	—	100	—	$\text{mW} / \text{sr}$
Rise time, fall time	$t_r, t_f$	$I_{FP} = 100\text{mA}, P_W = 100\text{ns}$	—	30	—	ns
Cut-off frequency (Note 2)	$f_c$	$I_F = 50\text{mA}_{DC} + 5\text{mA}_{p-p}$	10	15	—	MHz
Capacitance	$C_T$	$V_R = 0, f = 1\text{MHz}$	—	110	—	pF
Peak emission wavelength	$\lambda_P$	$I_F = 50\text{mA}$	830	870	900	nm
Spectral line half width	$\Delta\lambda$	$I_F = 50\text{mA}$	—	50	—	nm
Half value angle	$\theta_{\frac{1}{2}}$	$I_F = 50\text{mA}$	—	$\pm 5$	—	°

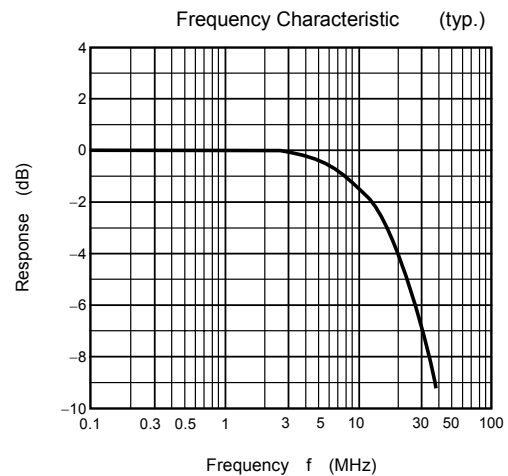
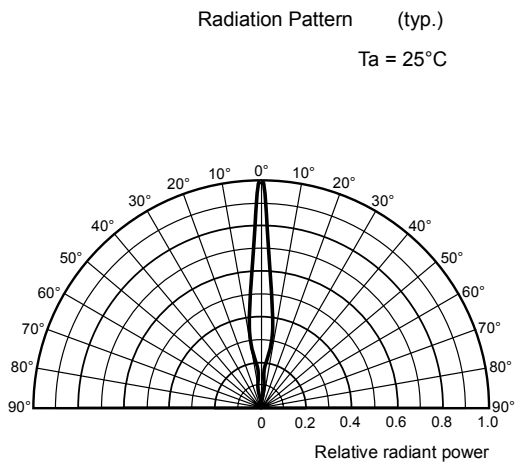
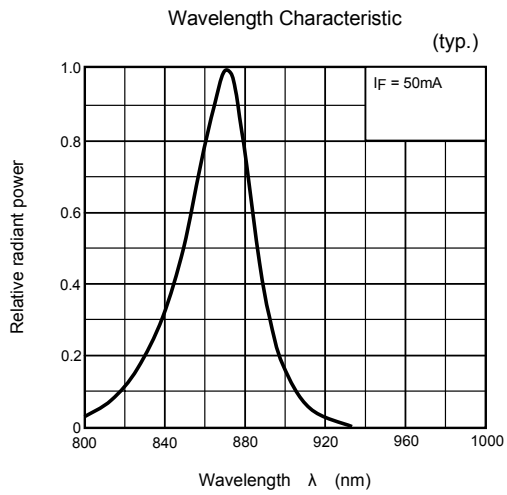
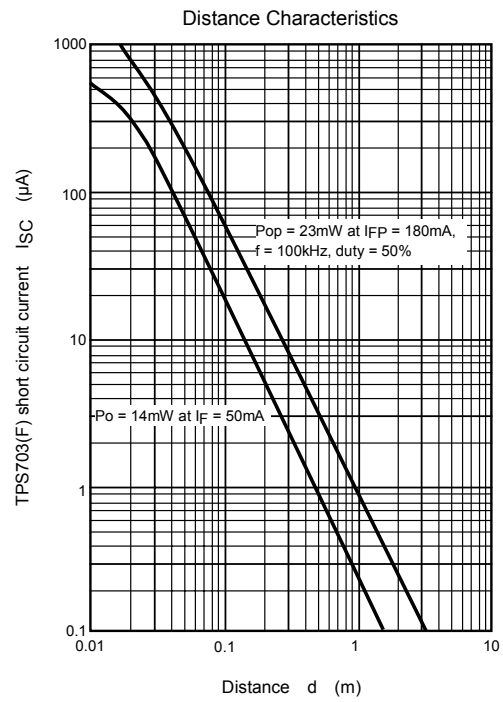
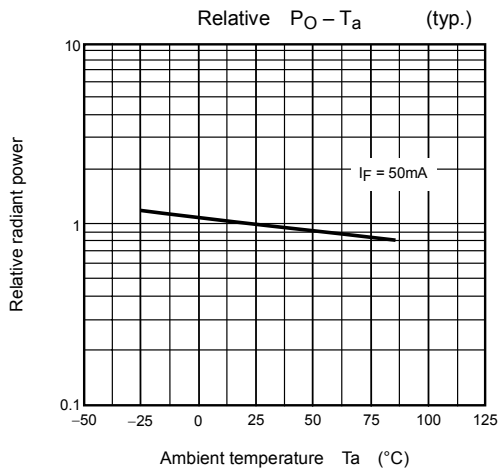
(Note 2): Frequency when modulation light power decreases by 3dB from 1 MHz.

**Precautions**

Please be careful of the followings.

1. Soldering must be performed under the lead stopper.
2. 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.
3. Radiant power 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.





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