TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN105B

INFRARED LED FOR REMOTE-CONTROL SYSTEMS

REMOTE-CONTROL SYSTEMS
SMOKE SENSORS
OPTO-ELECTRONIC SWITCHES

• High radiant intensity : $I_E = 20 \text{ mW/sr (typ.)}$

• Wide half-angle value : $\theta_{\frac{1}{2}} = \pm 23.5^{\circ}$ (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		${f I_F}$	100	mA
Forward Current Derating (Ta > 25°C)		$\Delta I_{\mathbf{F}} / {^{\circ}\mathbf{C}}$	-1.33	mA/°C
Pulse Forward Current	(Note)	I_{FP}	1	A
Reverse Voltage		$v_{ m R}$	5	V
Power Dissipation		P_{D}	150	mW
Operating Temperature		${ m T_{opr}}$	-20~75	°C
Storage Temperature	·	$\mathrm{T_{stg}}$	-30~100	°C

(Note) : Pulse width $\leq 100~\mu \rm s,\ repetitive\ frequency = 100~Hz$

PIN CONNECTION



- 1. Anode
- 2. Cathode

OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Тур.	Max	UNIT
Forward Voltage	$V_{\mathbf{F}}$	$I_{ m F}=100{ m mA}$	_	1.35	1.5	V
Reverse Current	$I_{ m R}$	$V_R = 5 V$	_	_	10	μ A
Radiant Intensity	${ m I_E}$	$I_{\mathbf{F}} = 50 \mathrm{mA}$	12	20	_	mW/sr
Radiant Power	PO	$I_{\mathbf{F}} = 50 \mathrm{mA}$	_	11	_	mW
Capacitance	C_{T}	$V_{ m R}=0,~{ m f}=1~{ m MHz}$	_	20	_	pF
Peak Emission Wavelength	$\lambda_{\mathbf{P}}$	$I_{ m F}=50{ m mA}$	_	950	_	nm
Spectral Line Half Width	Δλ	$I_{\mathbf{F}} = 50 \mathrm{mA}$	_	50	_	nm
Half Vaule Angle	$\theta_{\frac{1}{2}}$	$I_{ m F}=50{ m mA}$	_	±23.5	_	٥

Continuation

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Weight: 0.3 g (typ.)

2002-01-25

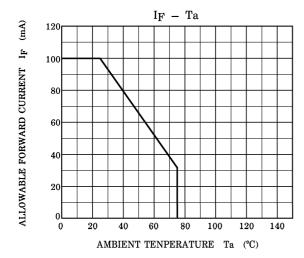
PRECAUTIONS

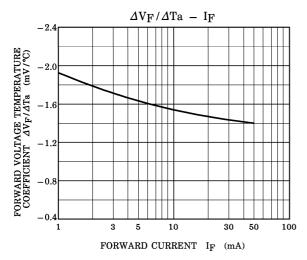
Please be careful of the followings.

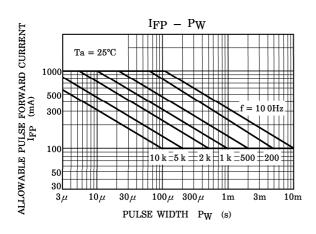
1. Soldering must be performed under the lead stopper.

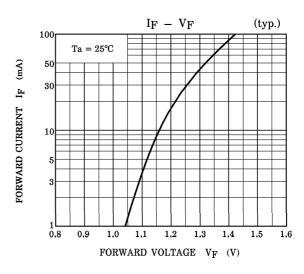
- 2. Soldering temperature: 260°C max Soldering time: 5 s max
- 3. When forming the leads, bend each lead under the stopper without leaving forming stress to the body of the device. Soldering must be performed after the leads have been formed.
- 4. Radiation intensity falls over time due to the current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

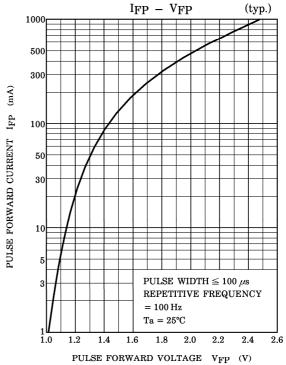
$$\frac{I_{E}\left(t\right)}{I_{E}\left(0\right)}\,=\frac{P_{O}\left(t\right)}{P_{O}\left(0\right)}$$

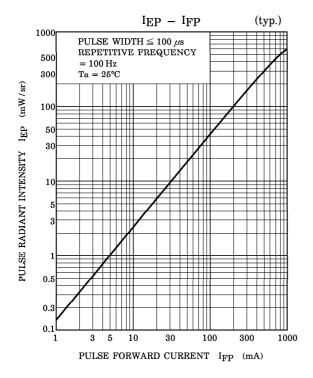


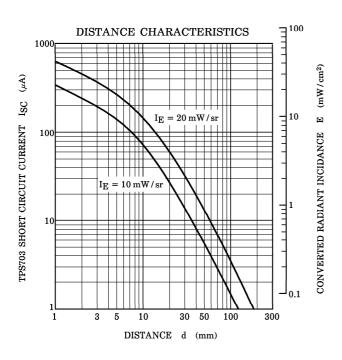


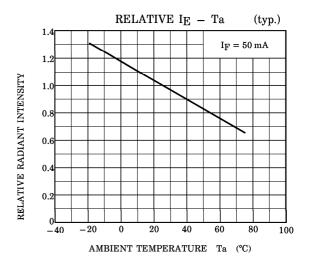


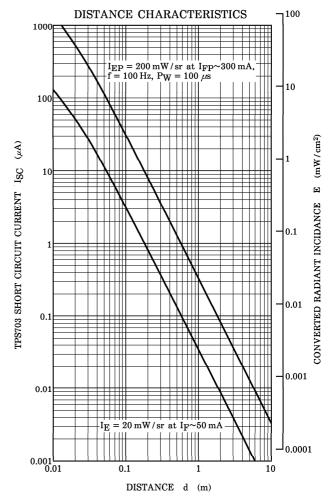


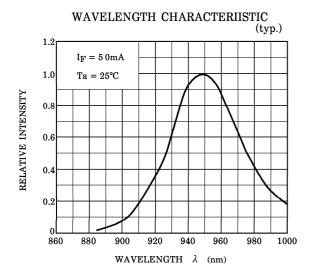


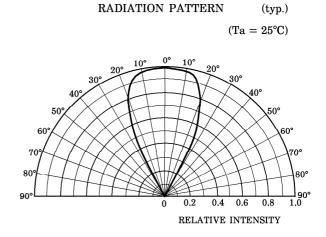












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