TOSHIBA Infrared LED GaAs Infrared Emitter

TLN102(F)

Lead Free Product Opto-Electronic Switches Equipment Using Infrared Transmission

- Wide half value angle: $\theta 1/2 = \pm 31^{\circ}$ (typ.)
- Excellent radiant-intensity linearity and modulation by pulse operation and high frequency is possible.
- Highly reliable due to hermetic seal.

Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Forward current	١ _F	100	mA
Forward current derating (Ta > 25°C)	ΔI _F /°C	-1	mA/°C
Pulse forward current	I _{FP} (Note)	1	А
Reverse voltage	V _R	5	V
Operating temperature	T _{opr}	-40~125	°C
Storage temperature	T _{stg}	-55~150	°C

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



Weight: 0.29 g (typ.)

Pin Connection

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- 1. Anode
- 2. Cathode (case)

Optical And Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Тур.	Max	Unit
Forward voltage	VF	I _F = 50 mA	_	1.3	1.4	V
Pulse forward voltage	V _{FP}	I _{FP} = 1 A	_	2.4	_	V
Reverse current	I _R	V _R = 5 V	_	_	10	μA
Radiant intensity	Ι _Ε	I _F = 50 mA	2	4	_	mW / sr
Radiant power	PO	I _F = 50 mA	_	4.2	_	mW
Capacitance	CT	V _R = 0, f = 1 MHz	-	30	-	pF
Peak emission wavelength	λ _P	I _F = 50 mA	_	940	_	nm
Spectral line half width	Δλ	I _F = 50 mA	_	50	_	nm
Half value angle	$\theta \frac{1}{2}$	I _F = 50 mA	_	±31	_	٥

Unit: mm

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Markings



Precautions

Please be careful of the followings.

- Soldering temperature: 260°C max Soldering time: 5s max (Soldering must be performed 1.5m from the bottom of the package.)
- 2. When forming the leads, bend each lead under the 2mm 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.

$$\frac{I_{\rm E}(t)}{I_{\rm E}(0)} = \frac{P_{\rm O}(t)}{P_{\rm O}(0)}$$

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Ambient temperature Ta (°C)



Relative intensity



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