

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN205

INFRARED LED FOR PHOTO SENSOR

Unit in mm

SMOKE SENSOR

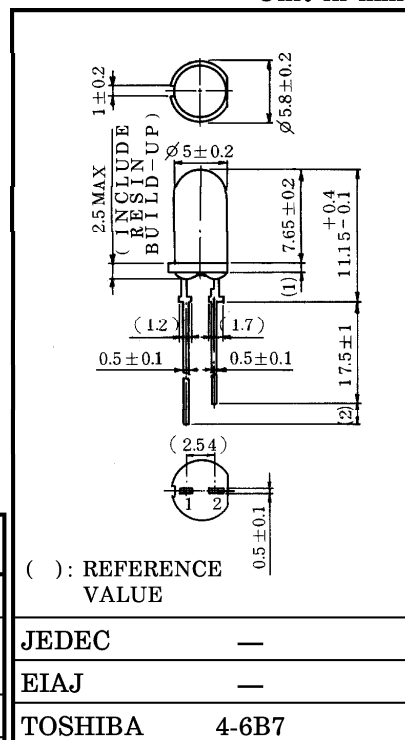
OPTO-ELECTRONIC SWITCH

- High radiant intensity : $I_E = 40\text{mW / sr}$ (TYP.)
- Excellent linearity of radiant intensity and modulation by pulse operation and high frequency is possible.
- Coupling ratio with Si detector is more excellent than GaAs (940nm) as much as 1.5 times.

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	100	mA
Forward Current Derating ($T_a > 25^\circ\text{C}$)	$\Delta I_F / ^\circ\text{C}$	-1.33	mA / $^\circ\text{C}$
Pulse Forward Current (Note)	I_{FP}	1	A
Reverse Voltage	V_R	5	V
Operating Temperature Range	T_{opr}	-20~75	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-30~100	$^\circ\text{C}$

(Note) Pulse Width $\leq 100\mu\text{s}$, Repetitive Frequency = 100Hz

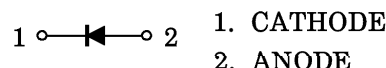


(): REFERENCE VALUE

JEDEC	—
EIAJ	—
TOSHIBA	4-6B7

Weight : 0.3g (TYP.)

PIN CONNECTION



OPTO-ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage	V_F	$I_F = 50\text{mA}$	—	1.5	1.9	V
Pulse Forward Current	V_{FP}	$I_{FP} = 1\text{A}$	—	5.0	—	V
Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
Radiant Intensity	I_E	$I_F = 50\text{mA}$	14	40	—	mW / sr
Radiant Power	P_o	$I_F = 50\text{mA}$	—	10	—	mW
Capacitance	C_T	$V_R = 0, f = 1\text{MHz}$	—	17	—	pF
Peak Emission Wavelength	λ_p	$I_F = 50\text{mA}$	—	880	—	nm
Spectral Line Half Angle	$\Delta\lambda$	$I_F = 50\text{mA}$	—	80	—	nm
Half Value Angle	$\theta_{\frac{1}{2}}$	$I_F = 50\text{mA}$	—	± 15	—	$^\circ$

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● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

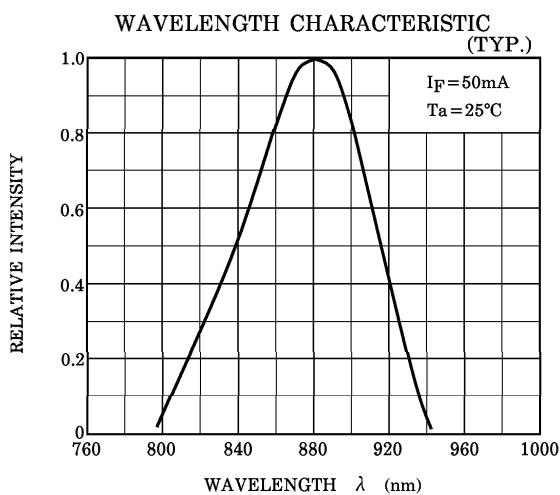
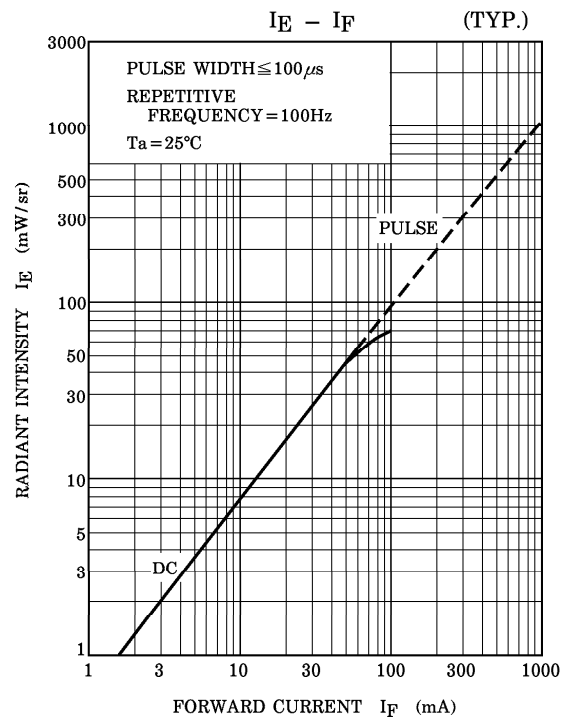
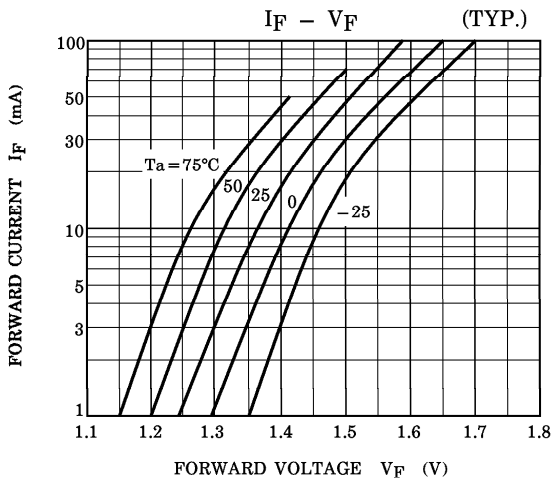
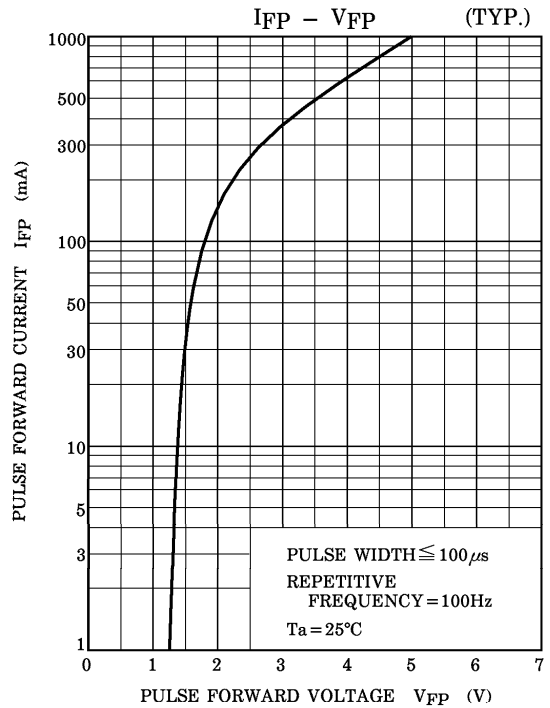
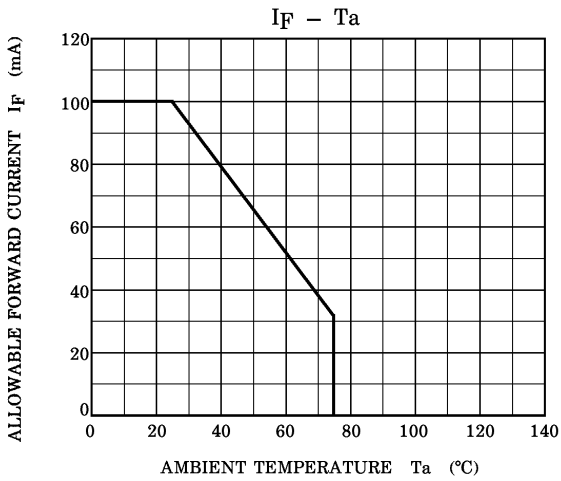
PRECAUTION

Please be careful of the followings.

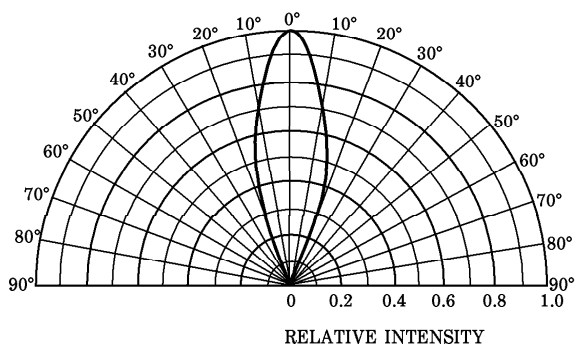
1. Soldering temperature : 260°C MAX. Soldering time : 3s MAX.
(Soldering shall be performed at the top portion from the lead stopper.)
2. When the lead is formed, the lead shall be formed at the top portion of the stopper without leaving forming stress to the body of the device.
Soldering shall be performed after lead forming.

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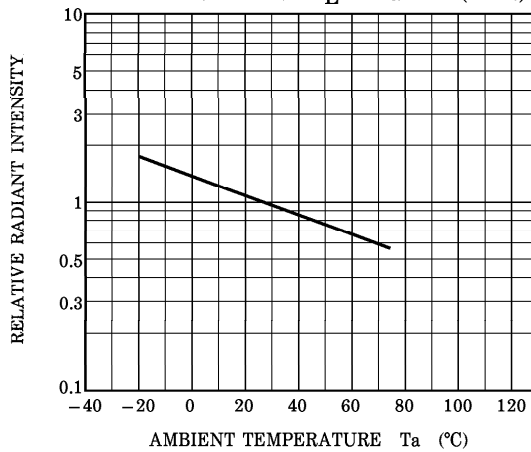
- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
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RADIATION PATTERN (TYP.)
($T_a = 25^\circ\text{C}$)



RELATIVE $I_E - T_a$ (TYP.)



$I_{FP} - P_W$

