

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN110

INFRARED LED FOR REMOTE CONTROL SYSTEM

Unit in mm

REMOTE CONTROL SYSTEM

SMOKE SENSOR

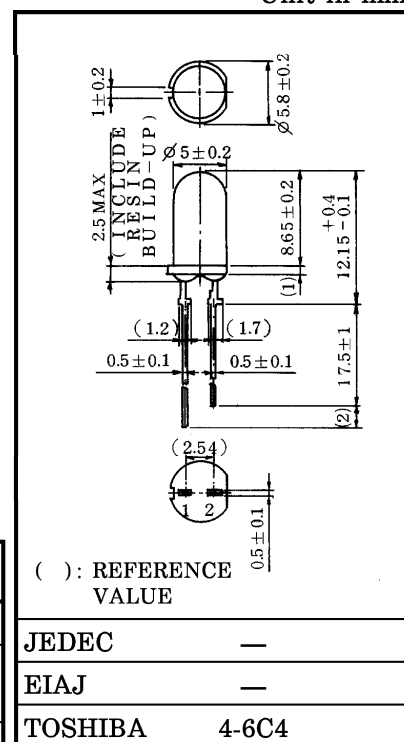
OPTO-ELECTRONIC SWITCH

- High radiant intensity : $I_E = 30\text{mW/sr}$ (TYP.)
- Excellent linearity of radiant intensity and modulation by pulse operation and high frequency is possible.
- PIN photo diode TPS703 provided with a visible light cut resin is available for detector for remote control.

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	I_{FP} (Note)	1	A
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	150	mW
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

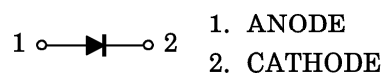


() : REFERENCE VALUE

JEDEC	—
EIAJ	—
TOSHIBA	4-6C4

Weight : 0.32g (TYP.)

PIN CONNECTION



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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage	V_F	$I_F = 100\text{mA}$	—	1.35	1.5	V
Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
Radiant Intensity	I_E	$I_F = 50\text{mA}$	15	30	—	mW / sr
Radiant Power	P_O	$I_F = 50\text{mA}$	—	9	—	mW
Capacitance	C_T	$V_R = 0, f = 1\text{MHz}$	—	20	—	pF
Peak Emission Wavelength	λ_P	$I_F = 50\text{mA}$	—	940	—	nm
Spectral Line Half Width	$\Delta\lambda$	$I_F = 50\text{mA}$	—	45	—	nm
Half Value Angle	$\theta_{1/2}$	$I_F = 50\text{mA}$	—	± 8	—	$^\circ$

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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

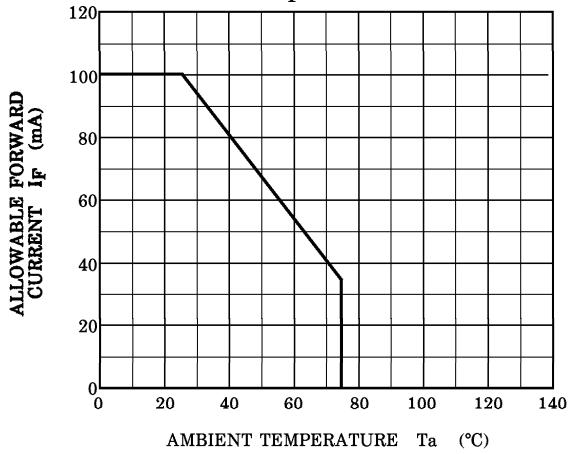
Please be careful of the followings.

1. Soldering temperature : 260°C MAX. Soldering time : 5 sec 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.

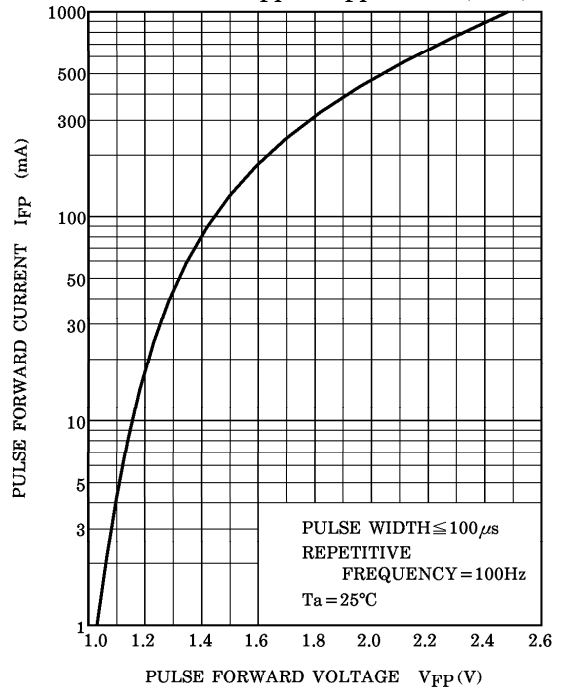
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- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
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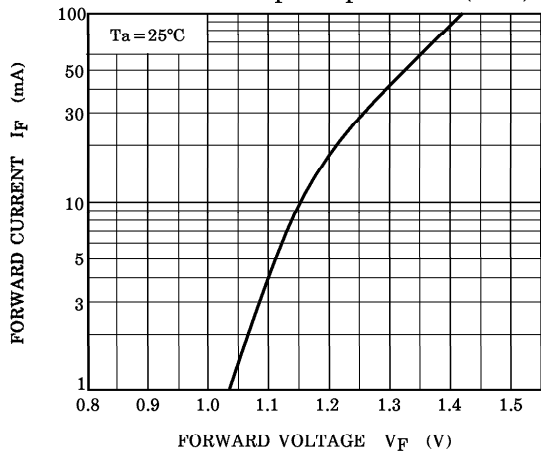
$I_F - T_a$



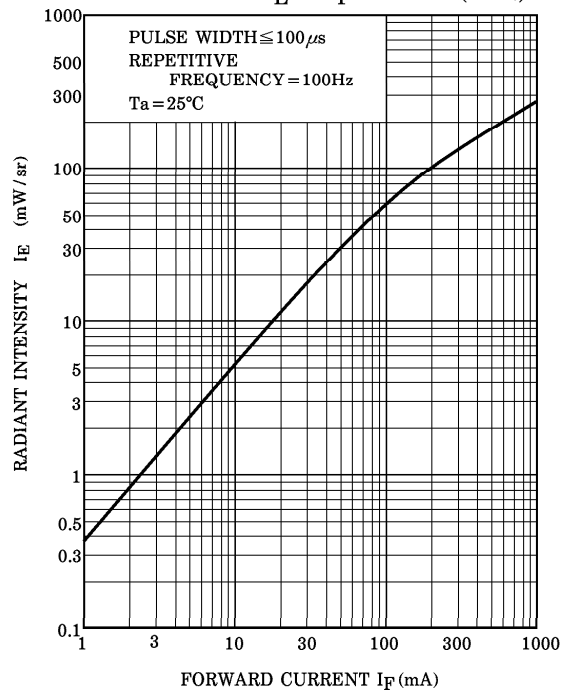
$I_{FP} - V_{FP}$ (TYP.)



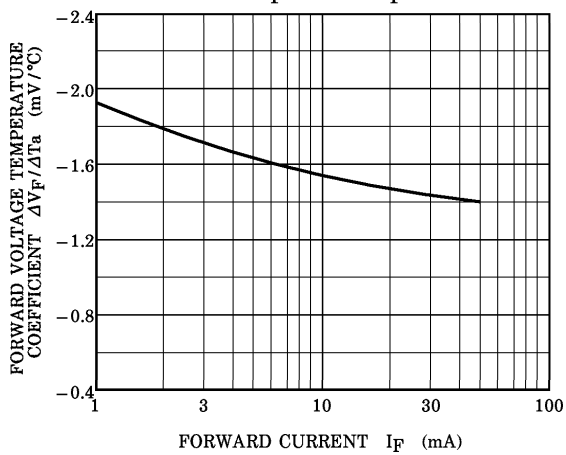
$I_F - V_F$ (TYP.)

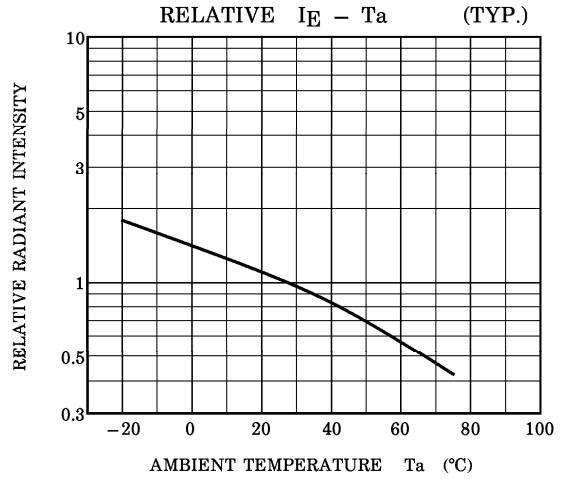
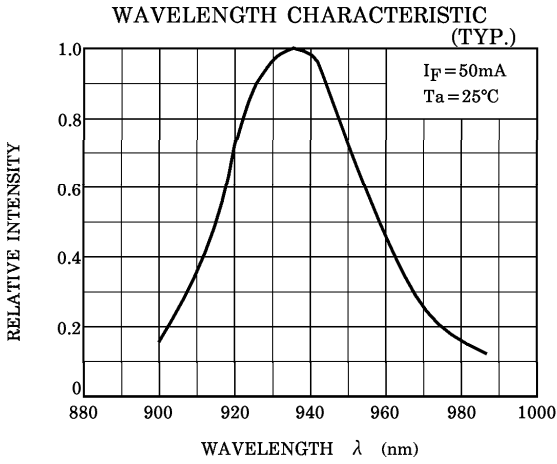


$I_E - I_F$ (TYP.)



$\Delta V_F / \Delta T_a - I_F$





RADIATION PATTERN (TYP.)
 $(T_a = 25^\circ\text{C})$

