

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

**TLN104, TLN104(LB)**

INFRARED LED FOR PHOTO SENSOR

Unit in mm

TAPE, CARD READERS

HANDY TERMINAL

AUDIO, VIDEO EQUIPMENT

OPTO-ELECTRONIC SWITCH

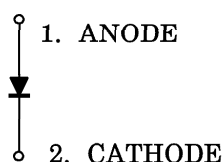
- Micro-package (epoxy resin package)
  - Double end type : TLN104
  - DIP type : TLN104 (LB)
- Mountable at a 2.5mm pitch
- Large radiant power :  $P_o = 3\text{mW}$  (TYP.)
- Excellent linearity of radiant power and modulation by pulse operation and high frequency is possible.
- Half value angle :  $\theta_{\frac{1}{2}} = \pm 20^\circ$  (TYP.)

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

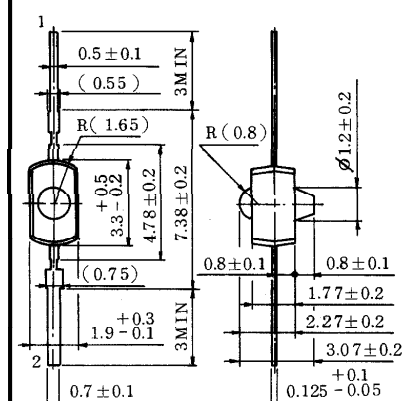
CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	$I_F$	40	mA
Forward Current Derating ( $T_a > 25^\circ\text{C}$ )	$\Delta I_F / ^\circ\text{C}$	-0.53	mA / $^\circ\text{C}$
Pulse Forward Current	$I_{FP}$ (Note 1)	400	mA
Reverse Voltage	$V_R$	5	V
Operating Temperature Range	$T_{opr}$	$-25 \sim 85$	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-30 \sim 100$	$^\circ\text{C}$
Soldering Temperature Range (3s)	$T_{sol}$	260	$^\circ\text{C}$

Note 1. Pulse Width  $\leq 100\mu\text{s}$ , Repetitive  
Frequency = 100Hz

PIN CONNECTION



TLN104



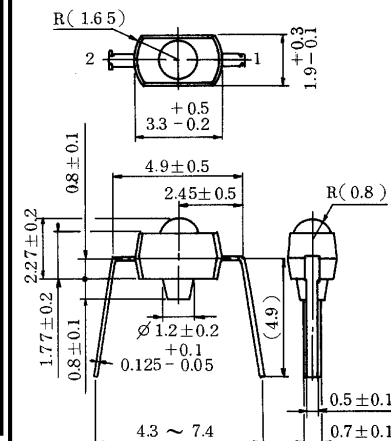
( ) : REFERENCE VALUE

JEDEC —

EIAJ —

TOSHIBA 4-2A2

TLN104 (LB)



( ) : REFERENCE VALUE

JEDEC —

EIAJ —

TOSHIBA 4-2A01

Weight : 0.02g (TYP.)

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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.

## OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

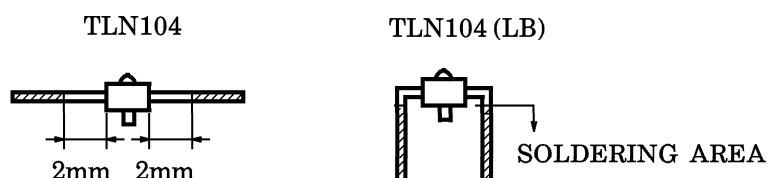
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage	$V_F$	$I_F = 10\text{mA}$	—	1.13	1.35	V
Reverse Current	$I_R$	$V_R = 5\text{V}$	—	—	10	$\mu\text{A}$
Radiant Power (Note 2)	$P_O$	$I_F = 20\text{mA}$	1.5	3	—	mW
Capacitance	$C_T$	$V_R = 0, f = 1\text{MHz}$	—	50	—	pF
Peak Emission Wavelength	$\lambda_P$	$I_F = 20\text{mA}$	—	940	—	nm
Spectral Line Half Width	$\Delta\lambda$	$I_F = 20\text{mA}$	—	50	—	nm
Half Value Angle	$\theta_{\frac{1}{2}}$	$I_F = 20\text{mA}$	—	$\pm 20$	—	°

Note 2.  $P_O$  Classification B : 2.5~6.0mW

## PRECAUTION

Please be careful of the followings.

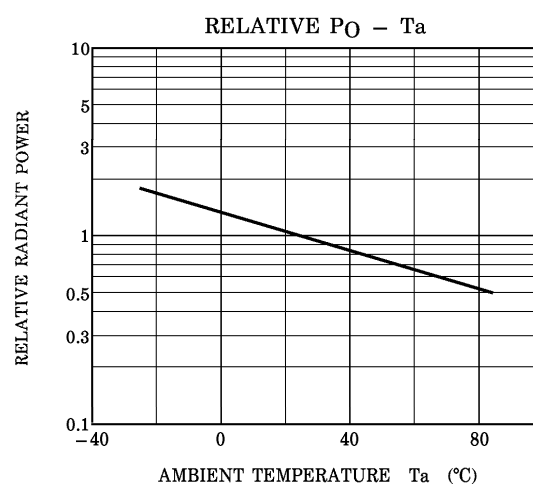
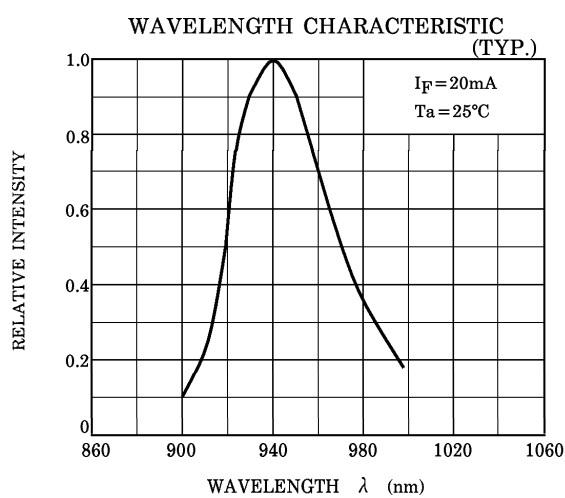
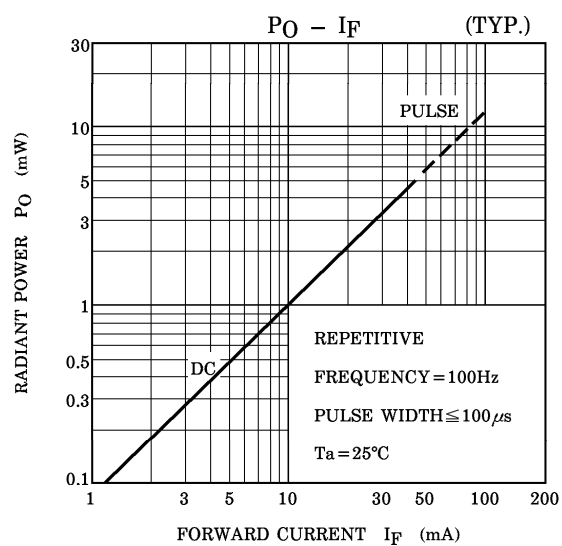
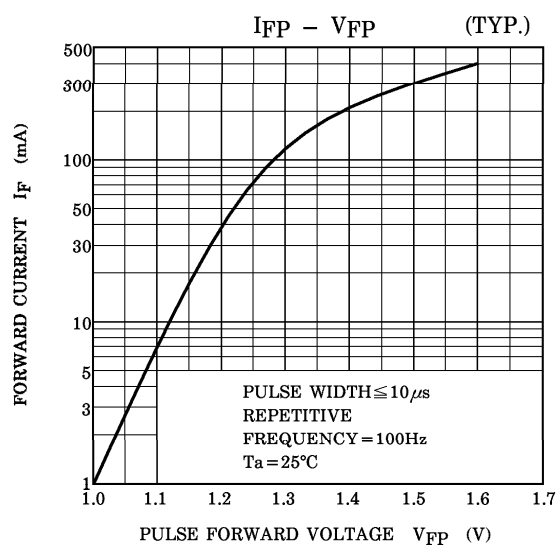
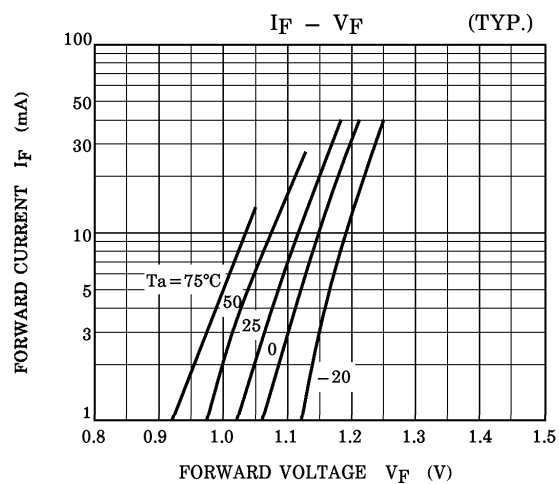
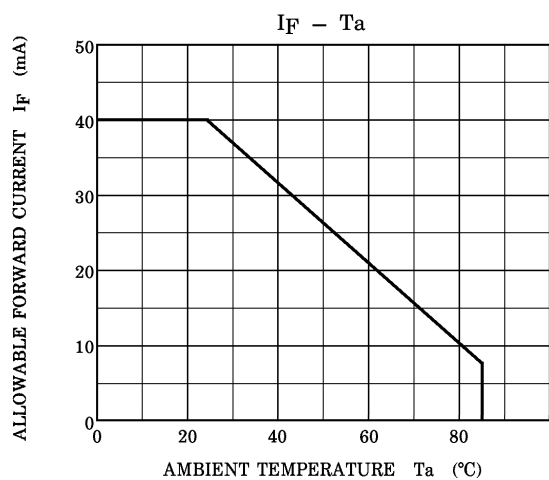
- If the lead is formed, the lead should be formed at a distance of 0.8mm from the body of the device.  
Soldering shall be performed after lead forming. However, in case of TLN104 (LB), no lead forming shall be performed.
- Soldering shall be performed within the range shown below.



AREA 2mm AWAY FROM  
THE PACKAGE ENDS

961001EAC2'

- 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.)  
( $T_a = 25^\circ\text{C}$ )

