

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN108

INFRARED LED FOR PHOTSENSORS

OPTO-ELECTRONIC SWITCHES

TAPE AND CARD READERS

SMOKE SENSORS

EQUIPMENT USING INFRARED TRANSMISSION

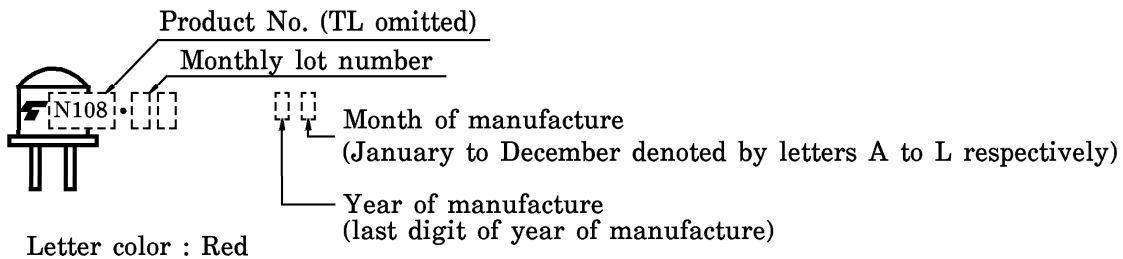
- TO-18 metal package
- High radiant intensity : $I_F = 20 \text{ mW/sr}$ (typ.)
- Excellent radiant-intensity linearity. Modulation by pulse operation and high frequency is possible.
- Highly reliable due to hermetic seal

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

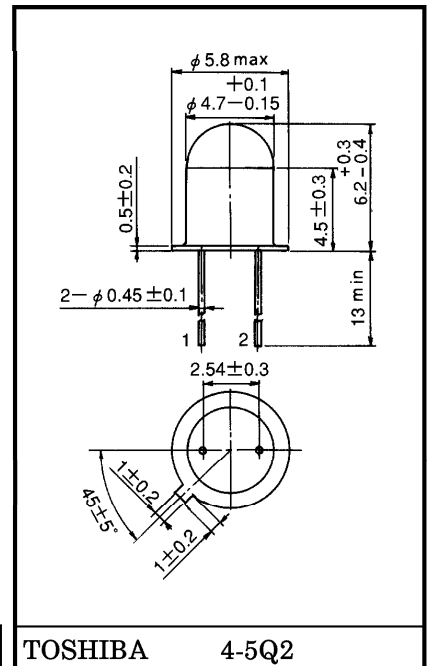
CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	100	mA
Forward Current Derating ($T_a > 25^\circ\text{C}$)	$\Delta I_F / ^\circ\text{C}$	-1	mA / $^\circ\text{C}$
Pulse Forward Current (Note)	I_{FP}	1	A
Reverse Voltage	V_R	5	V
Operating Temperature Range	T_{opr}	-40~125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~150	$^\circ\text{C}$

(Note) : Pulse width $\leq 100 \mu\text{s}$, repetitive frequency = 100 Hz

MARKINGS

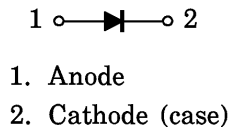


Unit : mm



Weight : 0.33 g (typ.)

PIN CONNECTION



OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

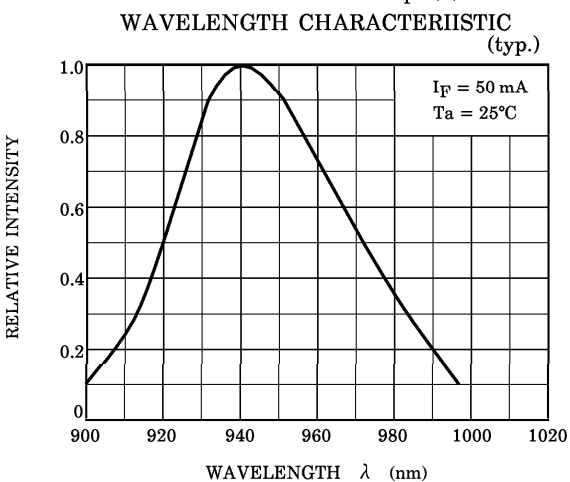
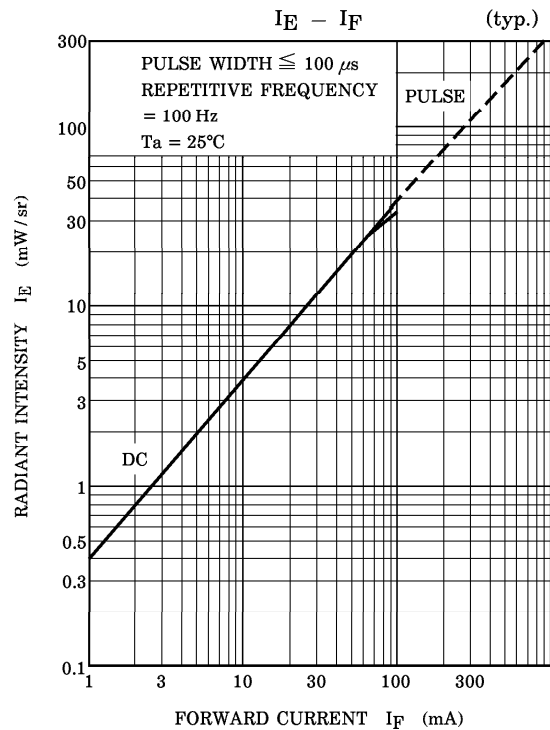
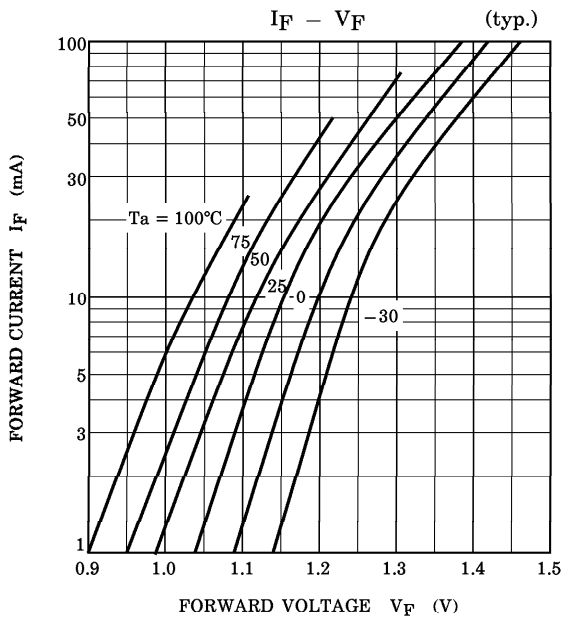
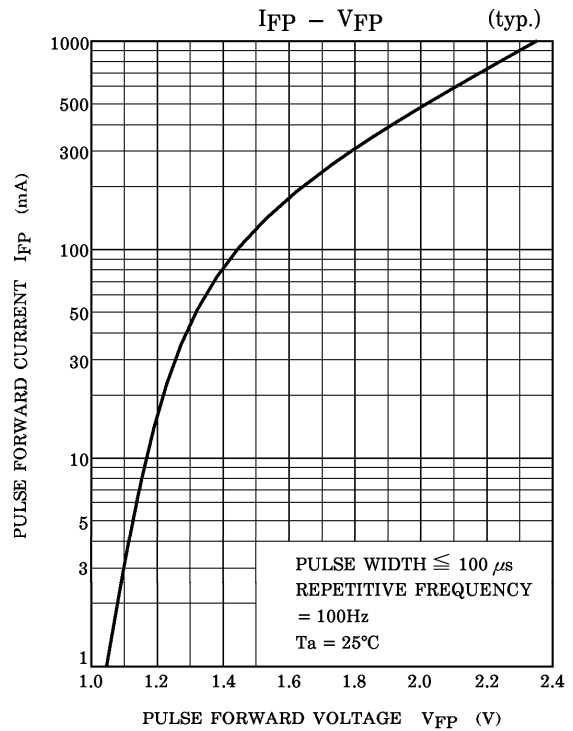
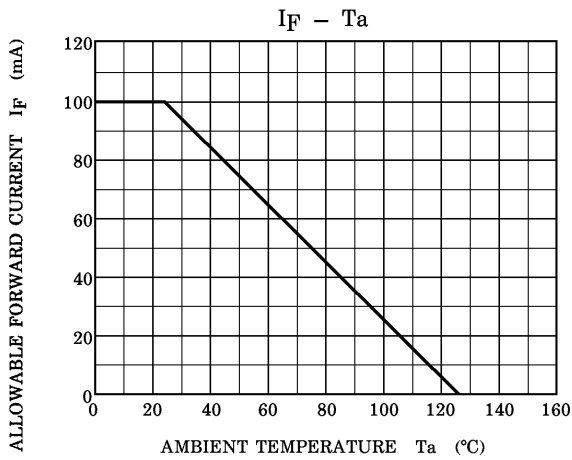
CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT
Forward Voltage	V _F	I _F = 50 mA	—	1.3	1.4	V
Pulse Forward Voltage	V _{FP}	I _{FP} = 1 A	—	2.4	—	V
Reverse Current	I _R	V _R = 5 V	—	—	10	μA
Radiant Intensity	I _E	I _F = 50 mA	10	20	—	mW / sr
Radiant Power	P _O	I _F = 50 mA	—	3	—	mW
Capacitance	C _T	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	θ _½	I _F = 50 mA	—	±8	—	°

PRECAUTIONS

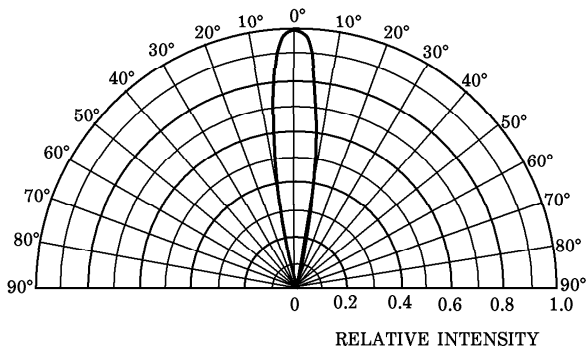
Please be careful of the followings.

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

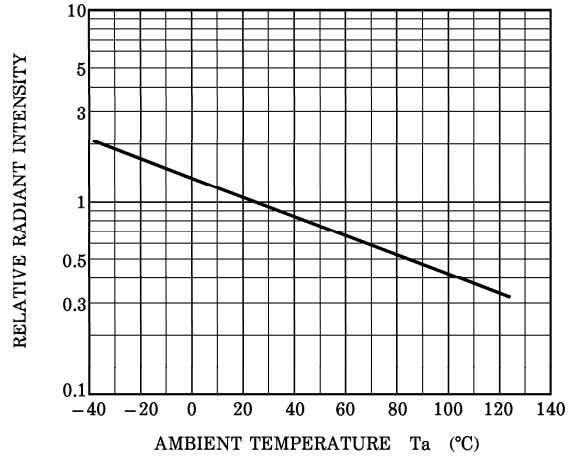
$$\frac{I_E(t)}{I_E(0)} = \frac{P_O(t)}{P_O(0)}$$



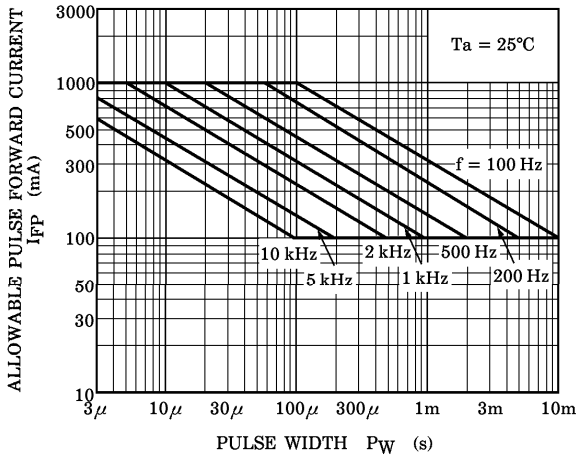
RADIATION PATTERN (typ.)
($T_a = 25^\circ\text{C}$)



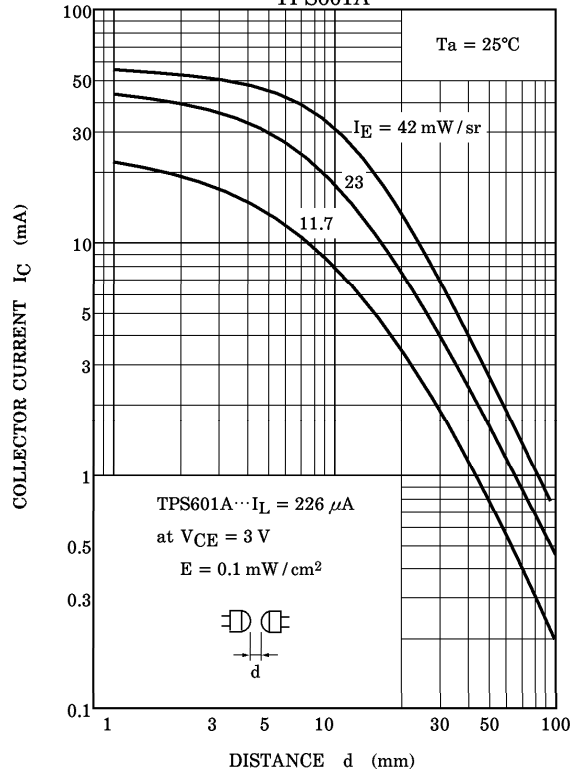
RELATIVE $I_E - T_a$ (typ.)



$I_{FP} - P_W$



COUPLING CHARACTERISTICS WITH TPS601A



RESTRICTIONS ON PRODUCT USE

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