

TOSHIBA INFRARED LED GaAlAs INFRARED EMITTER

TLN201

INFRARED LED FOR PHOTSENSORS

OPTO-ELECTRONIC SWITCHES

TAPE AND CARD READERS

SMOKE SENSORS

EQUIPMENT USING INFRARED TRANSMISSION

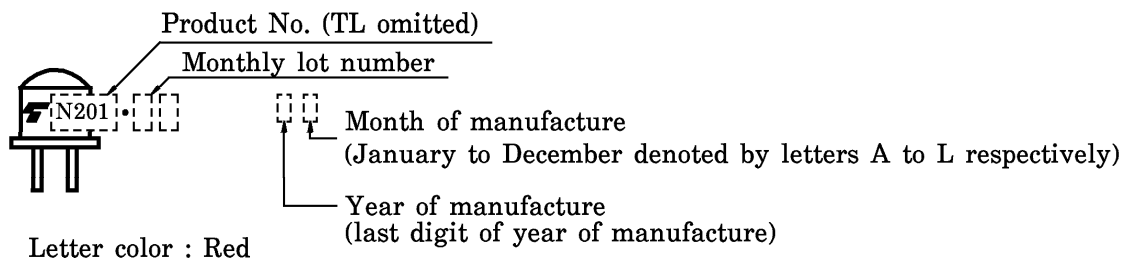
- TO-18 metal package.
- High radiant power : $P_o = 5 \text{ mW (typ.)}$
- High radiant intensity : $I_E = 35 \text{ mW / sr (typ.)}$
- Excellent radiant-intensity linearity. Modulation by pulse operation and high frequency is possible.
- Highly reliable due to hermetic seal
- Same external shape as TPS708 photodiode

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

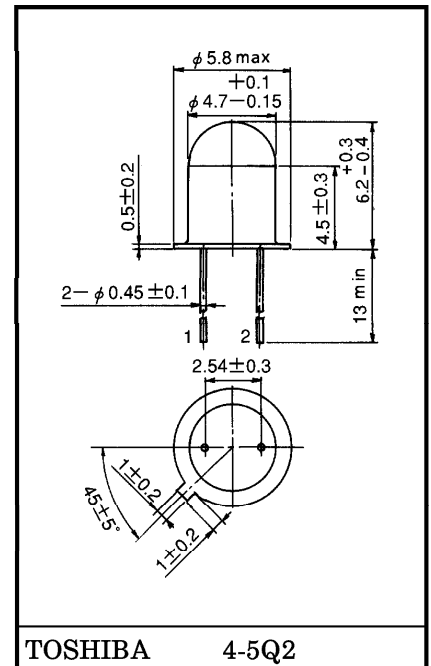
CHARACTERISTIC	SYMBOL	RATING	UNIT
Forward Current	I_F	100	mA
Forward Current Derating ($T_a > 25^\circ\text{C}$)	$\Delta I_F / ^\circ\text{C}$	-1	mA / $^\circ\text{C}$
Pulse Forward Current (Note)	I_{FP}	1	A
Reverse Voltage	V_R	5	V
Operating Temperature Range	T_{opr}	-40~125	$^\circ\text{C}$
Storage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



1. Cathode
2. Anode (case)

OPTICAL AND ELECTRICAL CHARACTERISTICS (Ta = 25°C)

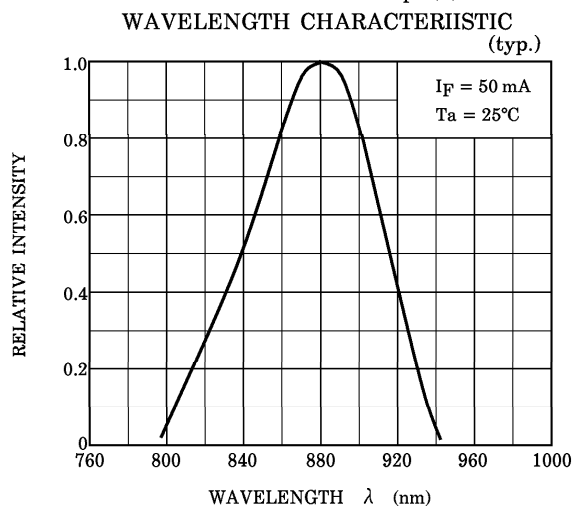
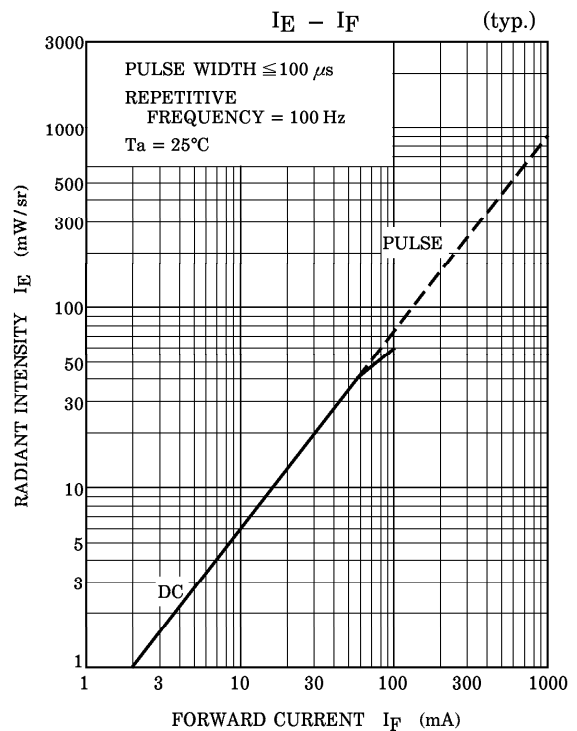
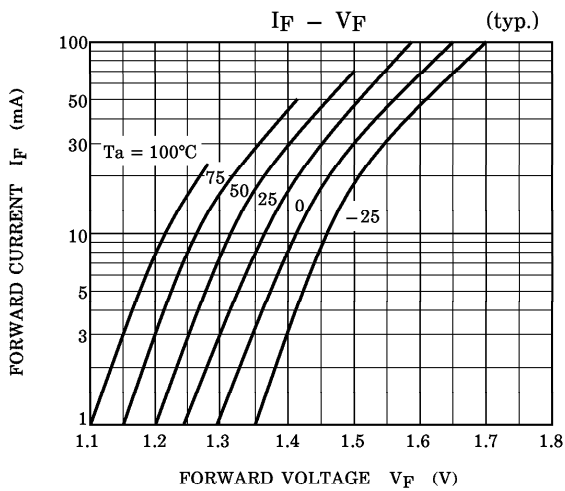
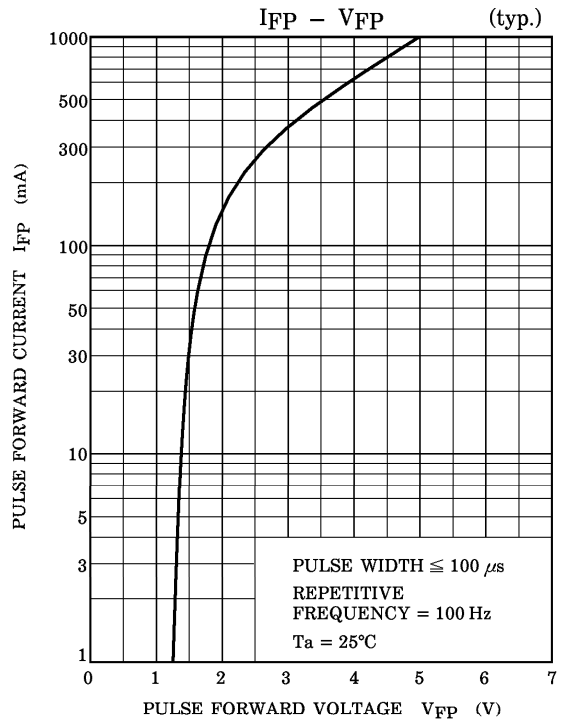
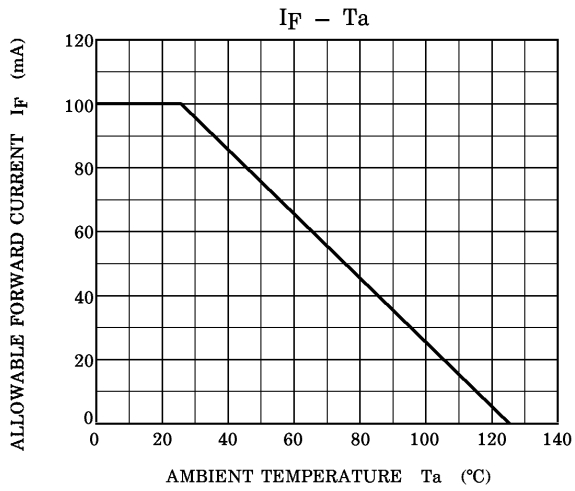
CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT
Forward Voltage	V _F	I _F = 50 mA	—	1.5	1.9	V
Pulse Forward Voltage	V _{FP}	I _{FP} = 1 A	—	5.0	—	V
Reverse Current	I _R	V _R = 5 V	—	—	10	μA
Radiant Intensity	I _E	I _F = 50 mA	20	35	—	mW / sr
Radiant Power	P _O	I _F = 50 mA	—	5	—	mW
Capacitance	C _T	V _R = 0, f = 1 MHz	—	17	—	pF
Peak Emission Wavelength	λ _P	I _F = 50 mA	—	880	—	nm
Spectral Line Half Width	Δλ	I _F = 50 mA	—	80	—	nm
Half Value Angle	θ _{1/2}	I _F = 50 mA	—	±7	—	°

PRECAUTIONS

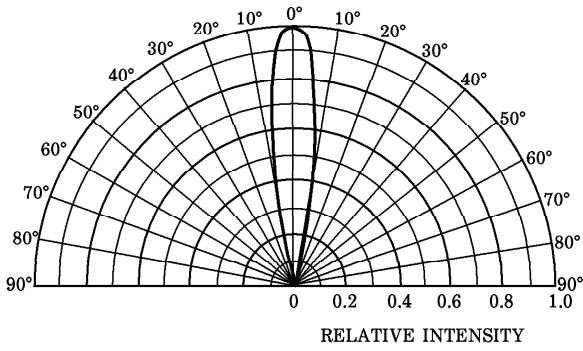
Please be careful of the followings.

- Soldering temperature : 260°C max
Soldering time : 5 s max
(Soldering must be performed 1.5 m from the bottom of the package.)
- 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.
- 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.

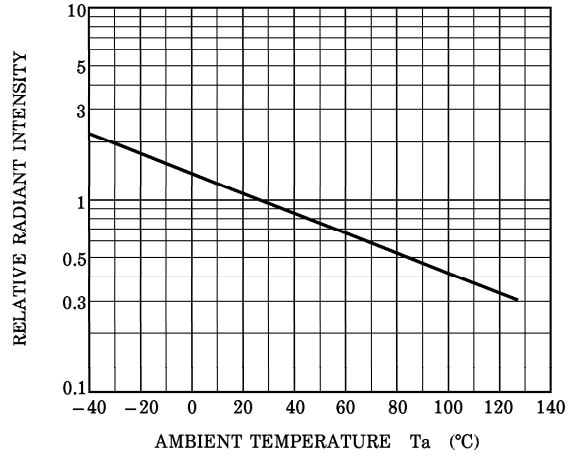
$$\frac{I_E(t)}{I_E(0)} = \frac{P_O(t)}{P_O(0)}$$



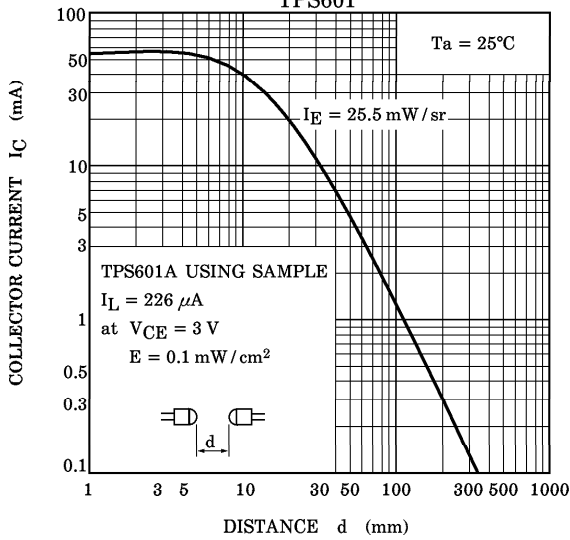
RADIATION PATTERN (typ.)
($T_a = 25^\circ\text{C}$)



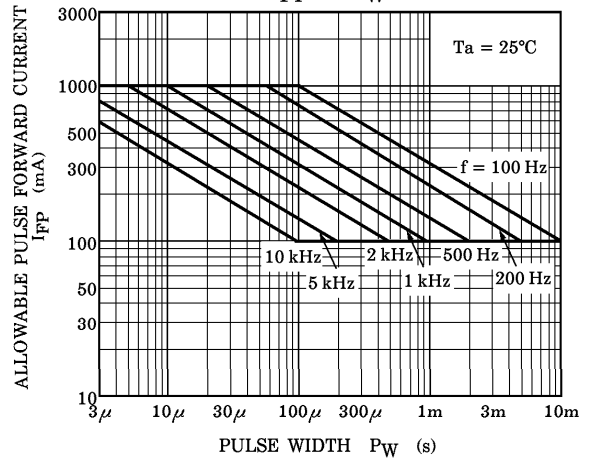
RELATIVE $I_E - T_a$ (typ.)



COUPLING CHARACTERISTIC WITH TPS601



$I_{FP} - P_W$



RESTRICTIONS ON PRODUCT USE

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