

TOSHIBA INFRARED LED GaAlAs INFRARED EMITTER

TLN201

INFRARED LED FOR PHOTSENSORS

OPTO-ELECTRONIC SWITCHES

TAPE AND CARD READERS

SMOKE SENSORS

EQUIPMENT USING INFRARED TRANSMISSION

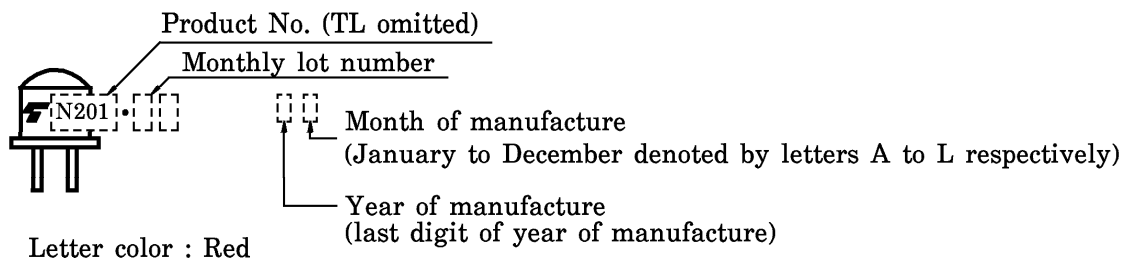
- TO-18 metal package.
- High radiant power : $P_o = 5 \text{ mW (typ.)}$
- High radiant intensity : $I_E = 35 \text{ mW / sr (typ.)}$
- Excellent radiant-intensity linearity. Modulation by pulse operation and high frequency is possible.
- Highly reliable due to hermetic seal
- Same external shape as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

MAXIMUM RATINGS (Ta = 25°C)

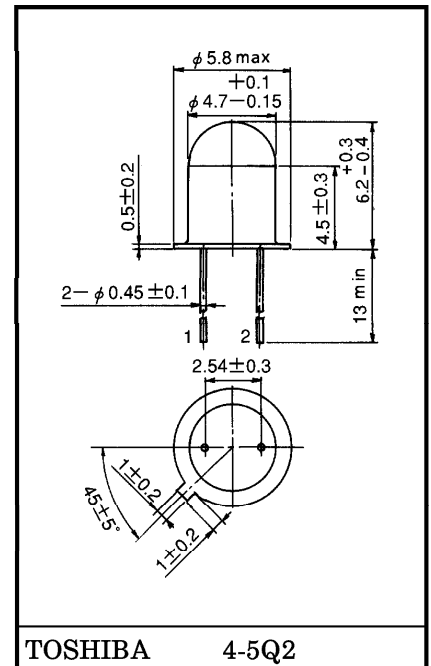
| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|--------------------------------------|-------------------------------|---------|---------|
| Forward Current | I_F | 100 | mA |
| Forward Current Derating (Ta > 25°C) | $\Delta I_F / ^\circ\text{C}$ | -1 | mA / °C |
| Pulse Forward Current (Note) | I_{FP}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

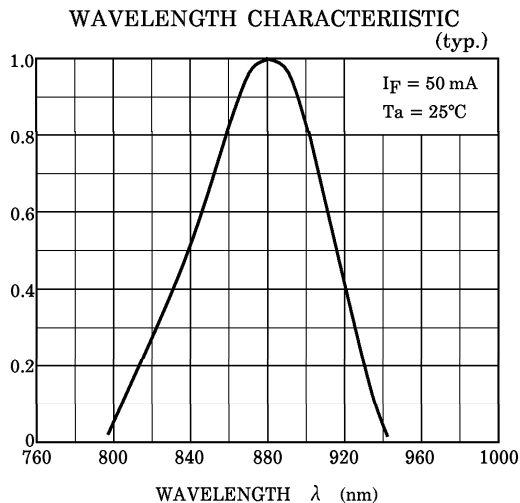
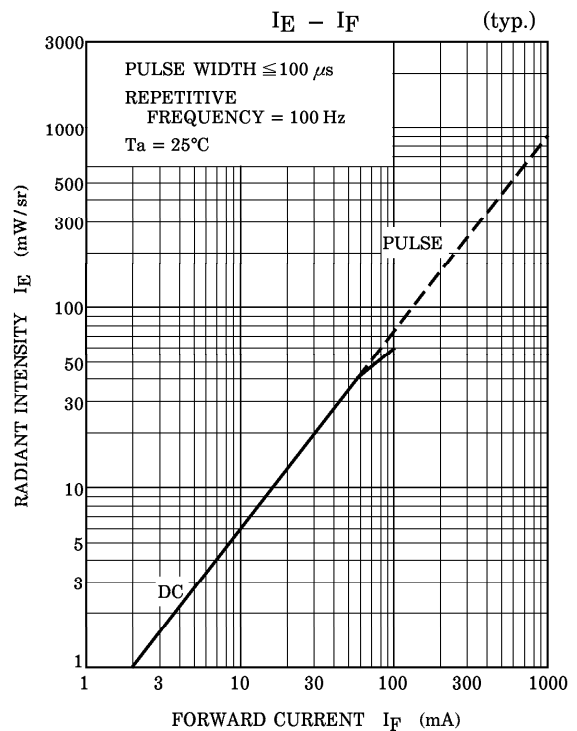
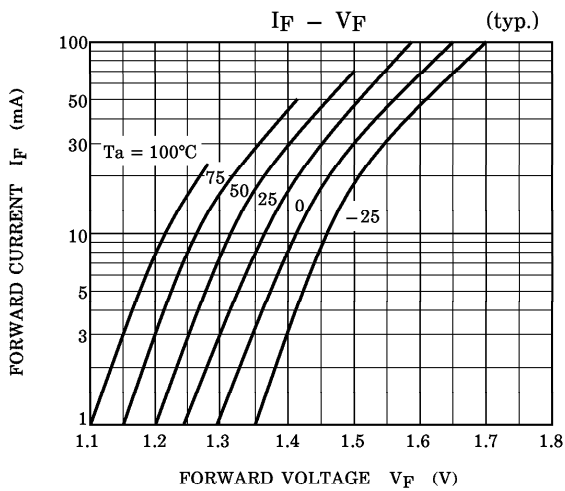
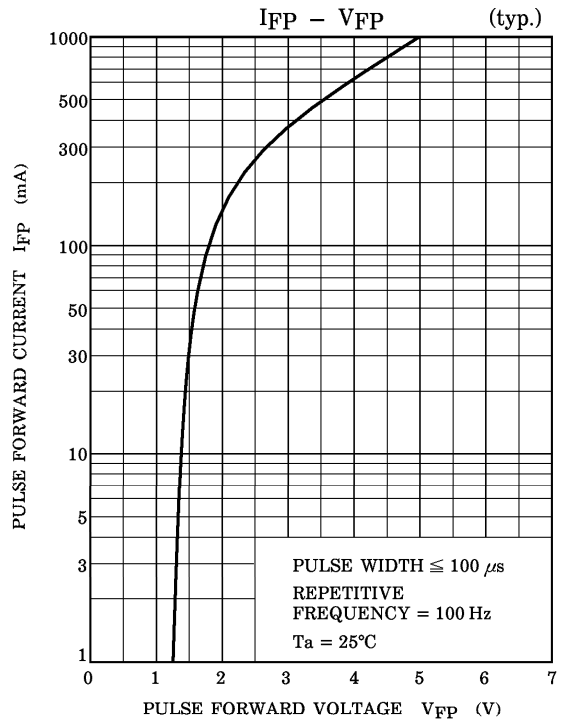
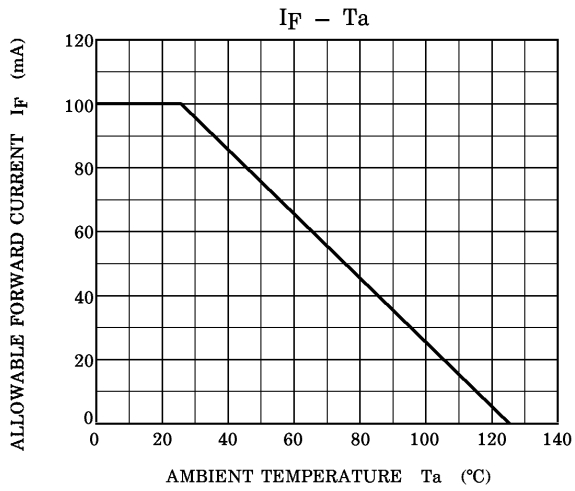
| CHARACTERISTIC | SYMBOL | TEST CONDITION | Min | Typ. | Max | UNIT |
|--------------------------|------------------|-------------------------------|-----|------|-----|---------|
| Forward Voltage | V _F | I _F = 50 mA | — | 1.5 | 1.9 | V |
| Pulse Forward Voltage | V _{FP} | I _{FP} = 1 A | — | 5.0 | — | 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

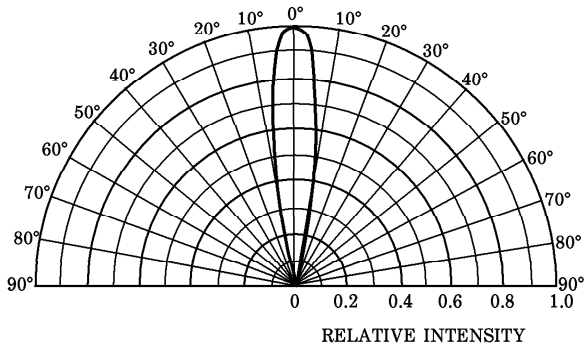
Please be careful of the followings.

- 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.

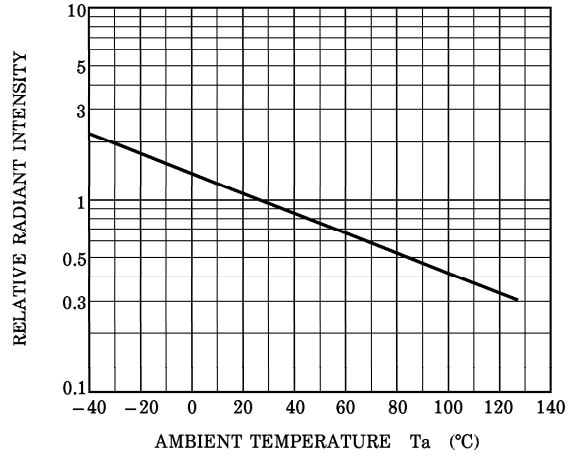
$$\frac{I_E(t)}{I_E(0)} = \frac{P_O(t)}{P_O(0)}$$



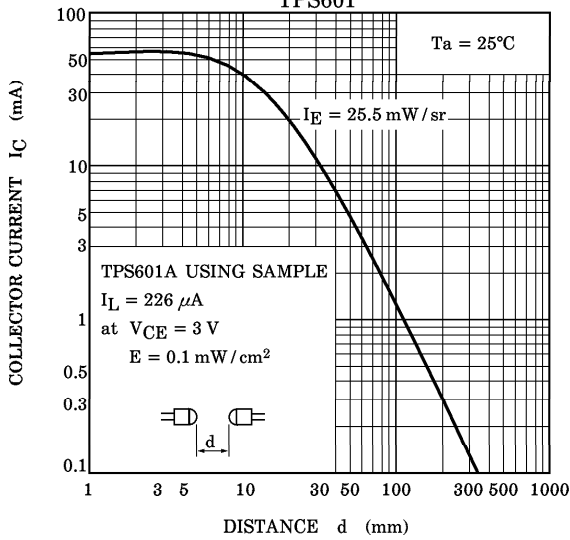
RADIATION PATTERN (typ.)
($T_a = 25^\circ\text{C}$)



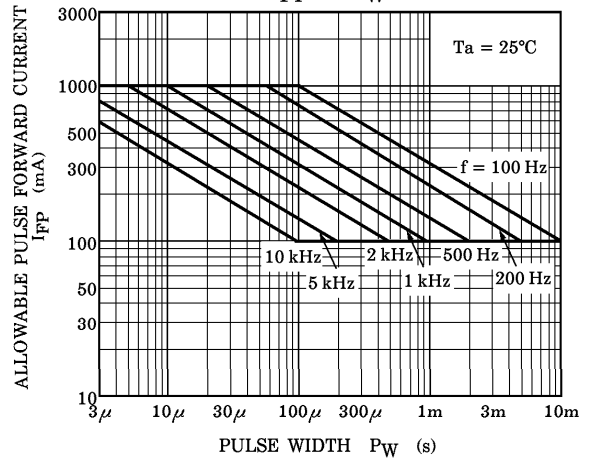
RELATIVE $I_E - T_a$ (typ.)



COUPLING CHARACTERISTIC WITH TPS601



$I_{FP} - P_W$



RESTRICTIONS ON PRODUCT USE

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