

TENTATIVE

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

TLN225

INFRARED LED FOR SPACE-OPTICAL-TRANSMISSION

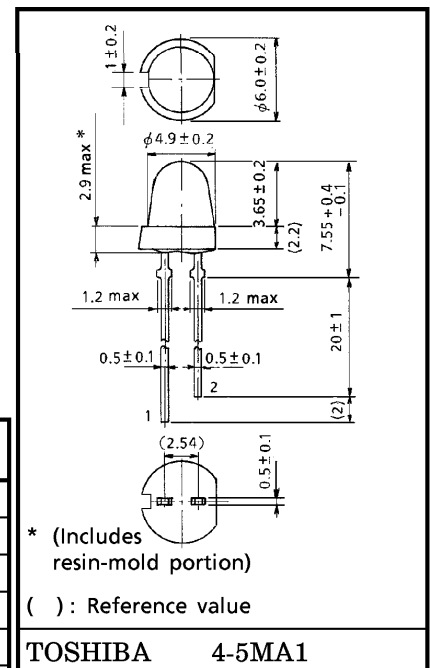
Unit : mm

- High radiant power : $P_o = 18 \text{ mW}$ (typ.) at $I_F = 50 \text{ mA}$
- Wide half-angle value: $\theta_{\frac{1}{2}} = \pm 21^\circ$ (typ.)
- High-speed response : $t_r, t_f = 30 \text{ ns}$ (typ.)
- Light source for remote control
- Designed for transmission of wireless AVsignals
- Designed for high-speed data transmission

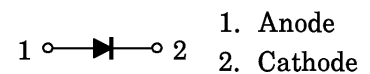
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|-----------|---------------|------------------|
| Forward Current | I_F | 100 | mA |
| Pulse Forward Current | I_{FP} | 1000 (Note 1) | mA |
| Power Dissipation | P_D | 220 | mW |
| Reverse Voltage | V_R | 4 | V |
| Operating temperature | T_{opr} | -25~85 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -30~100 | $^\circ\text{C}$ |
| Soldering Temperature (5 s) | T_{sol} | 260 | $^\circ\text{C}$ |

(Note 1) : Frequency = 100 kHz, duty = 1%



PIN CONNECTION



OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

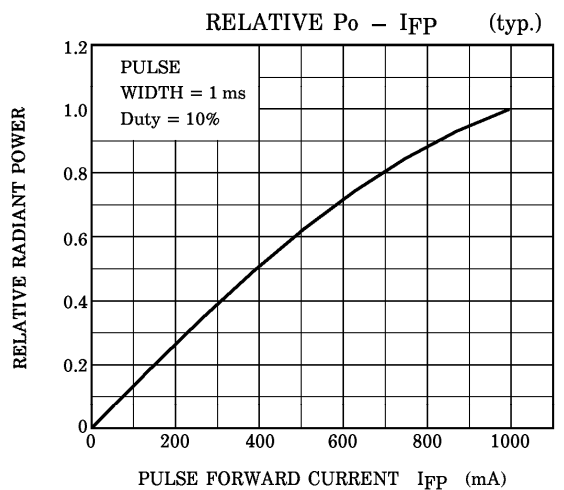
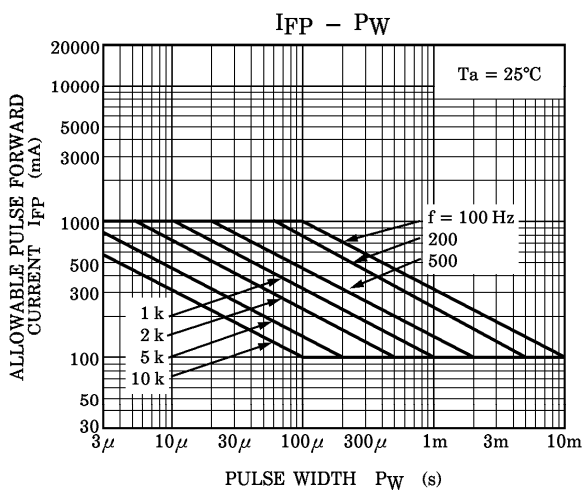
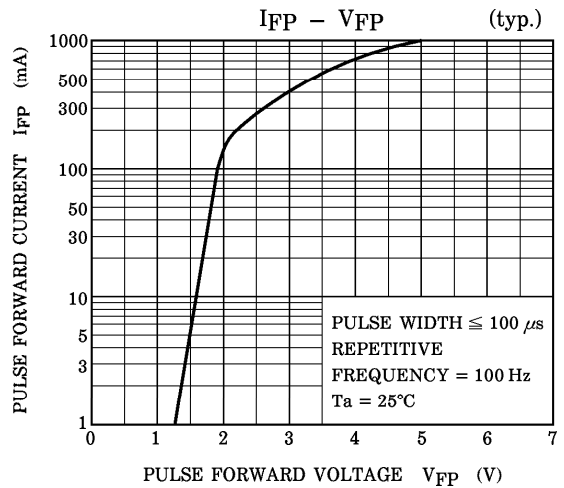
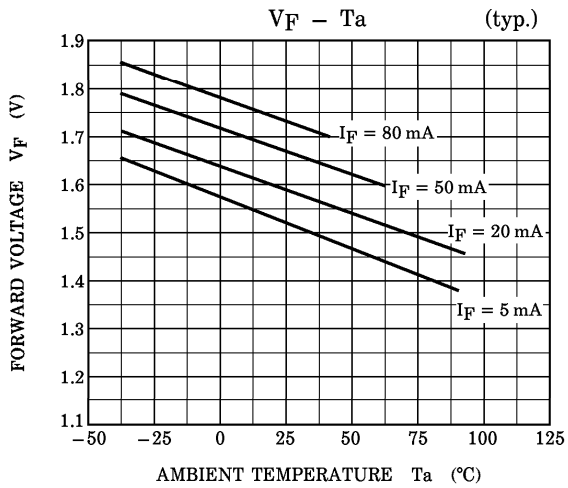
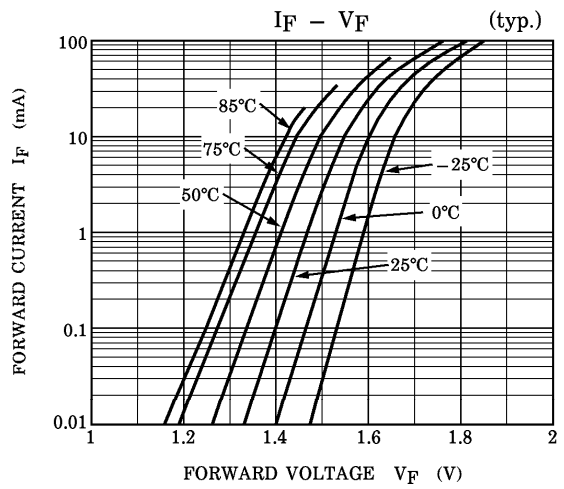
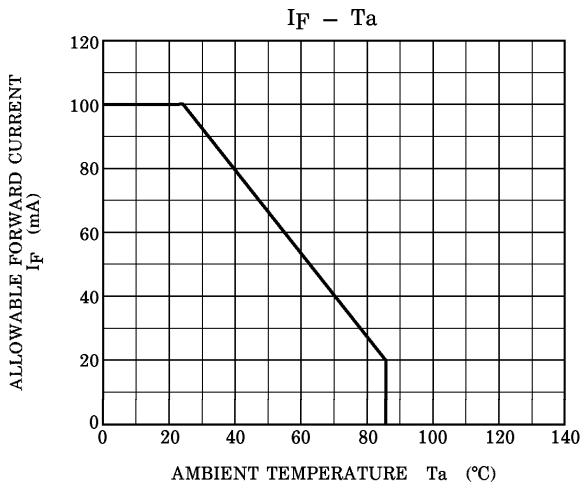
| CHARACTERISTIC | SYMBOL | TEST CONDITION | Min | Typ. | Max | UNIT |
|--------------------------|------------------------|---|-----|----------|-----|---------------|
| Forward Voltage | V_F | $I_F = 100 \text{ mA}$ | — | 1.6 | 1.8 | V |
| Reverse Current | I_R | $V_R = 4 \text{ V}$ | — | — | 10 | μA |
| Radiant Power | P_O | $I_F = 50 \text{ mA}$ | 14 | 18 | — | mW |
| Radiant Intensity | I_E | $I_F = 50 \text{ mA}$ | — | 40 | — | mW / sr |
| Rise Time, Fall Time | t_r, t_f | $I_{FP} = 100 \text{ mA}, P_W = 100 \text{ ns}$ | — | 30 | — | ns |
| Cut-off Frequency | f_c | $I_F = 50 \text{ mA}_{DC} + 5 \text{ mA}_{P-P}$ (Note 2) | 10 | 15 | — | MHz |
| Capacitance | C_T | $V_R = 0, f = 1 \text{ MHz}$ | — | 110 | — | pF |
| Peak Emission Wavelength | λ_P | $I_F = 50 \text{ mA}$ | 830 | 870 | 900 | nm |
| Spectral Line Half Width | $\Delta\lambda$ | $I_F = 50 \text{ mA}$ | — | 50 | — | nm |
| Half Value Angle | $\theta_{\frac{1}{2}}$ | $I_F = 50 \text{ mA}$ | — | ± 21 | — | $^\circ$ |

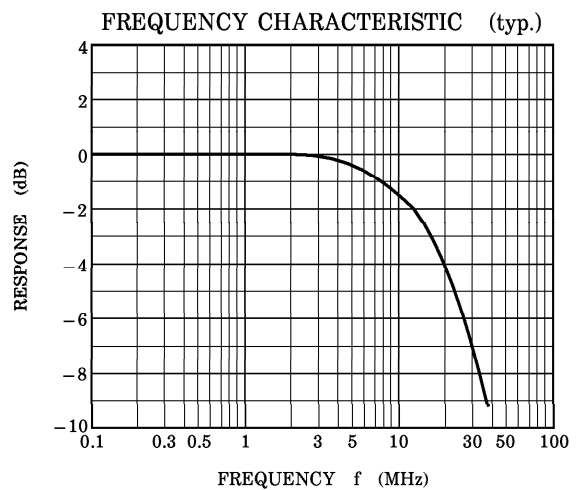
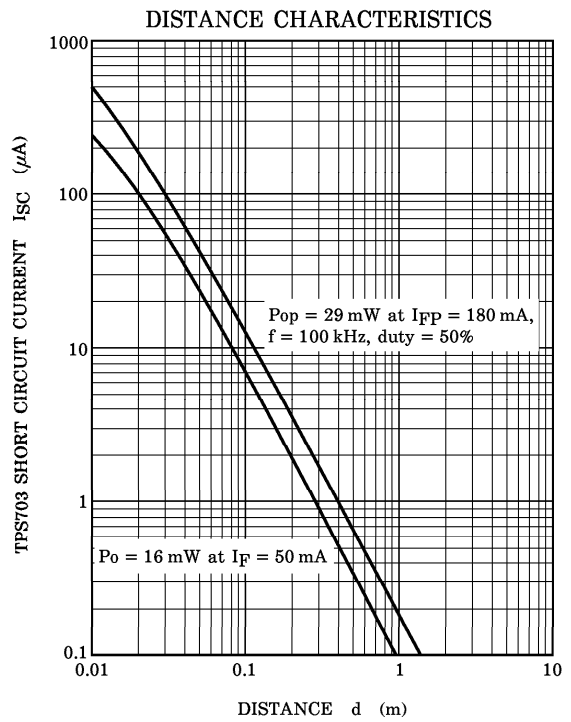
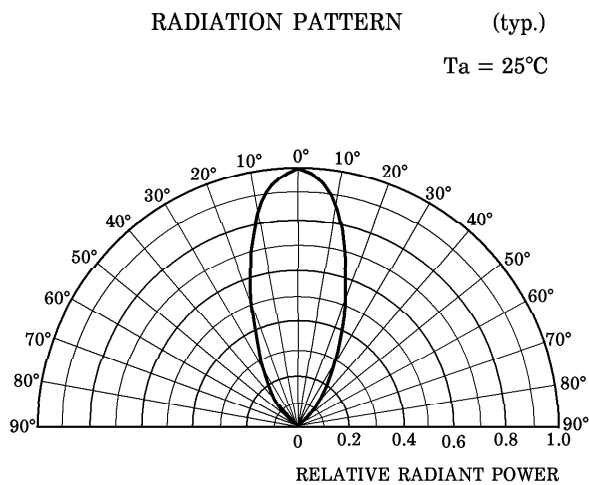
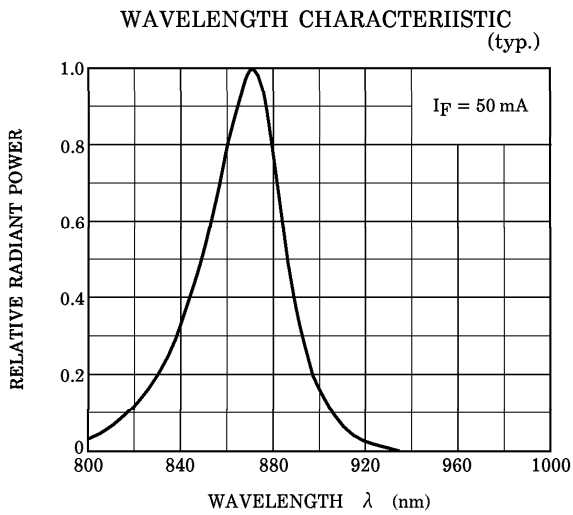
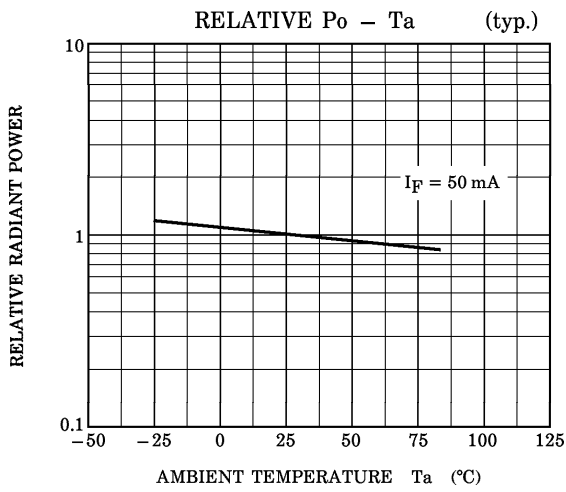
(Note 2) : Frequency when modulation light power decreases by 3dB from 1 MHz.

PRECAUTIONS

Please be careful of the followings.

1. Soldering must be performed under the lead stopper.
2. When forming the leads, bend each lead under the stopper without leaving forming stress to the body of the device. Soldering must be performed after the leads have been formed.
3. Radiant power 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.





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