

TOSHIBA INFRARED LED GaAs INFRARED EMITTER

**TLN115A**

INFRARED LED FOR REMOTE-CONTROL SYSTEMS

Unit : mm

## REMOTE-CONTROL SYSTEMS

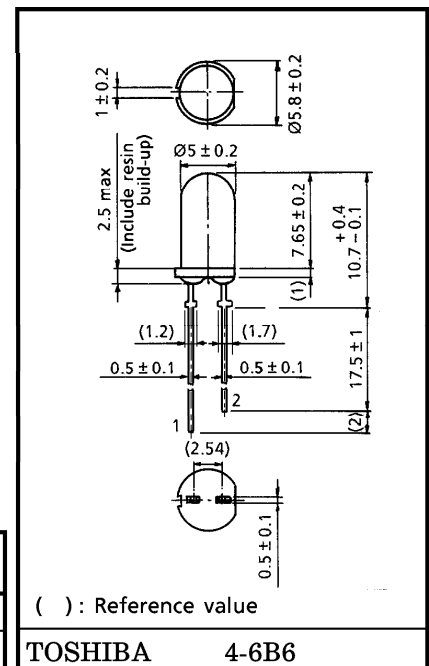
- High radiant intensity :  $I_E = 26\text{mW/sr}$  (typ.)
- Wide half-angle value :  $\theta_{\frac{1}{2}} = \pm 21^\circ$  (typ.)
- Excellent radiant-intensity linearity. Modulation by pulse operation and high frequency is possible.
- TPS703 PIN photodiode with resin to screen out visible light available as detector for remote control

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

| CHARACTERISTIC                                           | SYMBOL                        | RATING | UNIT                  |
|----------------------------------------------------------|-------------------------------|--------|-----------------------|
| Forward Current                                          | $I_F$                         | 100    | mA                    |
| Forward Current Derating<br>( $T_a > 25^\circ\text{C}$ ) | $\Delta I_F / ^\circ\text{C}$ | -1.33  | mA / $^\circ\text{C}$ |
| Pulse Forward Current (Note)                             | $I_{FP}$                      | 1      | A                     |
| Reverse Voltage                                          | $V_R$                         | 5      | V                     |
| Power Dissipation                                        | $P_D$                         | 150    | mW                    |
| Operation Temperature Range                              | $T_{opr}$                     | -20~75 | $^\circ\text{C}$      |
| Storage Temperature Range                                | $T_{stg}$                     | -30~85 | $^\circ\text{C}$      |

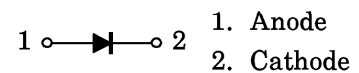
(Note) : Pulse width  $\leq 100 \mu\text{s}$ , repetitive frequency = 100 HzOPTICAL AND ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

| CHARACTERISTIC           | SYMBOL                 | TEST CONDITION               | Min        | Typ.     | Max | UNIT          |
|--------------------------|------------------------|------------------------------|------------|----------|-----|---------------|
| Forward Voltage          | $V_F$                  | $I_F = 100 \text{ mA}$       | —          | 1.35     | 1.5 | V             |
| Reverse Current          | $I_R$                  | $V_R = 5 \text{ V}$          | —          | —        | 10  | $\mu\text{A}$ |
| Radiant Intensity        | $I_E$                  | $I_F = 50 \text{ mA}$        | TLN115     | 15       | 26  | mW / sr       |
|                          |                        |                              | TLN115 (A) | 19       | —   |               |
| Radiant Power            | $P_O$                  | $I_F = 50 \text{ mA}$        | —          | 13       | —   | mW            |
| Capacitance              | $C_T$                  | $V_R = 0, f = 1 \text{ MHz}$ | —          | 20       | —   | pF            |
| Peak Emission Wavelength | $\lambda_P$            | $I_F = 50 \text{ mA}$        | —          | 950      | —   | nm            |
| Spectral Line Half Width | $\Delta\lambda$        | $I_F = 50 \text{ mA}$        | —          | 50       | —   | nm            |
| Half Value Angle         | $\theta_{\frac{1}{2}}$ | $I_F = 50 \text{ mA}$        | —          | $\pm 21$ | —   | $^\circ$      |



Weight : 0.3 g (typ.)

## PIN CONNECTION

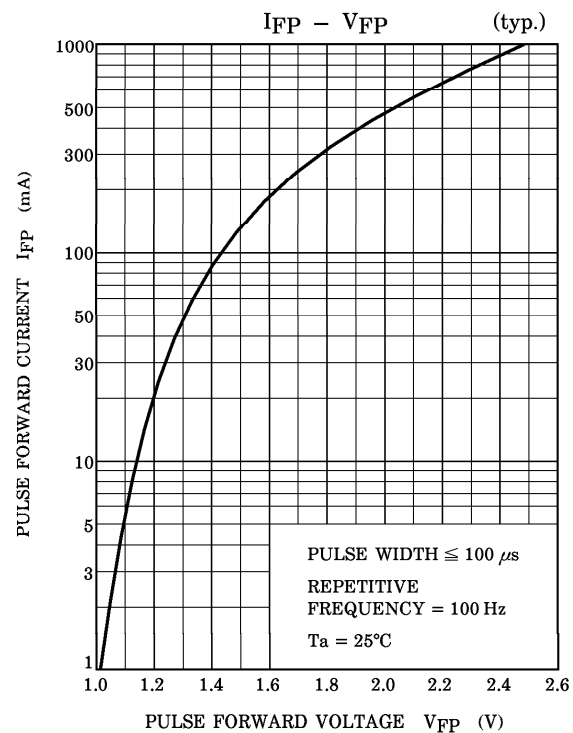
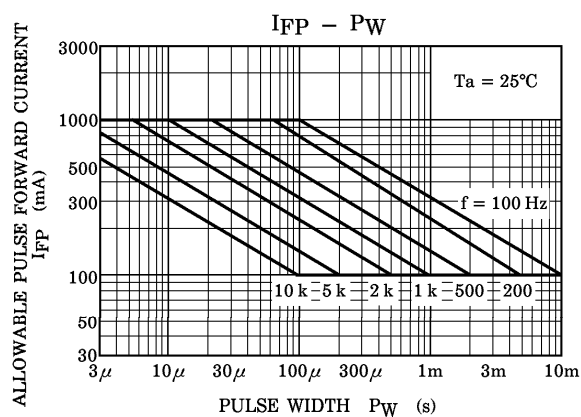
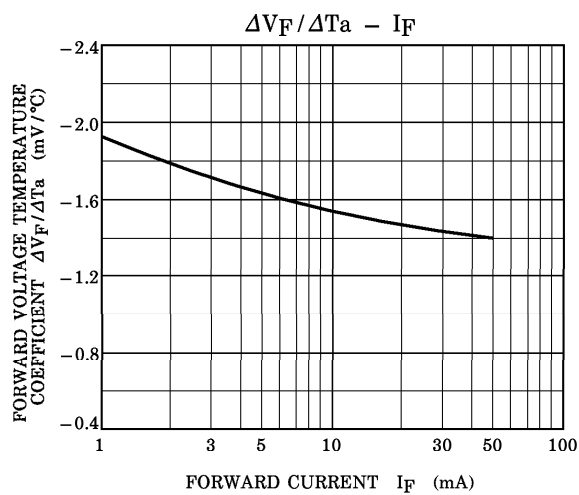
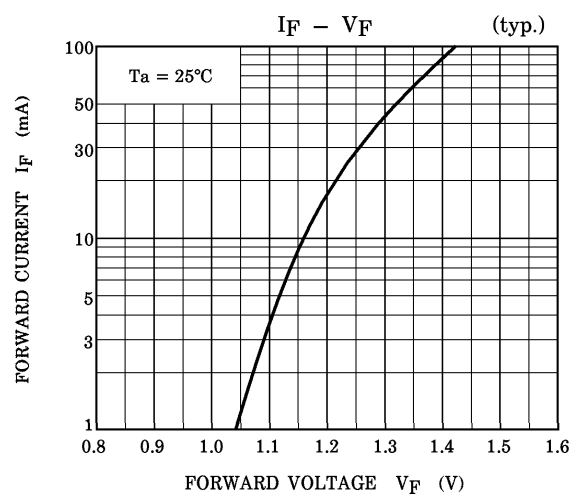
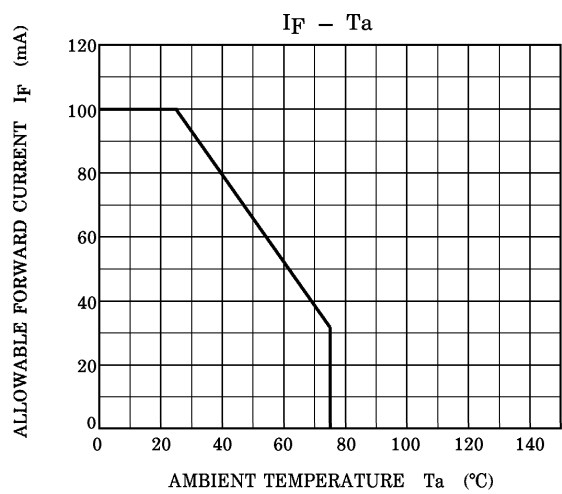


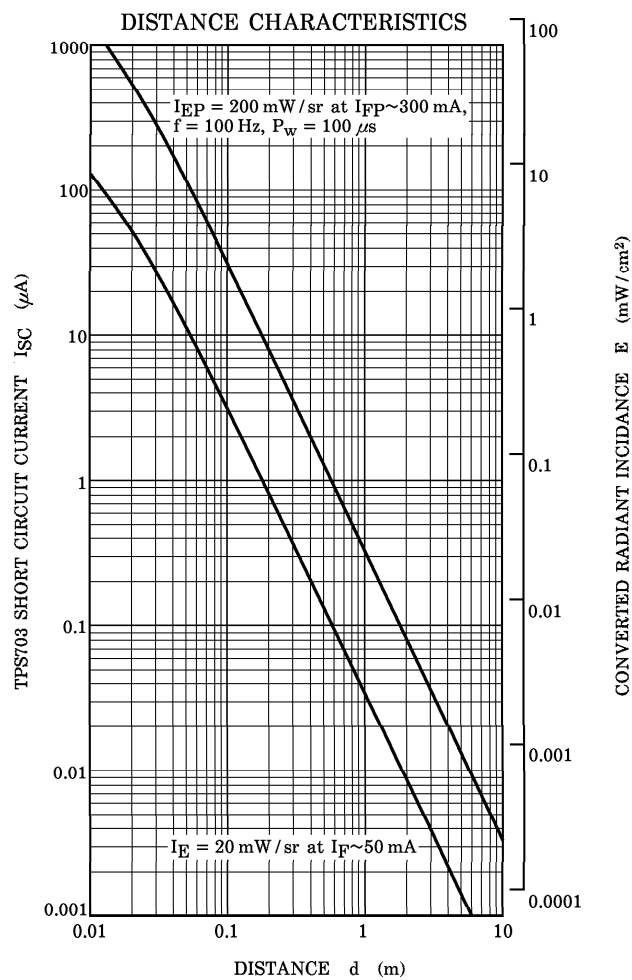
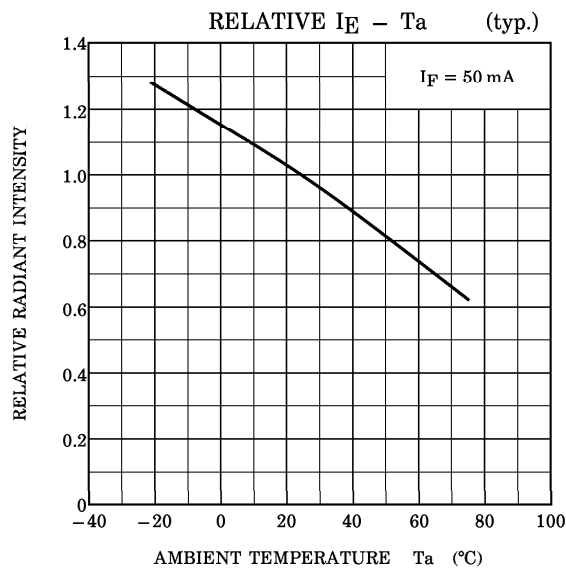
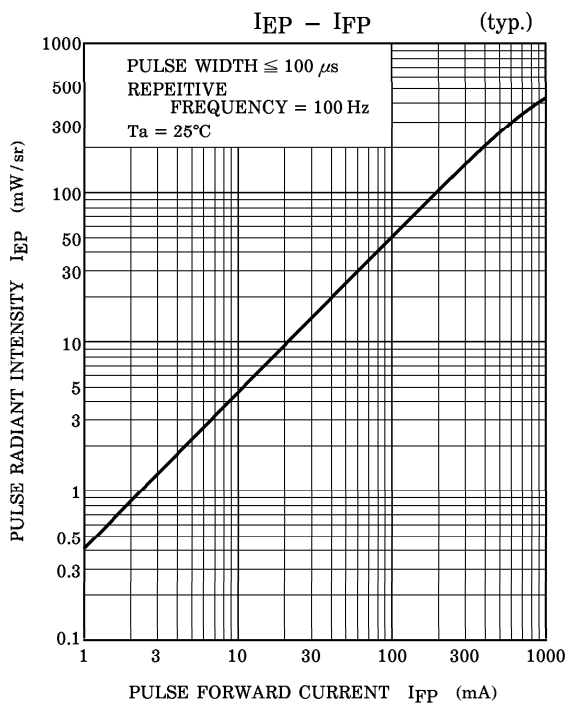
**PRECAUTIONS**

Please be careful of the followings.

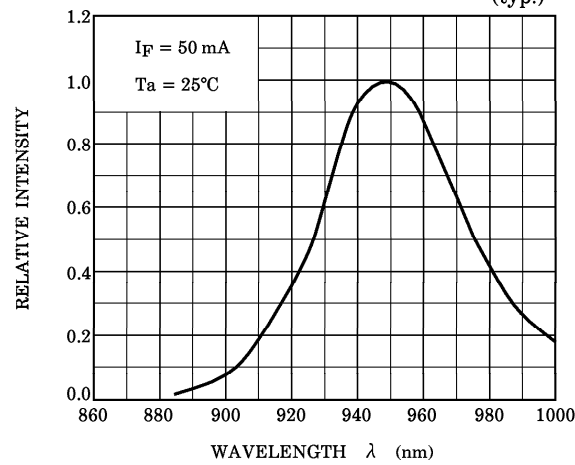
1. Soldering must be performed under the stopper.
2. Soldering temperature : 260°C max  
Solderint time : 5 s max
3. When forming the leads, bend each lead under the 2 mm from the body of the device.  
Soldering must be performed after the leads have been formed.
4. Radiant intensity falls over time 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.

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

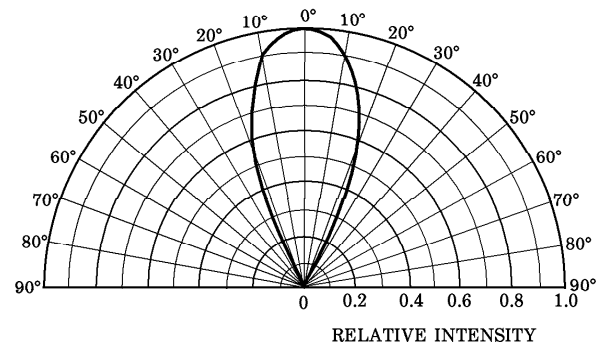




WAVELENGTH CHARACTERISTIC (typ.)



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



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