

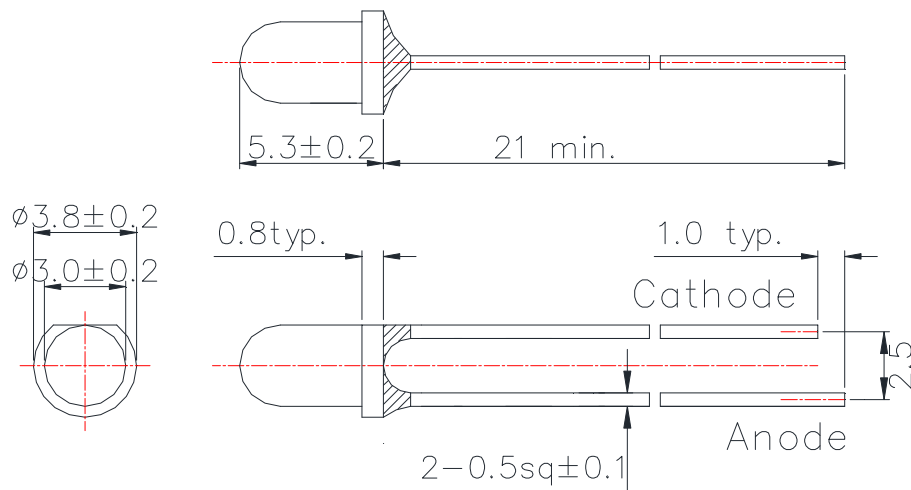
# Data Sheet

## L970-33

Infrared LED Lamp

USHIO

### Outline and Internal Circuit



(Unit : mm)

### Features

- Chip Material : GaAs
- Chip Dimension : 400um \* 400um
- Number of Chips : 1pce
- Peak Wavelength : 970nm typ.
- Package Type :  $\phi 3$ mm clear molding
- Lead Frame : Soldered (Lead Free)
- Lens : Epoxy Resin

### Application

## Absolute Maximum Ratings (Tc=25°C)

| Item                  | Symbol | Ratings    | Unit |
|-----------------------|--------|------------|------|
| Power Dissipation     | PD     | 150        | mW   |
| Forward Current       | IF     | 100        | mA   |
| Pulse Forward Current | IFP    | 1000       | mA   |
| Reverse Voltage       | VR     | 5          | V    |
| Thermal Resistance    | Rthja  | 350        | K/W  |
| Junction Temperature  | Tj     | 120        | °C   |
| Operating Temperature | Topr   | -40 ~ +100 | °C   |
| Storage Temperature   | Tstg   | -40 ~ +100 | °C   |
| Soldering Temperature | TSOL   | 265        | °C   |

‡Pulse Forward Current condition : Duty 1% and Pulse Width=10us.

‡Soldering condition : Soldering condition must be completed with 3 seconds at 265°C.

## Optical and Electrical Characteristics (Tc=25°C)

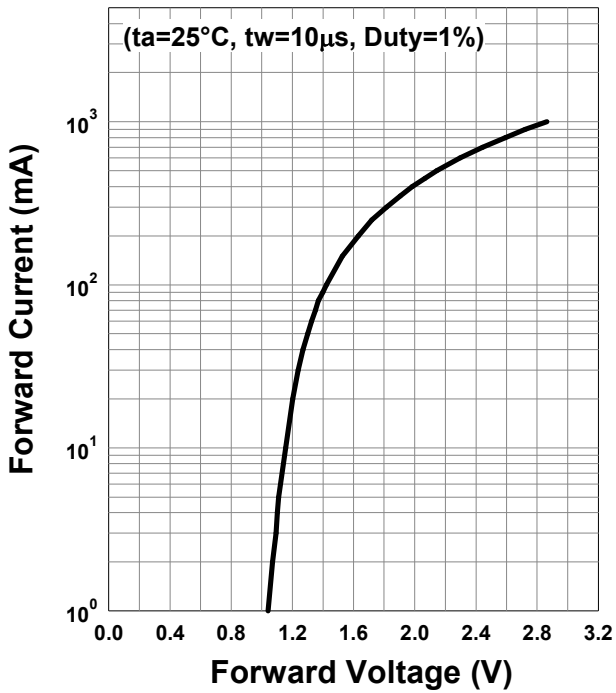
| Parameter            | Symbol          | Min | Typ      | Max | Unit  | Test Condition |
|----------------------|-----------------|-----|----------|-----|-------|----------------|
| Forward Voltage      | VF              |     | 1.3      | 1.5 | V     | IF=50mA        |
|                      | VFP             |     | 2.9      |     |       | IFP=1A         |
| Total Radiated Power | PO              |     | 7.0      |     | mW    | IF=50mA        |
|                      |                 |     | 100      |     |       | IFP=1A         |
| Radiant Intensity    | IE              |     | 30       |     | mW/sr | IF=50mA        |
|                      |                 |     | 450      |     |       | IFP=1A         |
| Peak Wavelength      | $\lambda_p$     | 955 |          | 975 | nm    | IF=50mA        |
| Half Width           | $\Delta\lambda$ |     | 48       |     | nm    | IF=50mA        |
| Viewing Half Angle   | $\theta_{1/2}$  |     | $\pm 22$ |     | deg.  | IF=50mA        |
| Rise Time            | tr              |     | 200      |     | ns    | IF=50mA        |
| Fall Time            | tf              |     | 500      |     | ns    | IF=50mA        |

‡ Radiated Power is measured by S3584-08.

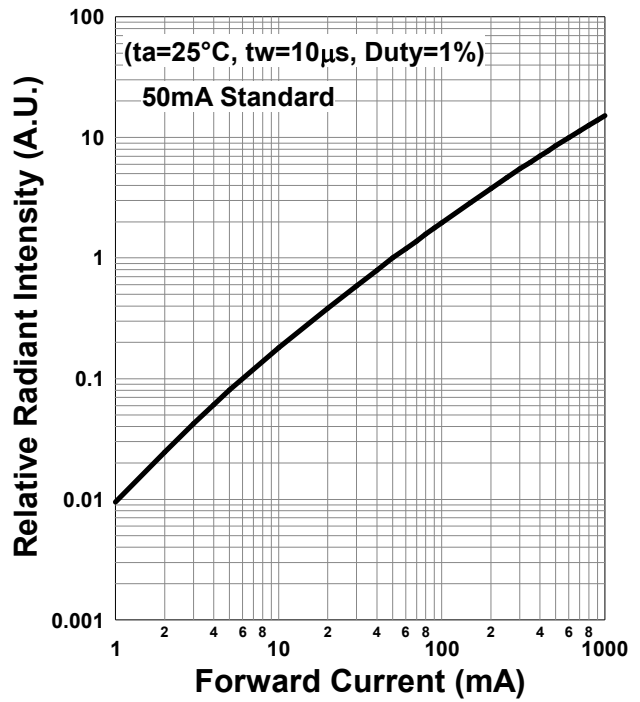
‡ Radiant Intensity is measured by CIE127-2007 Condition B.

## Typical Characteristic Curves

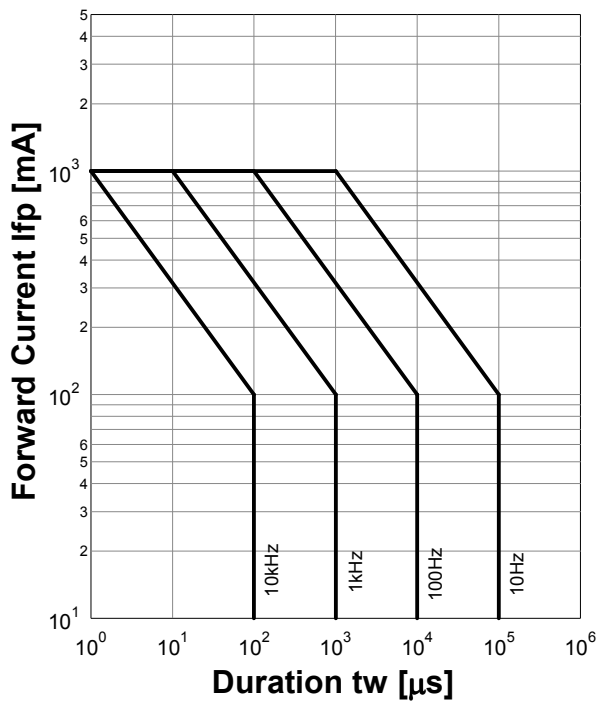
### Forward Current - Forward Voltage



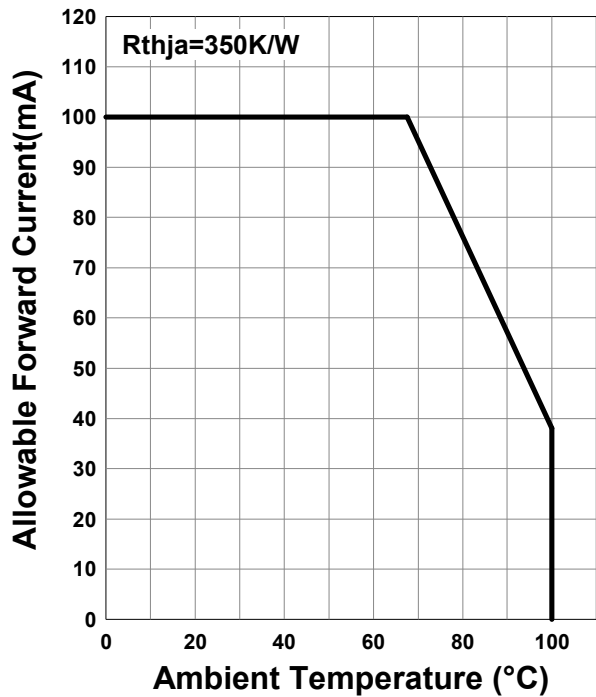
### Relative Radiant Intensity - Forward Current



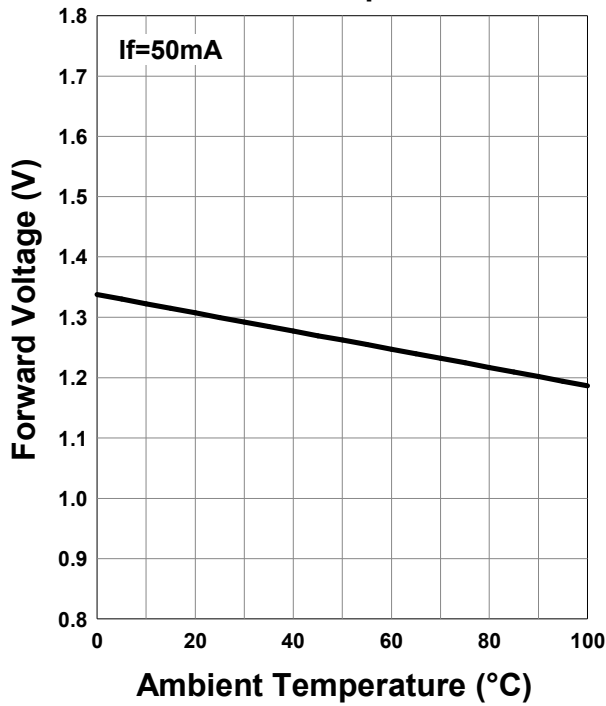
### Forward Current - Pulse Duration



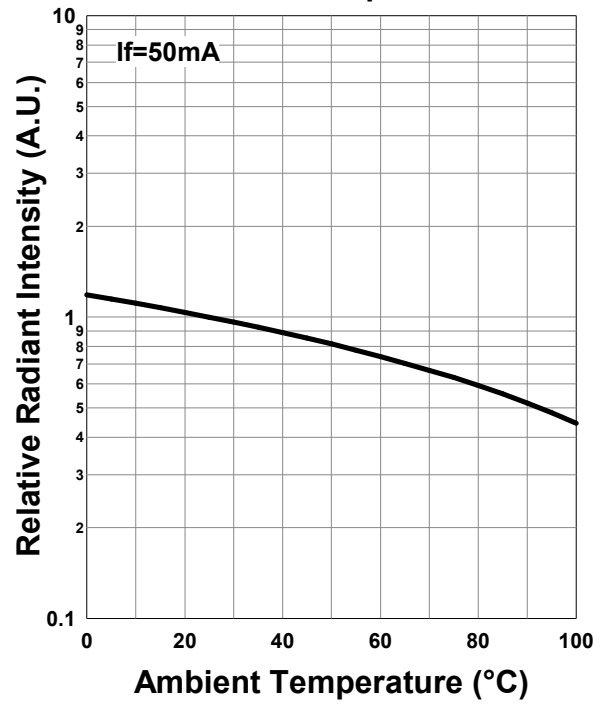
### Allowable Forward Current - Ambient Temperature



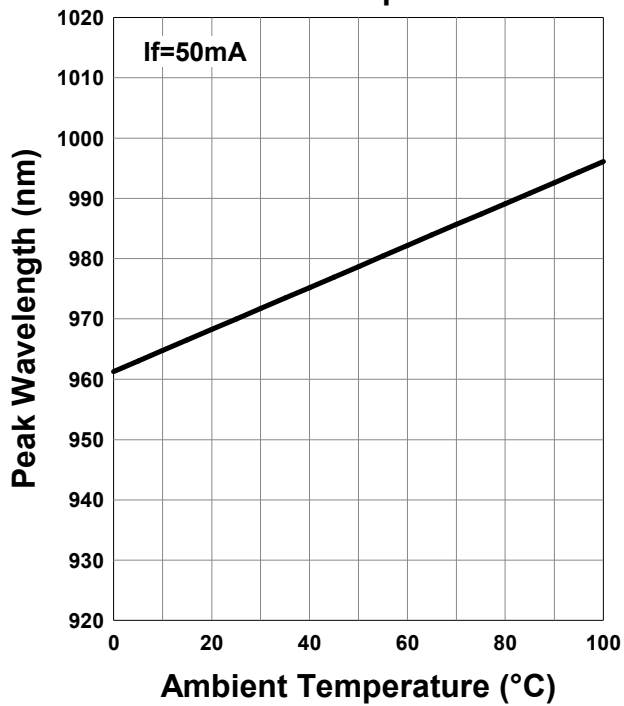
**Forward Voltage - Ambient Temperature**



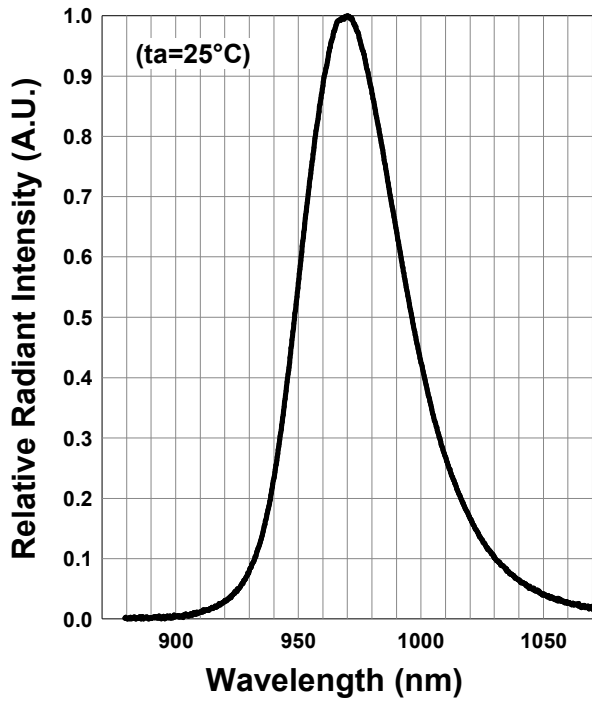
**Relative Radiant Intensity - Ambient Temperature**



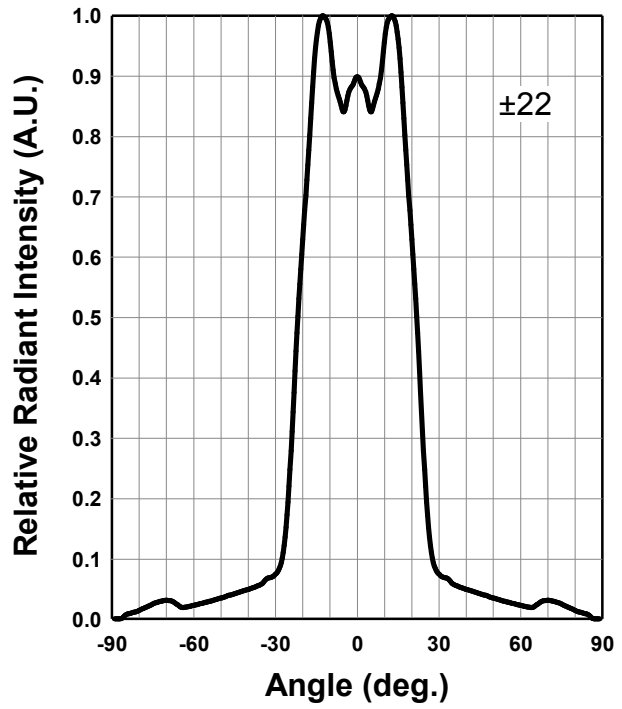
**Peak Wavelength - Ambient Temperature**



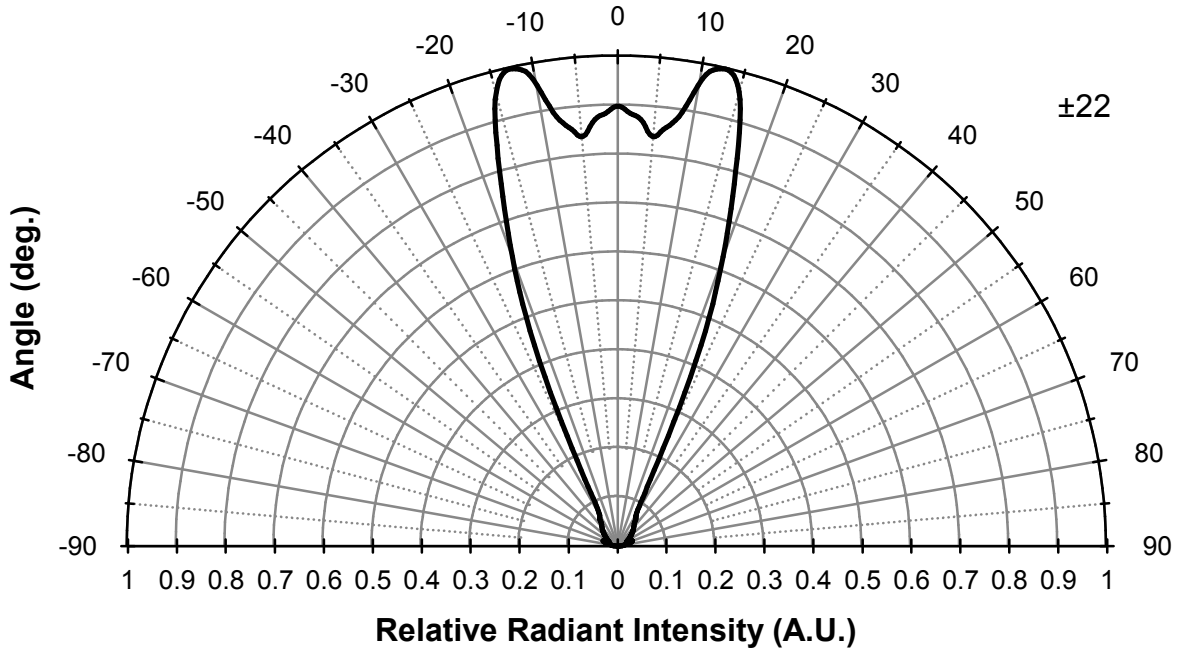
**Relative Spectral Emission**



**Radiation Characteristics**



**Radiation Characteristics**



## Disclaimer

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Product data and parameters in this catalog are typical values based on reasonably up-to-date measurements.

Product data and parameters may vary by user application and over time.

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\*Effective July 2016, Ushio Epitex Inc. is now USHIO OPTO SEMICONDUCTORS, INC.