

Features

- High reliability
- General purpose leads
- Peak wavelength $\lambda_p=940\text{nm}$
- Mechanically and spectrally matched to the phototransistor
- Low forward voltage
- High radiant intensity

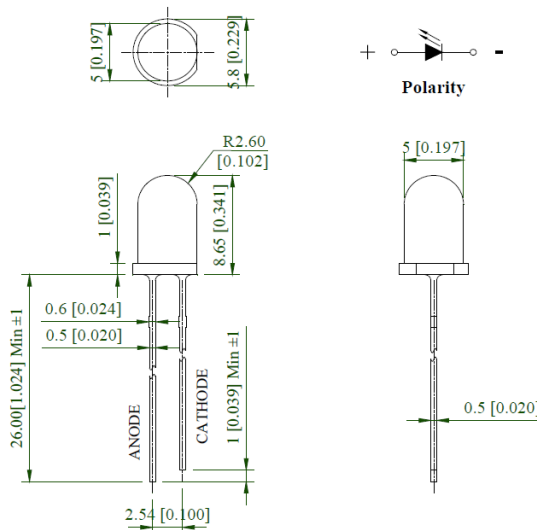
Applications

- Optoelectronic Switch
- IR Touch-Panel
- Industrial IR Equipment
- Consumer Electronics
- High Speed IR Communications

Description

- The infrared emitting diode (940nm) is a high intensity diode, molded in a water clear transparent plastic package.
- The device is spectrally matched with silicon photodiode and phototransistor.

Package Dimensions in mm



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25\text{ mm}$ (.010 ") unless otherwise noted.

Figure 1. INL-5AHIR30 Package Dimensions

Absolute Maximum Rating at 25°C (Note 1)

| Product | Emission Color | P_d (mW) | I_f (mA) | I_{FP}^* (A) | V_R (V) | T_{OP} (°C) | T_{ST} (°C) |
|-------------|----------------|------------|------------|----------------|-----------|---------------|---------------|
| INL-5AHIR30 | Infrared | 150 | 100 | 1 | 5 | -40°C~+80°C | -40°C~+85°C |

Notes

1. Condition for I_{FP} is pulse of 1/10 duty and 1kHz frequency

Electrical Characteristics $T_A = 25^\circ\text{C}$ (Note 1)

| Product | Emission Color | I_f (mA) | V_F (V) | | λ (nm) | | | Viewing Angle | E_e (mW/sr) | |
|-------------|----------------|------------|-----------|-----|----------------|-------------|-----------------|-----------------|---------------|------|
| | | | min | max | λ_D | λ_P | $\Delta\lambda$ | $2\theta_{1/2}$ | min | typ. |
| INL-5AHIR30 | Infrared | 20 | 0.8 | 1.5 | - | 940 | 50 | 30 | 7.8 | 12 |

Notes

1. Performance guaranteed only under conditions listed in above tables.

ESD Precaution

ATTENTION: Electrostatic Discharge (ESD) protection

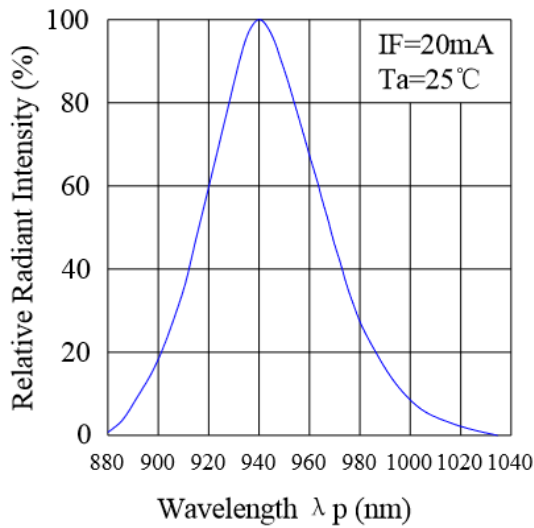


The symbol above denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are STATIC SENSITIVE devices. ESD precaution must be taken during design and assembly. If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

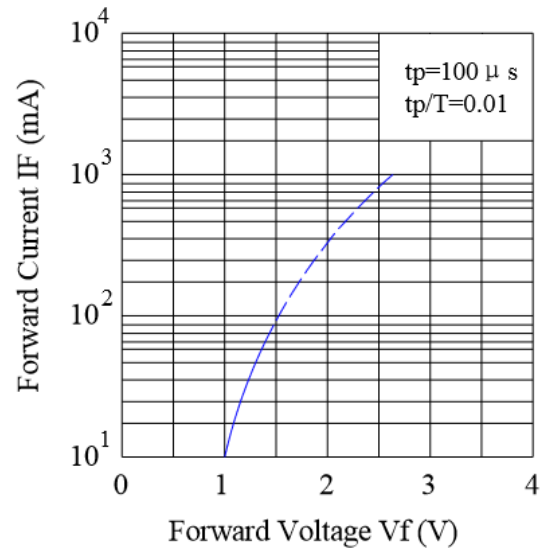
Please be advised that normal static precautions should be taken in the handling and assembly of this device to prevent damage or degradation which may be induced by electrostatic discharge (ESD).

Typical Characteristic Curves

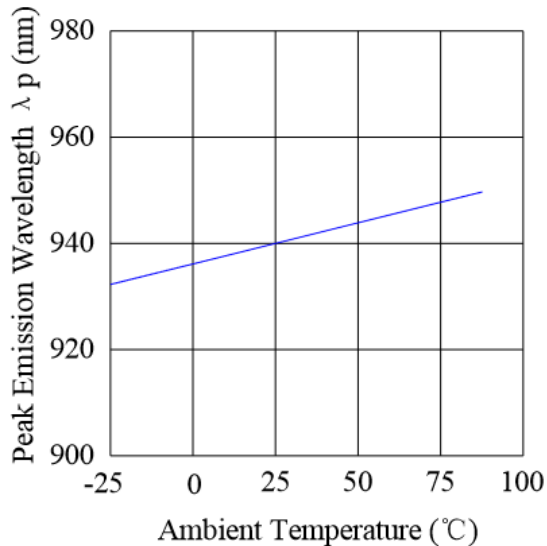
Spectral Distribution



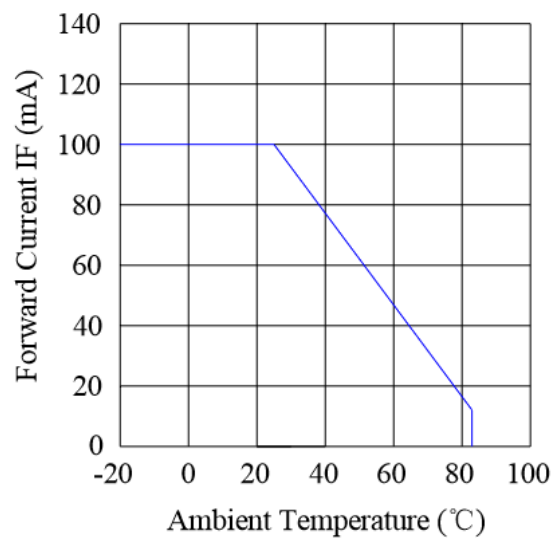
Forward Current & Forward Voltage

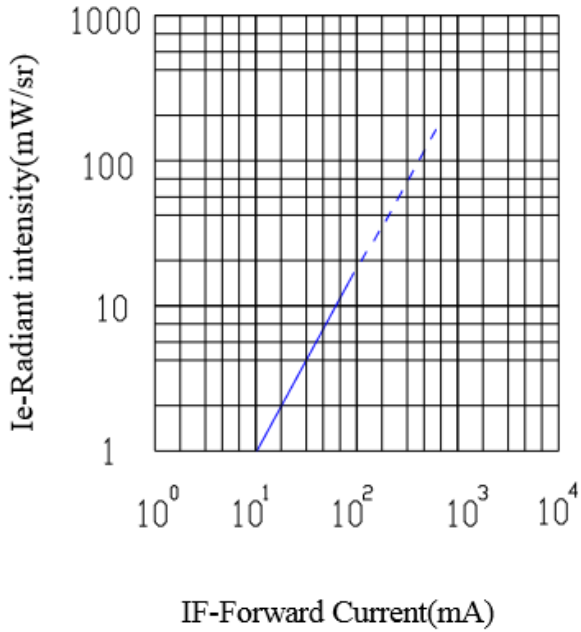
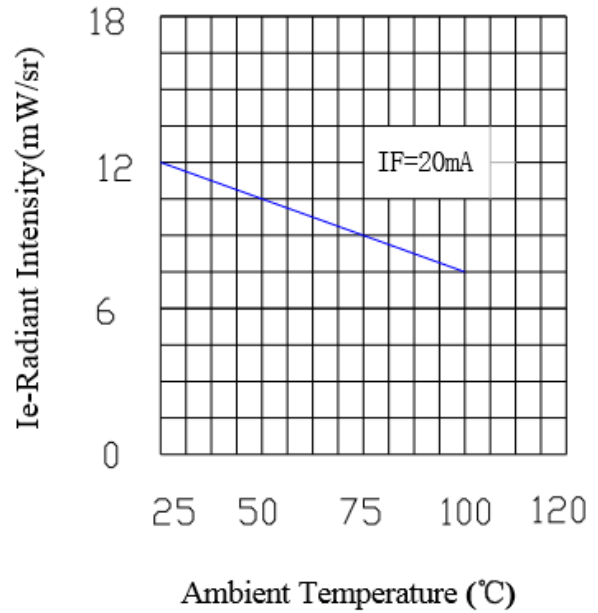
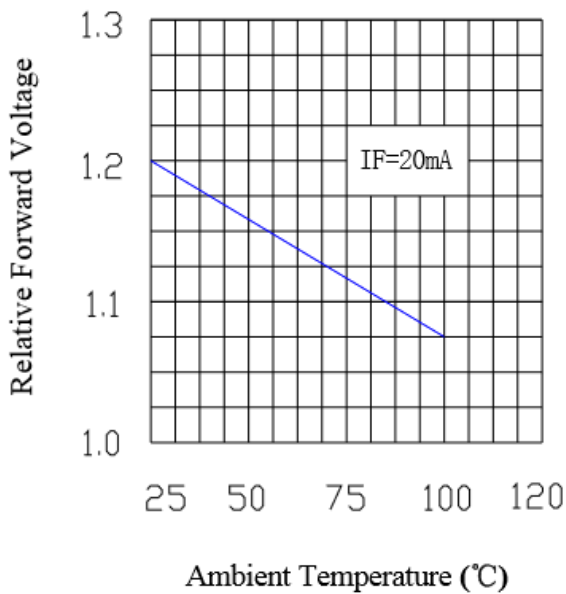


Peak Emission Wavelength & Ambient Temperature

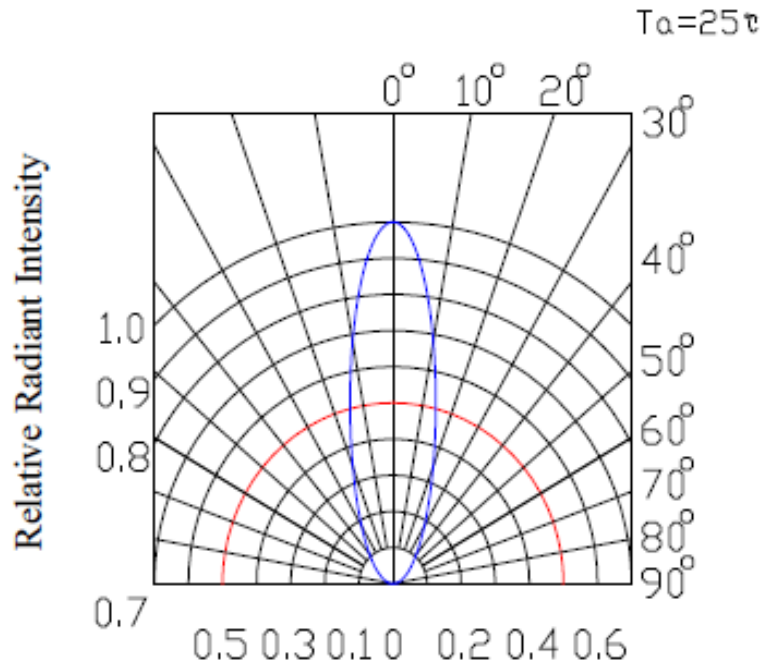


Forward Current & Ambient Temperature



Relative Intensity & Forward Current

Relative Intensity & Ambient Temperature(°C)

Forward Voltage & Ambient Temperature(°C)


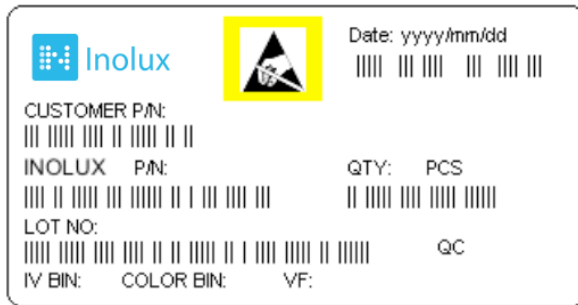
Typical Characteristic Curves – Radiation Pattern



Ordering Information

| Product | Emission Color | Technology | Test Current I_F (mA) | Radiant Intensity E_e (mW/sr) (Typ.) | Forward Voltage V_F (V) (Typ.) | Orderable Part Number |
|-------------|----------------|------------|-------------------------|--|----------------------------------|-----------------------|
| INL-5AHIR30 | Infrared | AlGaAs | 20 | 10 | 1.2 | INL-5AHIR30 |

Label Specifications



Inolux P/N:

| | | | | | | | | | | | | | | |
|------------------|---|---|-------------------|-----------------|-------------|--------------|-----|----------------------|---|---|---|---|---|---|
| I | N | L | - | 5 | A | - | HIR | 3 | 0 | . | X | X | X | X |
| Inolux Lamp Type | | | Package | Lens | Color | View Angle | | Customized Stamp-off | | | | | | |
| | | | 5A = standard 5mm | (Blank) = clear | HIR = 940nm | 30 = 30 deg. | | | | | | | | |

Lot No.:

| | | | | | | | |
|------------------|--------------------------|---|---|---|-------|------|--------|
| Z | 2 | 0 | 1 | 7 | 01 | 24 | 001 |
| Internal Tracker | Year (2017, 2018,) | | | | Month | Date | Serial |

Reliability

| Item | Frequency/ lots/ samples/ failures | Standards Reference | Conditions |
|--------------------------------------|---|--------------------------------|--|
| Precondition | For all reliability monitoring tests according to JEDEC Level 2 | J-STD-020 | 1.) Baking at 85°C for 24hrs 2.) Moisture storage at 85°C/ 60% R.H. for 168hrs |
| Solderability | 1Q/ 1/ 22/ 0 | JESD22-B102-B And CNS-5068 | Accelerated aging 155°C/ 24hrs Tinning speed: 2.5+0.5cm/s Tinning: A: 215°C/ 3+1s or B: 260°C/ 10+1s |
| Resistance to soldering heat | | CNS-5067 | Dipping soldering terminal only Soldering bath temperature A: 260+/-5°C; 10+/-1s B: 350+/-10°C; 3+/-0.5s |
| Operating life test | 1Q/ 1/ 40/ 0 | CNS-11829 | 1.) Precondition: 85°C baking for 24hrs 85°C/ 60%R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrs |
| High humidity, high temperature bias | 1Q/ 1/ 45/ 0 | JESD-A101-B | Tamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrs |
| High temperature bias | 1Q/ 1/ 20 | IN specs. | Tamb: 55°C IF=20mA Duration: 1000hrs |
| Pulse life test | 1Q/ 1/ 40/ 0 | | Tamb25°C, If=20mA,, Ip=100mA, Duty cycle=0.125 (tp=125 μs, T=1sec) Duration 500hrs) |
| Temperature cycle | 1Q/ 1/ 76/ 0 | JESD-A104-A IEC 68-2-14, Nb | A cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min.. 300 cycles 2 chamber/ Air-to-air type |
| High humidity storage test | 1Q/ 1/ 40/ 0 | CNS-6117 | 60+3°C 90+5/-10% R.H. for 500hrs |
| High temperature storage test | 1Q/ 1/ 40/ 0 | CNS-554 | 100+10°C for 500hrs |
| Low temperature storage test | 1Q/ 1/ 40/ 0 | CNS-6118 | -40+5°C for 500hrs |

Revision History

| Changes since last revision | Page | Version No. | Revision Date |
|-----------------------------|------|-------------|---------------|
| Initial Release | | 1.0 | 01-19-2019 |
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