

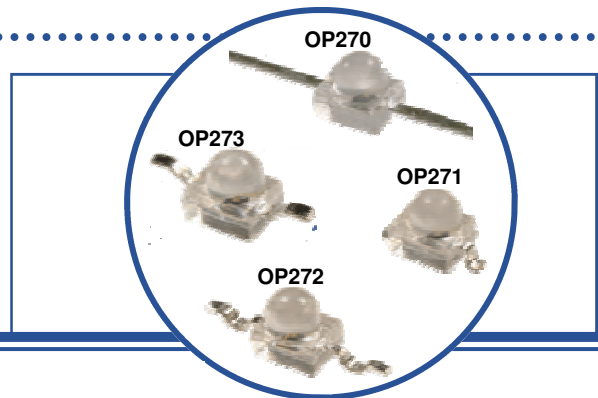
# Infrared Light Emitting Diode

## OP270 Series



### Features:

- High power GaAIAs
- 1.9 mm water clear plastic SMD package
- 880 nm wavelength
- Narrow beam angle
- Choice of four lead configurations



### Description:

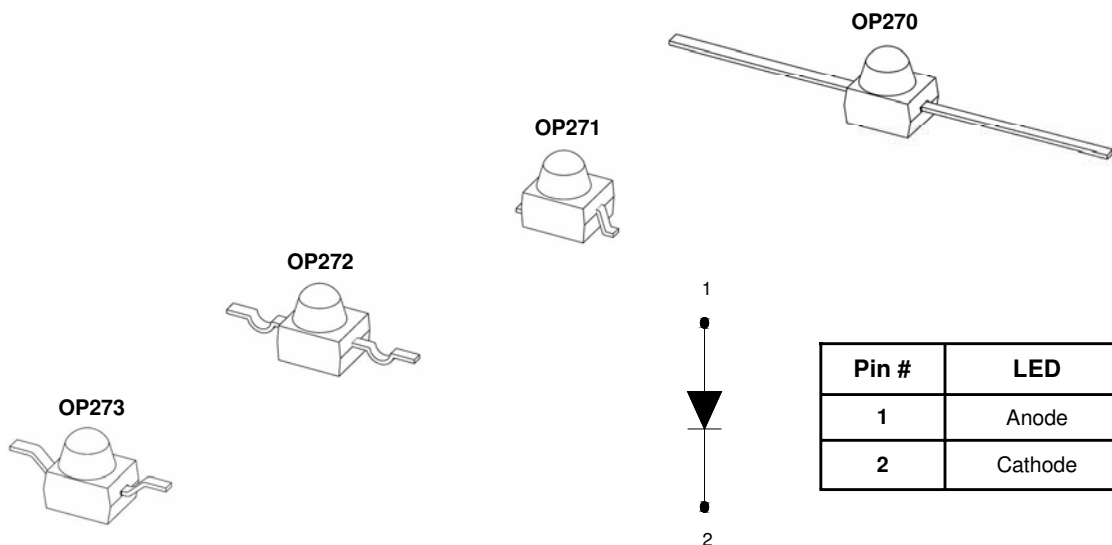
Each device in this series is a GaAIAs infrared LED mounted in a clear plastic SMD package. Each device has an integral molded lens that enables a narrow beam angle and provides an even emission pattern. This series offers four lead configurations, which are compatible with most automated mounting equipment. *OP270 Series LEDs are mechanically and spectrally matched to OP570 series phototransistors.*

*Please refer to Application Bulletins 208 and 210 for additional design information and reliability (degradation) data.*

### Applications:

- Non-contact position sensing
- Datum detection
- Machine automation
- Optical encoding
- IrDA
- Reflective and transmissive sensing

| Ordering Information |                     |                  |                    |
|----------------------|---------------------|------------------|--------------------|
| Part Number          | LED Peak Wavelength | Total Beam Angle | Lead Configuration |
| OP270                | 880 nm              | 25°              | Axial              |
| OP271                |                     |                  | Gull Wing          |
| OP272                |                     |                  | Yoke               |
| OP273                |                     |                  | Rev. Gull          |



| Pin # | LED     |
|-------|---------|
| 1     | Anode   |
| 2     | Cathode |



**RoHS**

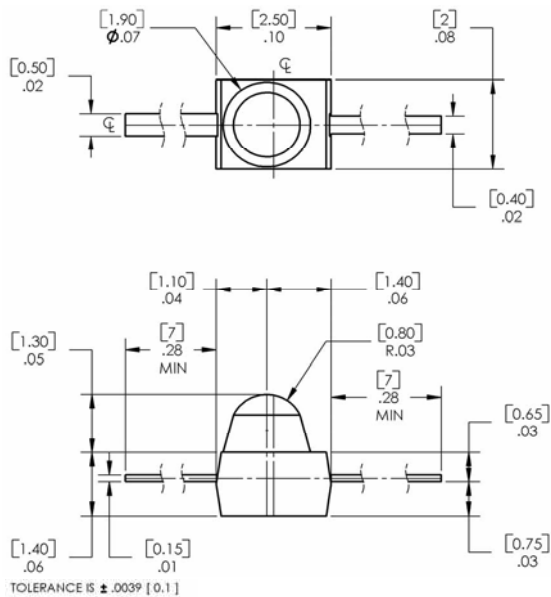
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

# Infrared Light Emitting Diode

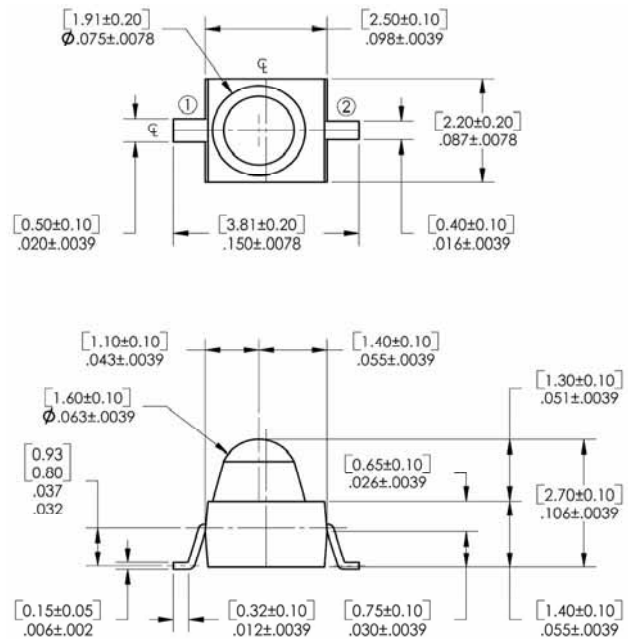
## OP270 Series



**OP270**

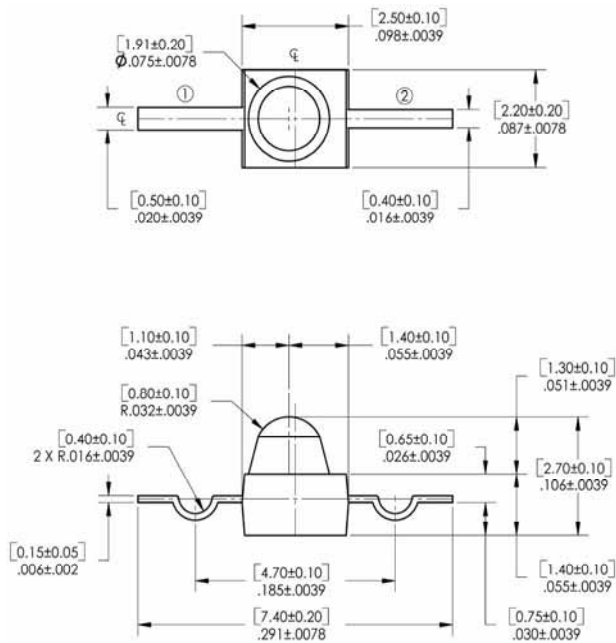


**OP271**

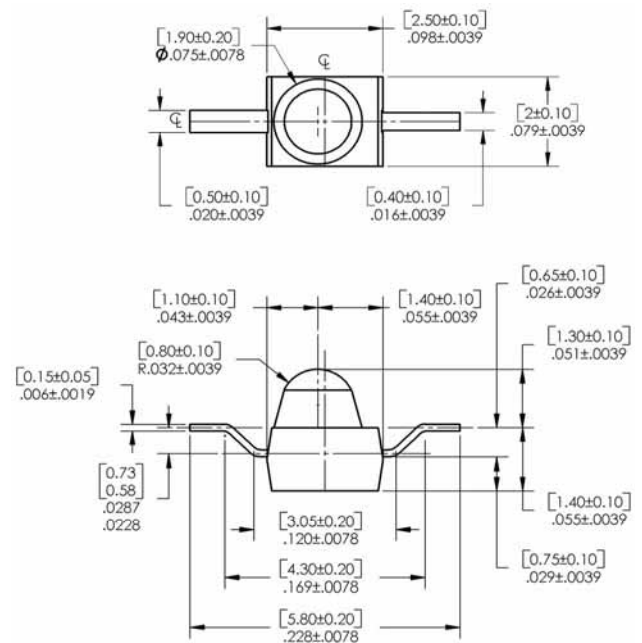


DIMENSIONS ARE IN: [MILLIMETERS]  
INCHES

**OP272**



**OP273**



1  
2

| Pin # | LED     |
|-------|---------|
| 1     | Anode   |
| 2     | Cathode |

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### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

|                                                                                             |                       |
|---------------------------------------------------------------------------------------------|-----------------------|
| Storage Temperature Range                                                                   | -40° C to +85° C      |
| Operating Temperature Range                                                                 | -25° C to +85° C      |
| Reverse Voltage                                                                             | 30 V                  |
| Continuous Forward Current                                                                  | 50 mA                 |
| Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron] | 260° C <sup>(1)</sup> |
| Power Dissipation                                                                           | 130 mW <sup>(2)</sup> |

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--------|-----------|-----|-----|-----|-------|-----------------|
|--------|-----------|-----|-----|-----|-------|-----------------|

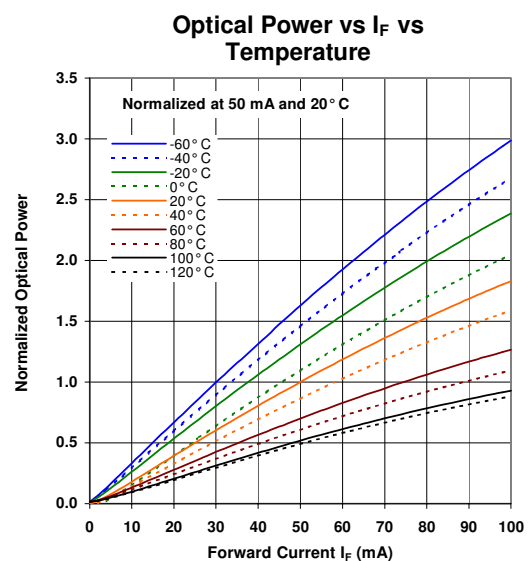
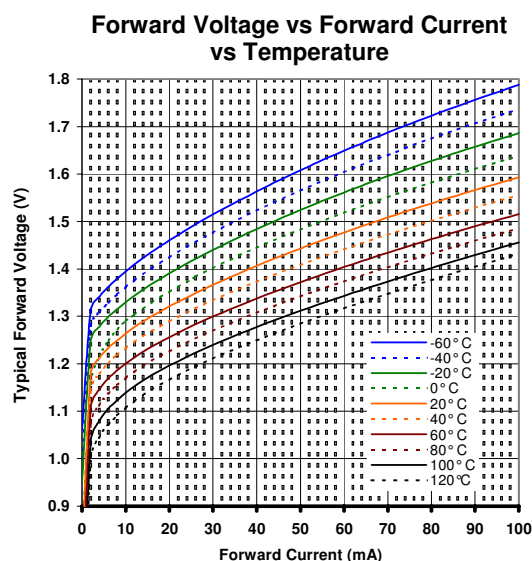
#### Input Diode

|               |                                     |     |     |      |                    |                                                                          |
|---------------|-------------------------------------|-----|-----|------|--------------------|--------------------------------------------------------------------------|
| $E_{E(APT)}$  | Apertured Radiant Incidence         | 1.5 | -   | -    | mW/cm <sup>2</sup> | $I_F = 20\text{ mA}^{(3)}$                                               |
| $V_F$         | Forward Voltage                     | -   | -   | 1.50 | V                  | $I_F = 20\text{ mA}$                                                     |
| $I_R$         | Reverse Current                     | -   | -   | 100  | $\mu\text{A}$      | $V_R = 2.0\text{ V}$                                                     |
| $\lambda_P$   | Wavelength at Peak Emission         | -   | 890 | -    | nm                 | $I_F = 10\text{ mA}$                                                     |
| $\theta_{HP}$ | Emission Angle at Half Power Points | -   | 25  | -    | Degree             | $I_F = 20\text{ mA}$                                                     |
| $t_r$         | Output Rise Time                    | -   | -   | 500  | ns                 | $I_{F(PK)}=100\text{ mA}$ , $PW=10\text{ }\mu\text{s}$ , and $D.C.=10\%$ |
| $t_f$         | Output Fall Time                    | -   | -   | 500  | ns                 |                                                                          |

#### Notes:

- Solder time less than 5 seconds at temperature extreme.
- Derate linearly at 2.17 mW/° C above 25° C.
- $E_{E(APT)}$  is a measurement of the apertured radiant incidence upon a sensing area 0.081" (2.06 mm) in diameter, perpendicular to and centered on the mechanical axis of the lens and 0.590" (14.99 mm) from the measurement surface.  $E_{E(APT)}$  is not necessarily uniform within the measured area.

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