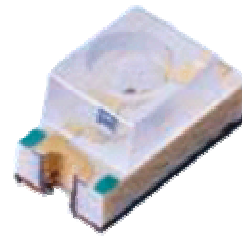


# Infrared Light Emitting Diode in Miniature SMD Package

## OP251

- Internal Lens
- High Power
- 1206 Package Size
- 880nm Wavelength

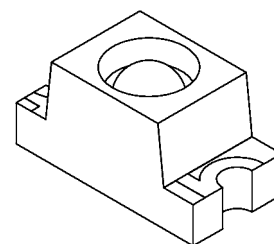
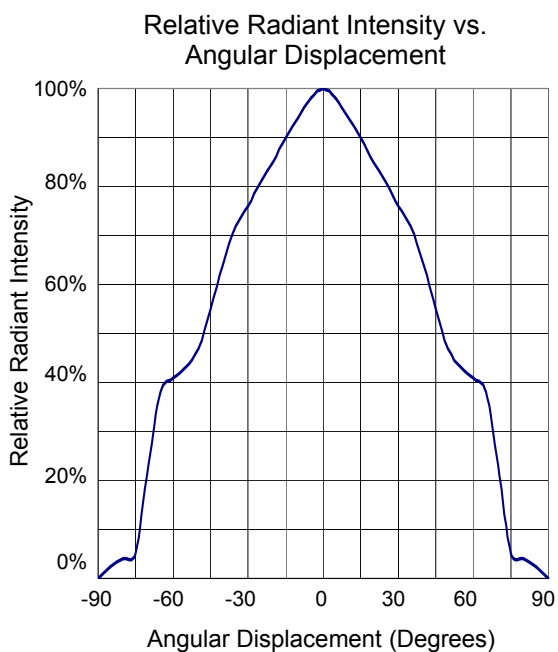


## PRELIMINARY

The OP251 is a GaAlAs infrared LEDs mounted in a miniature SMT package. The device incorporates an integral molded lens which enables a tight beam angle and provides an even emission pattern. This device is packaged in a 1206 size chip carrier that is compatible with most automated mounting equipment. The OP251 is mechanically and spectrally matched to the OP520 series phototransistors.

### Applications

- Non-Contact Position Sensing
- Datum detection
- Machine automation
- Optical encoders



OP251



LEAD FREE

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

### 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      |
| Lead Soldering Temperature  | 260° C <sup>(1)</sup> |
| Reverse Voltage             | 30 V                  |
| Continuous Forward Current  | 50 mA                 |
| Power Dissipation           | 130 mW <sup>(2)</sup> |

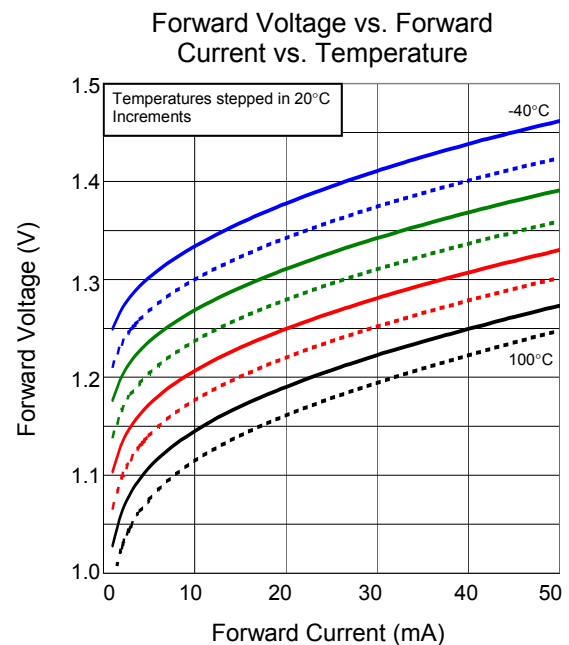
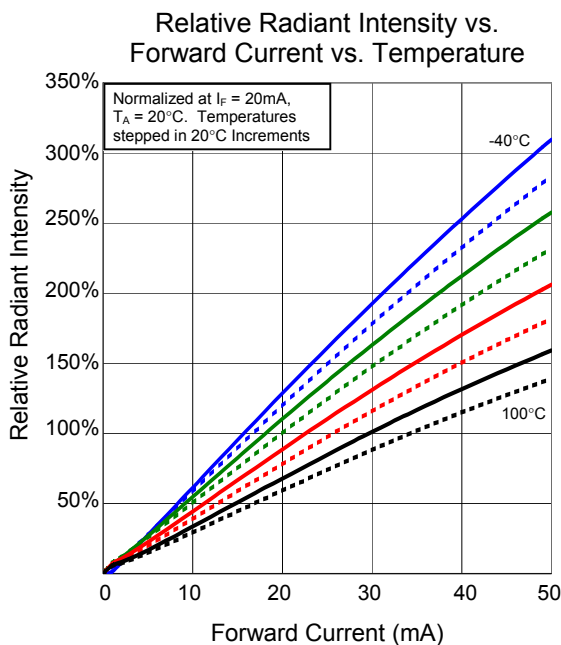
Notes:

- Solder time less than 5 seconds at temperature extreme.
- De-rate linearly at 2.17 mW/° C above 25° C.

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

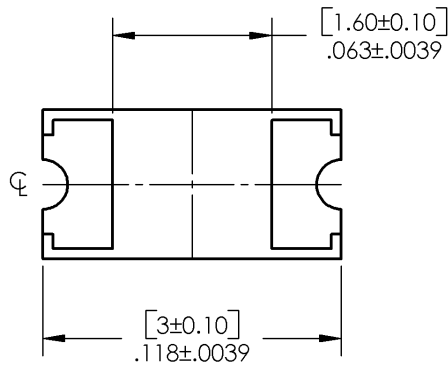
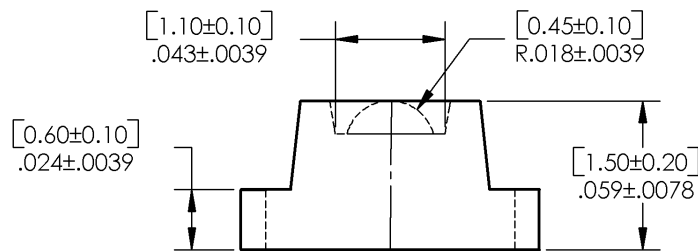
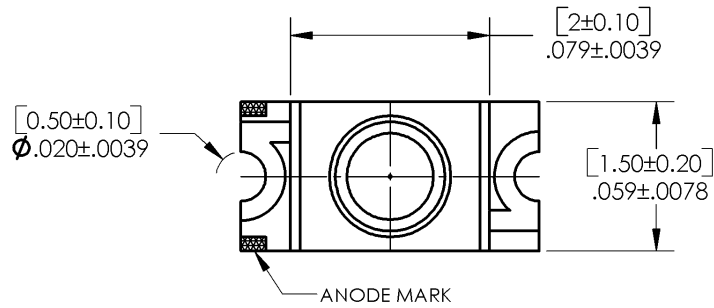
| SYMBOL               | PARAMETER                           | MIN | TYP | MAX | UNITS              | CONDITIONS  |
|----------------------|-------------------------------------|-----|-----|-----|--------------------|---|
| $E_{e(\text{APT})}$  | Apertured Radiant Incidence         | 0.3 |     |     | mW/cm <sup>2</sup> | $I_F = 20\text{mA}^{(3)}$                                 |
| $V_F$                | Forward Voltage                     |     |     | 1.5 | V                  | $I_F = 20\text{mA}$                                       |
| $I_R$                | Reverse Current                     |     |     | 100 | μA                 | $V_R = 2.0\text{V}$                                       |
| $\lambda_P$          | Peak Emission Wavelength            |     | 890 |     | nm                 | $I_F = 10\text{mA}$                                       |
| $\Theta_{\text{HP}}$ | Emission Angle at Half Power Points |     | 105 |     | Deg.               | $I_F = 20\text{mA}$                                       |
| $t_r, t_f$           | Rise and Fall Time                  |     |     | 500 | ns                 | $I_{F(\text{PEAK})} = 100\text{mA}$ , PW = 10μs, 10% D.C. |

- $E_{e(\text{APT})}$  is a measurement of the apertured radiant incidence upon a sensing area 0.081" (2.06mm) in diameter, perpendicular to and centered on the mechanical axis of the lens, and 0.590" (14.99mm) from the measurement surface.  $E_{e(\text{APT})}$  is not necessarily uniform within the measured area.



# SMD Infrared LED

## OP251



| PIN | FUNCTION |
|-----|----------|
| 1   | Anode    |
| 2   | Cathode  |

DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

### RECOMMENDED SOLDER PADS

