

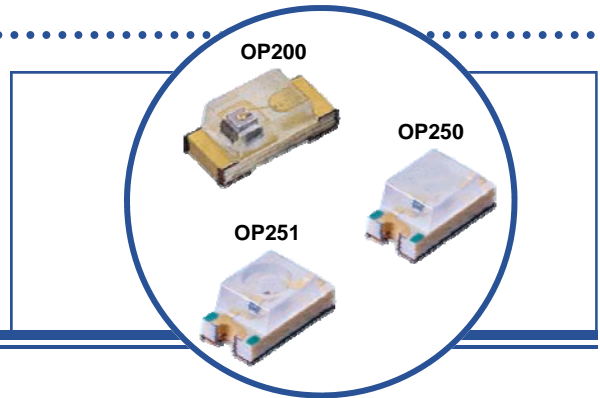
# Infrared Light Emitting Diode

OP200, OP250, OP251



## Features:

- High power GaAIAs
- Choice of 0805 or 1206 miniature SMD package style
- 880 nm wavelength
- Choice of narrow or tight beam angle
- Mechanically and spectrally matched to OP520 series phototransistors



## Description:

Each **OP200** is a GaAIAs infrared LED mounted in a miniature SMD package, with a flat molded lens that enables a wide beam angle which provides an even emission pattern. Each device is packaged in an 0805 size chip carrier that is compatible with most automated mounting equipment.

Each **OP250** and **OP251** device is a GaAIAs infrared LED, mounted in a miniature SMT 1206 size chip carrier that is compatible with most automated mounting equipment. The **OP250** has a flat molded lens that enables a wide beam angle and provides an even emission pattern. The **OP251** has an internal molded lens that enables a tight beam angle and provides an even emission pattern.

*OP200, OP250 and OP251 are mechanically and spectrally matched to OP520 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

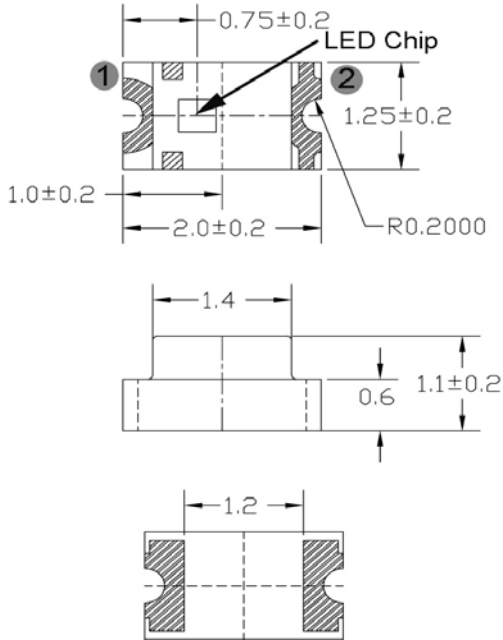
Ordering Information				
Part Number	LED Peak Wavelength	Output Power (mW/cm <sup>2</sup> ) Min / Max	Total Beam Angle	Lead Length
OP200	880 nm	0.2 / NA	120°	N/A
OP250			160°	
OP251		0.3 / NA	105°	



RoHS

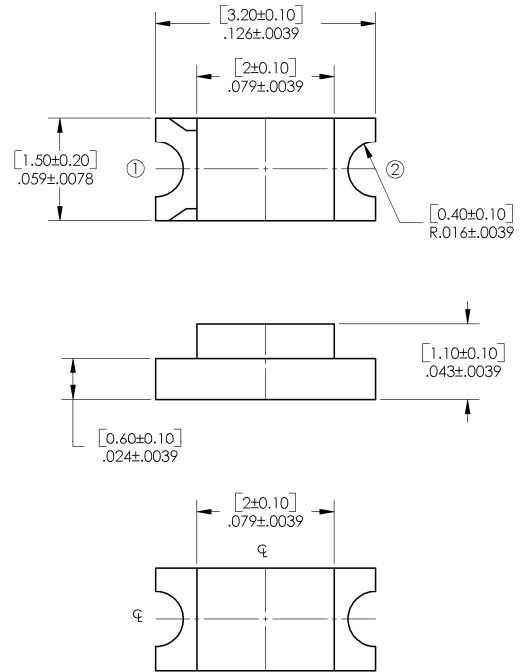
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

**OP200**



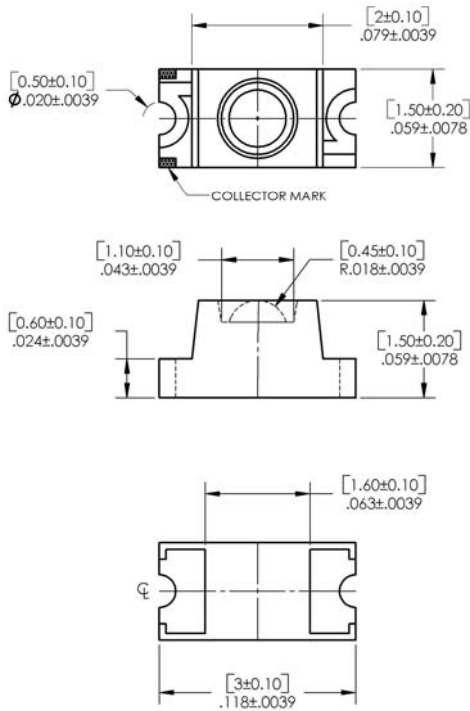
DIMENSIONS ARE IN INCHES AND [MILLIMETERS]

**OP250**

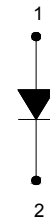


DIMENSIONS ARE IN INCHES AND [MILLIMETERS]

**OP251**



DIMENSIONS ARE IN INCHES AND [MILLIMETERS]



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
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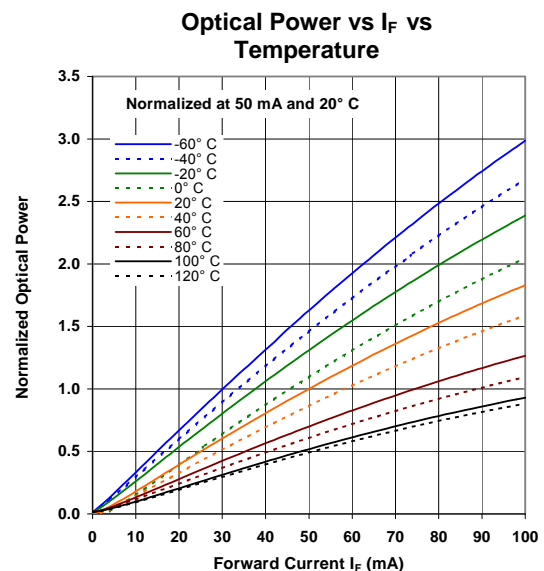
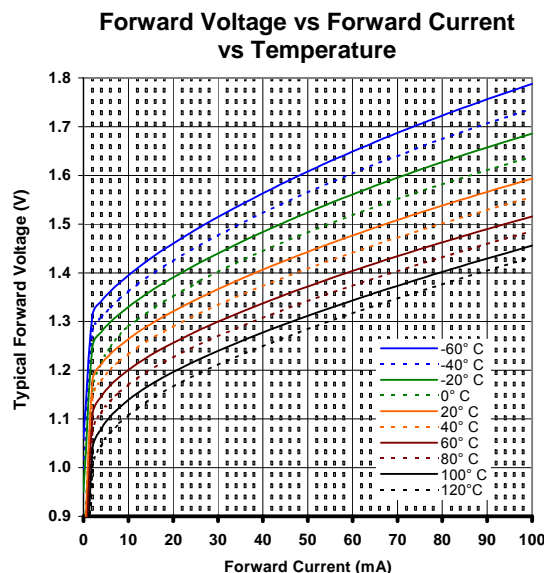
#### Input Diode

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$E_{E(APT)}$	Apertured Radiant Incidence OP200, OP250 OP251	0.2 0.3	- -	- -	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 OP200, OP250 OP251	- -	100 105	- -	Degree	$I_F = 20\text{ mA}$
$t_r$	Output Rise Time	-	-	500	ns	$I_{F(PK)} = 100\text{ mA}$ , $PW = 10\ \mu\text{s}$ , and D.C. = 10.0%
$t_f$	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.

### OP200, OP250, OP251



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