

# Plastic Infrared Emitting Diode

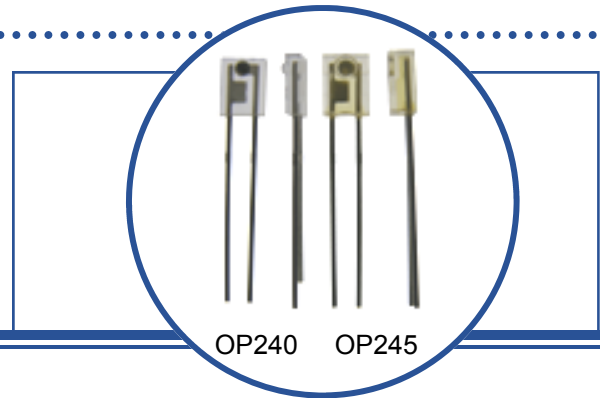
OP240 Series

OP245 Series



## Features:

- Wide irradiance pattern
- Side-looking package for space-limited applications
- Wavelength matched to silicon's peak response
- Mechanically and spectrally matched to other OPTEK products



## Description:

Each device in this series is a high intensity gallium aluminum arsenide infrared emitting diode that is suited for use as a PCBoard mounted slotted switch or an easy mount PCBoard interrupter.

Each dome lens **OP240** and **OP245** device is an 890 nm diode that is molded in an IR-transmissive clear epoxy side-looking package. *OP240 is mechanically and spectrally matched to the OP550 and OP560 series of phototransistors. OP245 is mechanically and spectrally matched to the OP555 and OP565 series devices.*

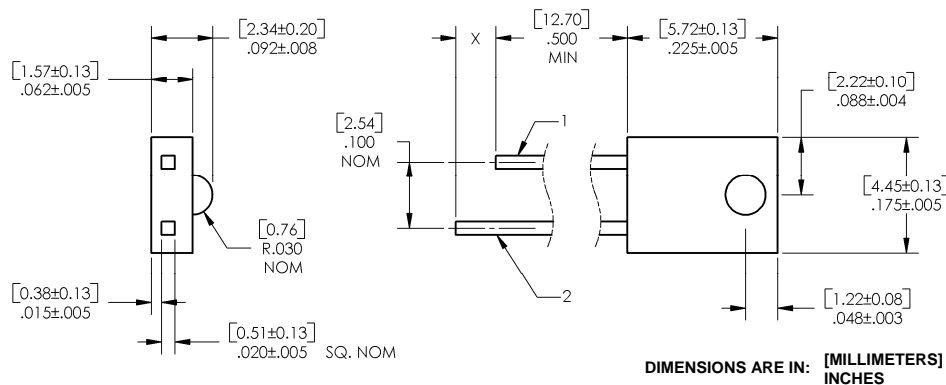
Please refer to Application Bulletins 208 and 210 for additional design information and reliability (degradation) data.

## Applications:

- Space-limited applications
- PCBoard mounted slotted switch
- PCBoard interrupter

Ordering Information				
Part Number	LED Peak Wavelength	Lens Type	Total Beam Angle	Lead Length
OP240A	890 nm	Dome	40°	0.50" minimum
OP240B				
OP240C				
OP240D				
OP245A		Recessed		
OP245B				
OP245C				
OP245D				

OP240 (A, B, C, D)



Pin #	LED
1	Cathode
2	Anode



RoHS

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

**CONTAINS POLYSULFONE**  
To avoid stress cracking, we suggest using ND Industries' **Vibra-Tite** for thread-locking. **Vibra-Tite** evaporates fast without causing structural failure in OPTEK'S molded plastics.

# Plastic Infrared Emitting Diode

OP240 Series

OP245 Series

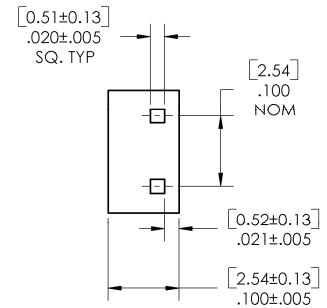
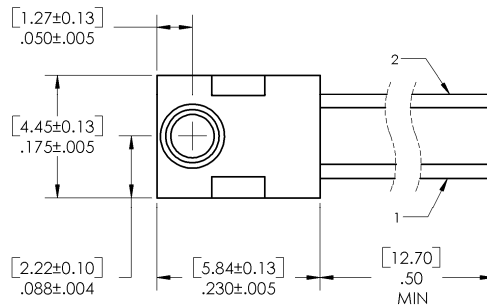


## OP245 (A, B, C, D)



Pin #	LED
1	Cathode
2	Anode

**CONTAINS POLYSULFONE**  
To avoid stress cracking, we suggest using ND Industries' **Vibra-Tite** for thread-locking. **Vibra-Tite** evaporates fast without causing structural failure in OPTEK'S molded plastics.



DIMENSIONS ARE IN: [MILLIMETERS]  
INCHES

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

Storage and Operating Temperature Range	$-40^{\circ}\text{C}$ to $+100^{\circ}\text{C}$
Reverse Voltage	2.0 V
Continuous Forward Current	50 mA
Peak Forward Current	3.0 A
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron]	$260^{\circ}\text{C}^{(1)}$
Power Dissipation	100 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

$E_E$ (APT)	Apertured Radiant Incidence OP240A, OP245A OP240B, OP245B OP240C, OP245C OP240D, OP245D	0.60 0.40 0.20 0.05	- - - -	- 1.20 0.86 -	mW/cm <sup>2</sup>	$I_F = 20\text{ mA}^{(3)}$
$V_F$	Forward Voltage	-	-	1.80	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	$I_F = 10\text{ mA}$
B	Spectral Bandwidth between Half Power Points	-	80	-	nm	$I_F = 10\text{ mA}$
$\Delta\lambda_P / \Delta T$	Spectral Shift with Temperature	-	$\pm 0.18$	-	nm/ $^{\circ}\text{C}$	$I_F = \text{Constant}$
$\theta_{HP}$	Emission Angle at Half Power Points	-	40	-	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 $D.C. = 10.0\%$
$t_f$	Output Fall Time	-	250	-	ns	

### Notes:

1. RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering. A maximum of 20 grams force may be applied to the leads when soldering.
2. Derate linearly 1.33 mW/ $^{\circ}\text{C}$  above  $25^{\circ}\text{C}$ .
3.  $E_E$ (APT) is a measurement of the average apertured radiant energy incident upon a sensing area 0.180" (4.57 mm) in diameter perpendicular to and centered on the mechanical axis of the lens and 0.653" (6.60 mm) from the lens tip.  $E_E$ (APT) is not necessarily uniform within the measured area.

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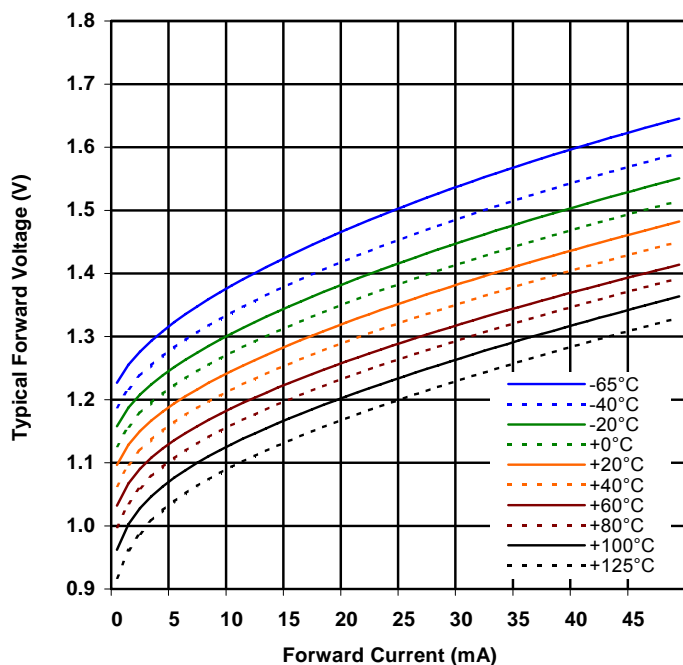
OP240 Series

OP245 Series

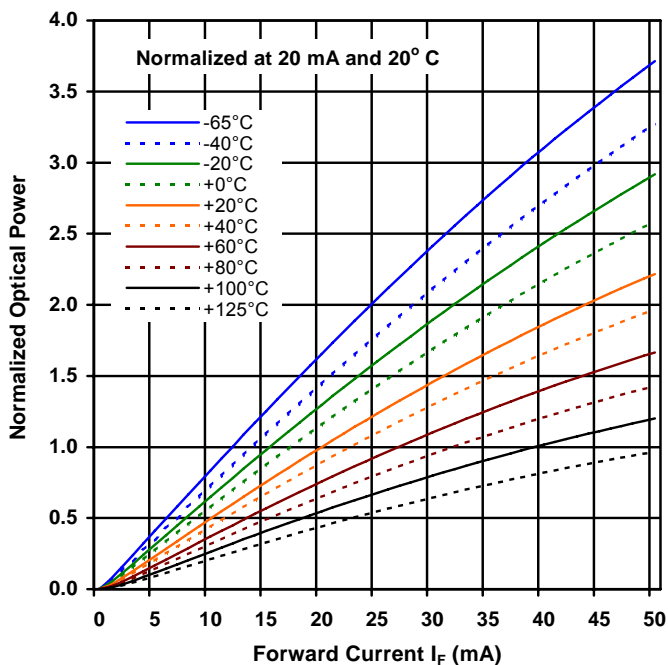


## OP240, OP245 (A, B, C, D)

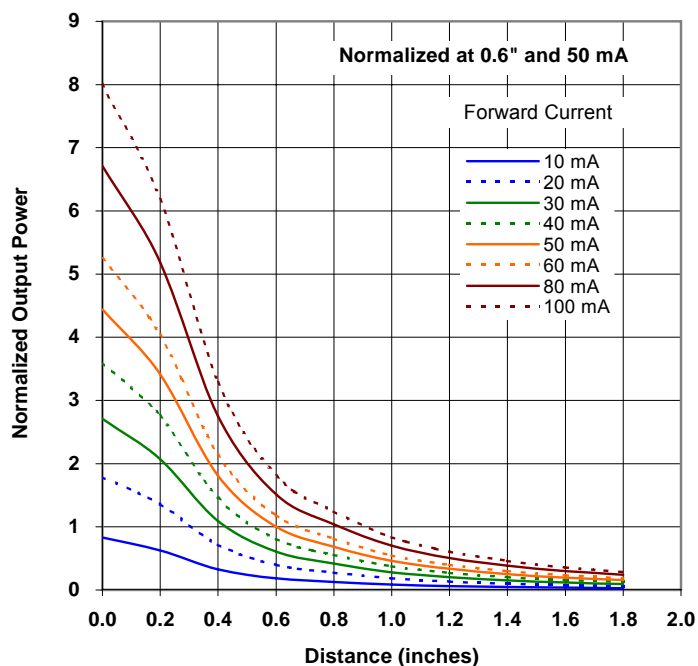
Forward Voltage vs Forward Current vs Temperature



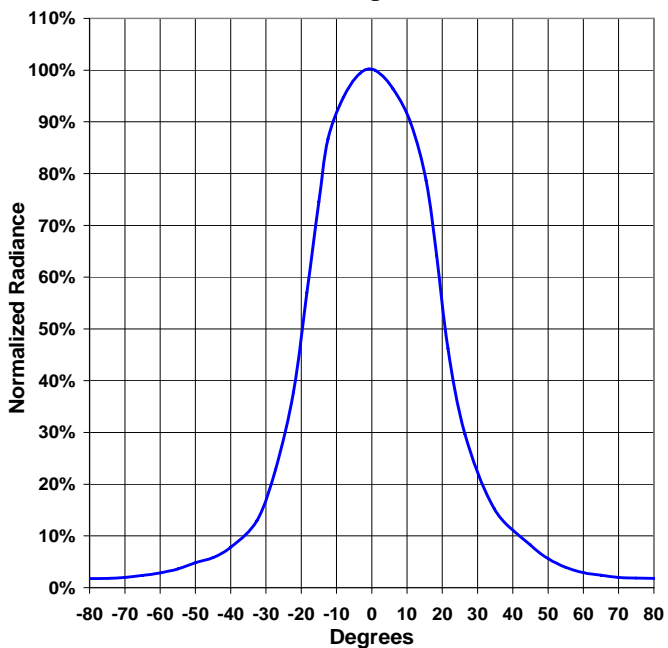
Optical Power vs  $I_F$  vs Temp



Distance vs Output Power vs Forward Current



Beam Angle



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Authorized Distributor

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TT electronics:

[OP240A](#)