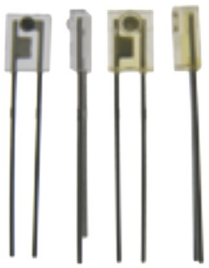
Plastic Infrared Emitting Diode

OP240A & OP240B
OP245A & OP245B



OP240 OP245

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 PC Board mounted slotted switch or an easy mount PC Board interrupter.

Inside each dome lens **OP240** and **OP245** device is an 890 nm LED chip that is molded in an IR-transmissive clear epoxy side-looking package. *OP240 is mechanically and spectrally matched to the OP550 phototransistor and OP560 photodarlington series. OP245 is mechanically and spectrally matched to the OP555 phototransistor series.*

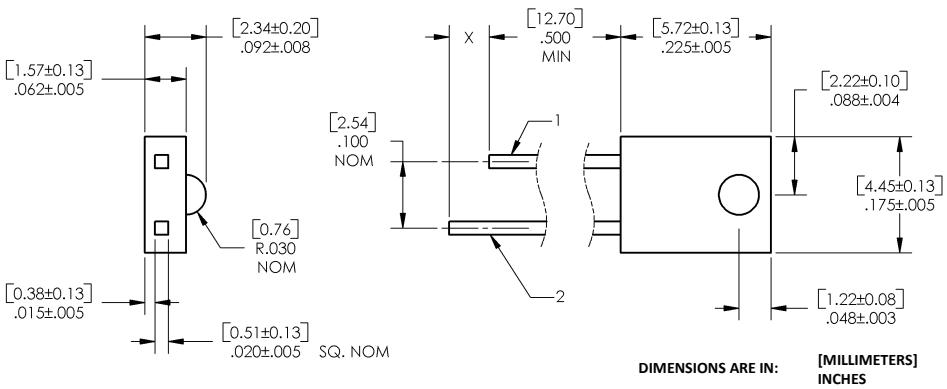
Please refer to Application Bulletin 210 for additional thermal design information.

Applications:

- Space-limited applications
- PC Board mounted slotted switch
- PC Board interrupter

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

OP240 (A, B)



Pin #	LED
1	Cathode
2	Anode

RoHS

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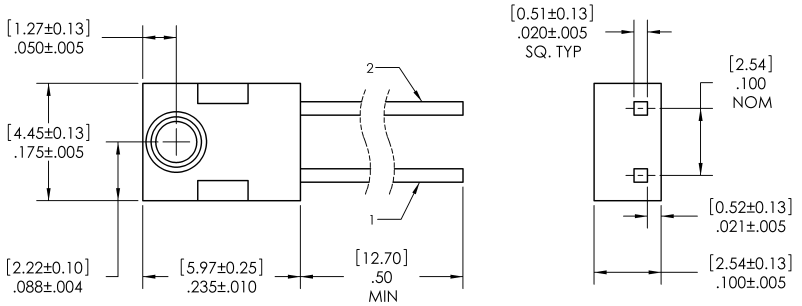
OP240A & OP240B
OP245A & OP245B

Pin #	LED
1	Cathode
2	Anode

OP245 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.

OP245 (A, B)



DIMENSIONS ARE IN: **[MILLIMETERS]** **INCHES**

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Electrical Specifications

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Storage and Operating Temperature Range	-40° C to +100° 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] (1)	260° C
Power Dissipation (2)	100 mW

Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
$E_{E\,(APT)}$ (3)	Apertured Radiant Incidence OP240A, OP245A OP240B, OP245B	 0.60 0.40	 - -	 - 1.20	mW/cm^2	I_F = 20 mA
V_F	Forward Voltage	1.00	-	1.80	V	I_F = 20 mA
I_R	Reverse Current	-	-	100	µA	V_R = 2.0 V
λ_P	Wavelength at Peak Emission	-	890	-	nm	I_F = 10 mA
B	Spectral Bandwidth between Half Power Points	-	80	-	nm	I_F = 10 mA
$\Delta\lambda_P/\Delta T$	Spectral Shift with Temperature	-	±0.18	-	nm/° C	I_F = Constant
θ_{HP}	Emission Angle at Half Power Points	-	40	-	Degree	I_F = 20 mA
t_r	Output Rise Time	-	500	-	ns	$I_{F(PK)}$ = 100 mA, PW = 10 µs, and D.C. = 10.0 %
t_f	Output Fall Time	-	250	-	ns	$I_{F(PK)}$ = 100 mA, PW = 10 µs, and D.C. = 10.0 %

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 1.07 mW/° C above 25° 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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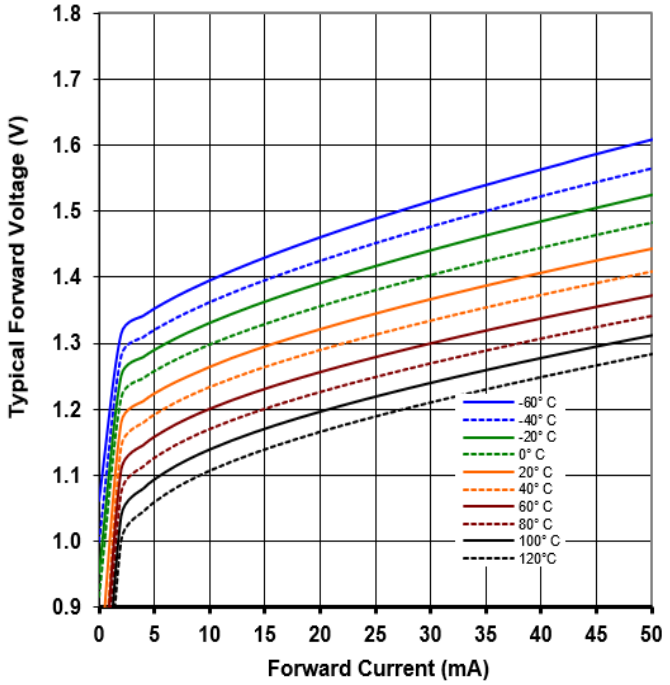
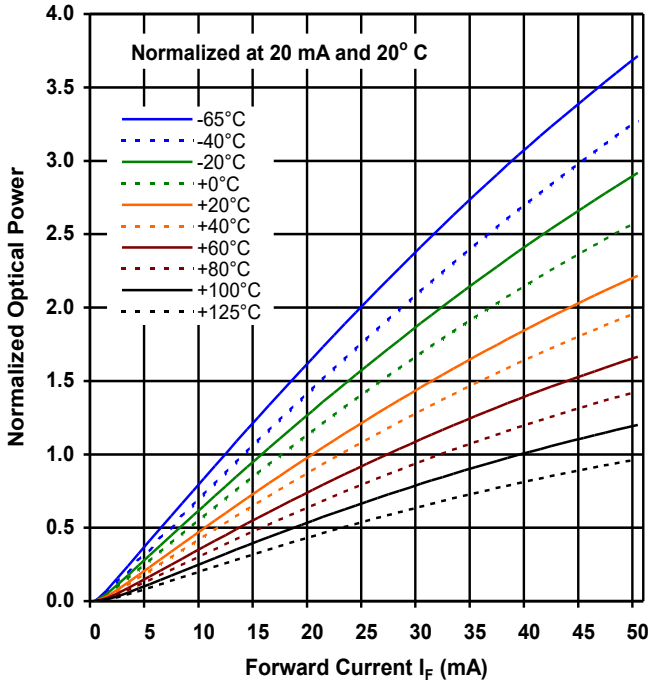
Typical Performance

OP240, OP245 (A, B)

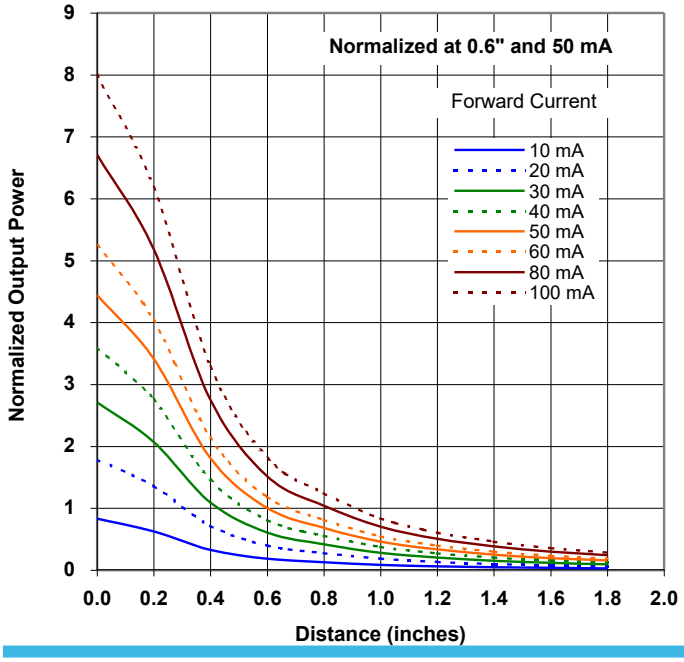
LED Forward Voltage vs Forward Current vs Temperature



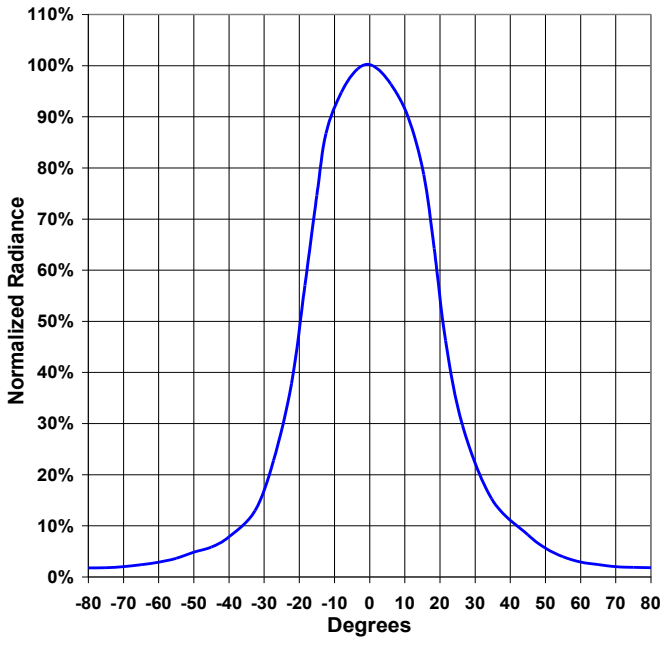
Optical Power vs I_F vs Temp



Distance vs Output Power vs Forward Current



Beam Angle



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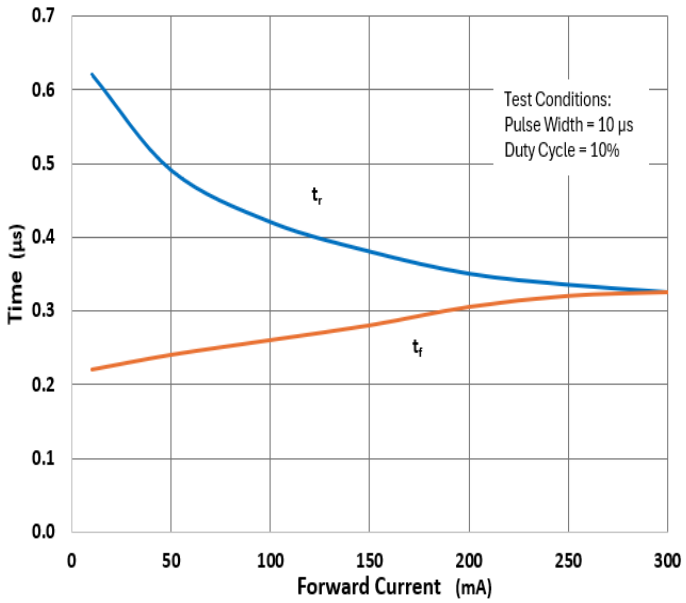
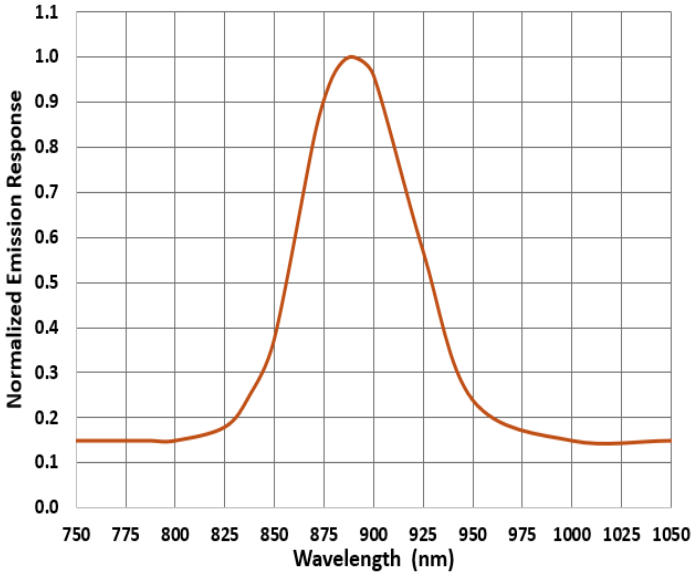
Typical Performance

OP240, OP245 (A, B)

Rise and Fall Time vs Forward Current



GaAlAs LED Spectral Output



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