

# Plastic Point Source Infrared Emitting Diode

OP245PS



## Features:

- Point source irradiance pattern
- Side-looking package for space-limited applications
- Wavelength matched to silicon's peak response
- Higher power output than GaAs at equivalent drive currents
- Fast switching speed

## Description:

Each **OP245PS** device is an infrared emitting diode with a 850 nm GaAlAs chip, molded in a clear IR-transmissive side-looking epoxy package. This package makes these devices ideal for PCBoard mounted slotted switches and for mounted interrupt detectors.

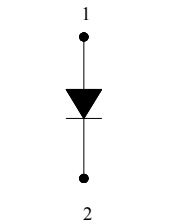
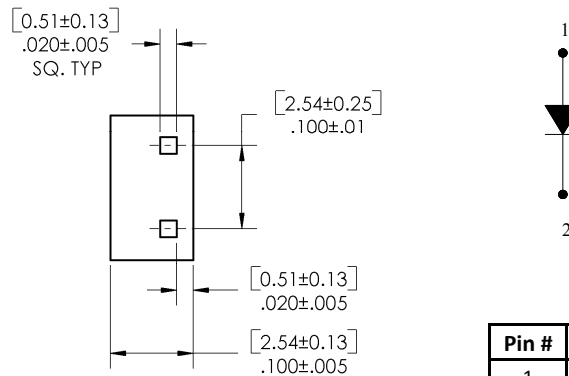
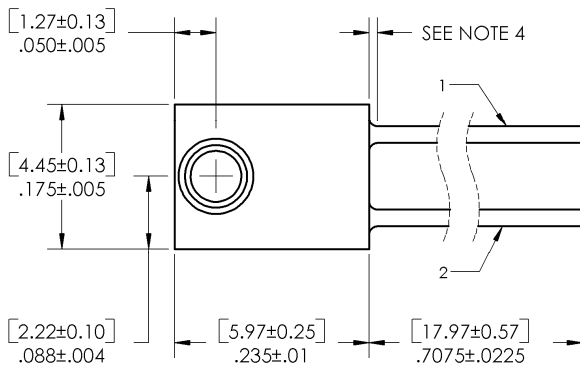
The stable forward  $V_F$  vs  $T_A$  characteristic make them suitable for applications that have limited voltage, such as battery operation; whereas, the low  $T_R/T_F$  makes them ideal for high-speed operations.

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

## Applications:

- Space-limited applications
- PCBoard mounted slotted switch
- Mounted interrupt detector
- High-speed applications

Ordering Information				
Part Number	LED Peak Wavelength	Lens Type	Total Beam Angle	Lead Length (min.)
OP245PS	850 nm	Flat	±18°	0.5" / 12.7 mm



Pin #	LED
1	Anode
2	Cathode

## NOTES;

1. OUTSIDE DISCRETE SHELL IS POLYSULFONE P1700-11 CLEAR.
2. THIS LED IS BUILT WITH A 0.011" X 0.011" GaAlAs CHIP.
3. MAX ALLOWABLE EPOXY MENSCLUS IS 0.010".



**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.

General Note  
 TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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## Electrical Specifications

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	1.0 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	$100\text{ mW}^{(2)}$

Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b>						
$E_{E(APT)}$	Apertured Radiant Incidence	0.12	-	0.8	$\text{mW}/\text{cm}^2$	$I_F = 20\text{ mA}^{(3)}$
$V_F$	Forward Voltage	1.2	-	1.7	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current	-	10	-	$\mu\text{A}$	$V_R = 2\text{ V}$
$\lambda_P$	Wavelength at Peak Emission	-	850	-	nm	$I_F = 20\text{ mA}$
B	Spectral Bandwidth between Half Power Points	-	50	-	nm	$I_F = 20\text{ mA}$
$\theta_{HP}$	Emission Angle at Half Power Points	-	$\pm 18^\circ$	-	Degree	$I_F = 20\text{ mA}$
$t_r$	Output Rise Time	-	10	-	ns	$I_{F(PK)} = 20\text{ mA}$ , $PW = 10\ \mu\text{s}$ , D.C. = 10%
$t_f$	Output Fall Time	-	10	-	ns	$I_{F(PK)} = 20\text{ mA}$ , $PW = 10\ \mu\text{s}$ , D.C. = 10%

**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  $1.33\text{ mW}/^\circ\text{C}$  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  $0.653''$  (16.6 mm) from the lens tip.  $E_{E(APT)}$  is not necessarily uniform within the measured area.

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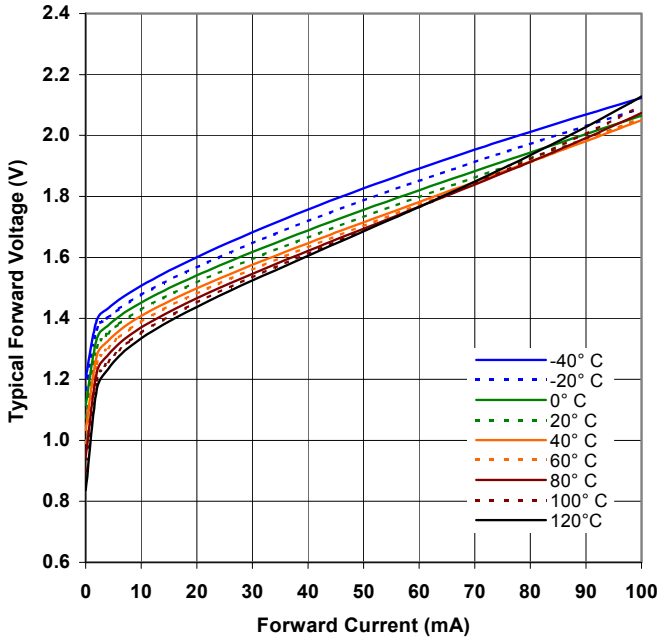
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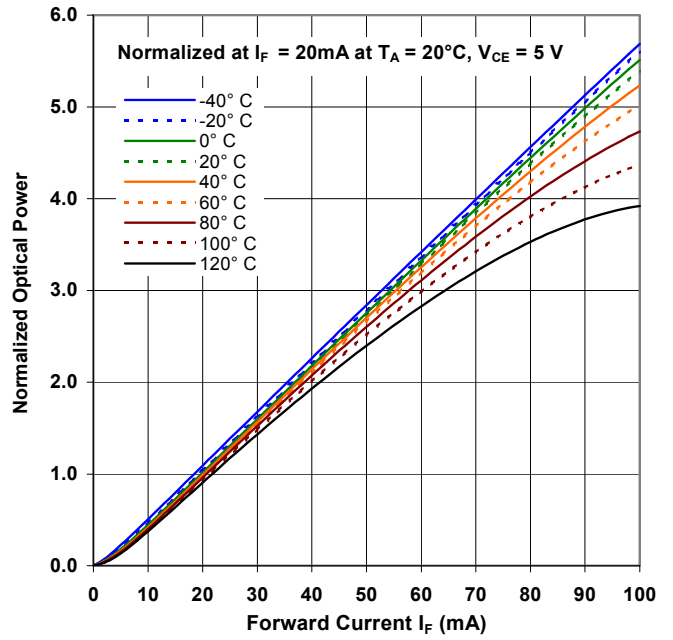
## Performance

OP245PS

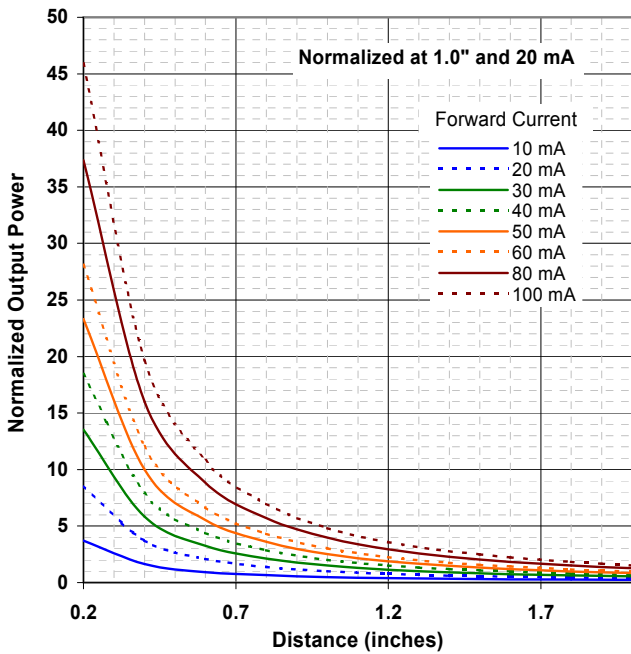
Forward Voltage vs Forward Current vs Temperature



Optical Power vs Forward Current vs Temperature



Distance vs Power vs Forward Current



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