

# Plastic Infrared Emitting Diode

## OP265, OP266 Series

### (A, B, D, W)



#### Features:

- T-1 (3 mm) package style
- Choice of narrow or wide irradiance pattern
- Choice of dome or flat lens
- Mechanically and spectrally matched to other OPTEK devices
- Higher power output than GaAs at equivalent drive currents
- 890 nm diodes



#### Description:

Each device in the **OP265** and **OP266** series is a high intensity gallium arsenide infrared emitting diode (GaAIAs) that is molded in an IR transmissive clear epoxy package with either a dome or flat lens. Devices feature narrow and wide irradiance patterns and a variety of electrical characteristics. The small T-1 package style makes these devices ideal for space-limited applications.

*OP265 devices conform to the OP505 and OP535 series devices. OP266 devices conform to OP506 series devices.*

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

#### Applications:

- Space-limited applications
- Applications requiring coupling efficiency
- Battery-operated or voltage-limited applications

Ordering Information					
Part Number	LED Peak Wavelength	Output Power (mW/cm <sup>2</sup> ) Min / Max	I <sub>F</sub> (mA) Typ / Max	Total Beam Angle	Lead Length
OP265A	890 nm	2.70 / NA	20 / 50	18°	See page 2
OP265B		1.65 / 4.70			
OP265D		0.54 / NA			
OP265W		1.00 / NA		90°	
OP266A		2.70 / NA		18°	
OP266B		1.65 / 4.70			
OP266D		0.54 / NA			
OP266W		1.00 / NA		90°	



RoHS

#### General Note

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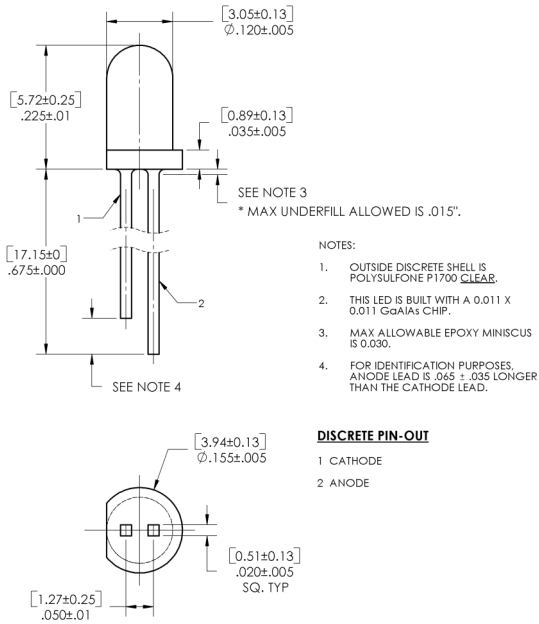
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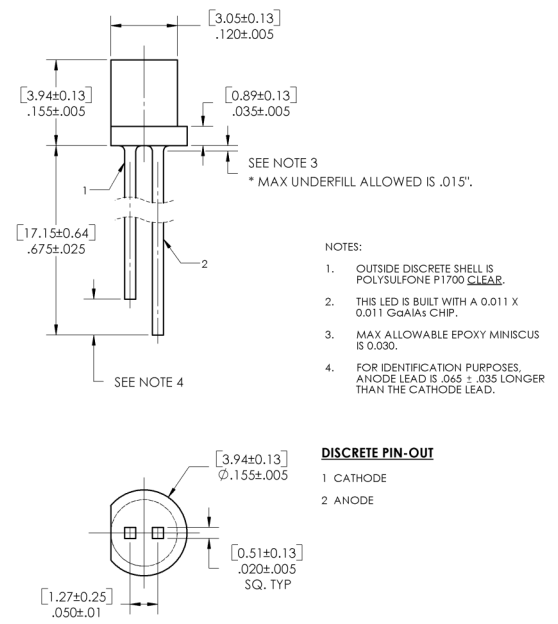
(A, B, D, W)



## OP265 (A, B, D)

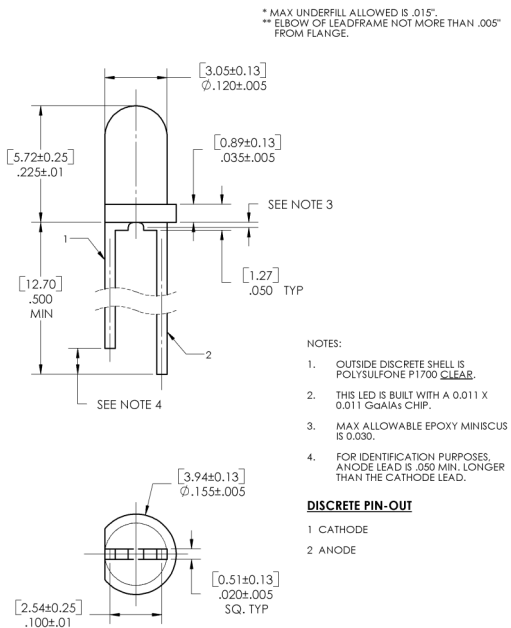


## OP265W

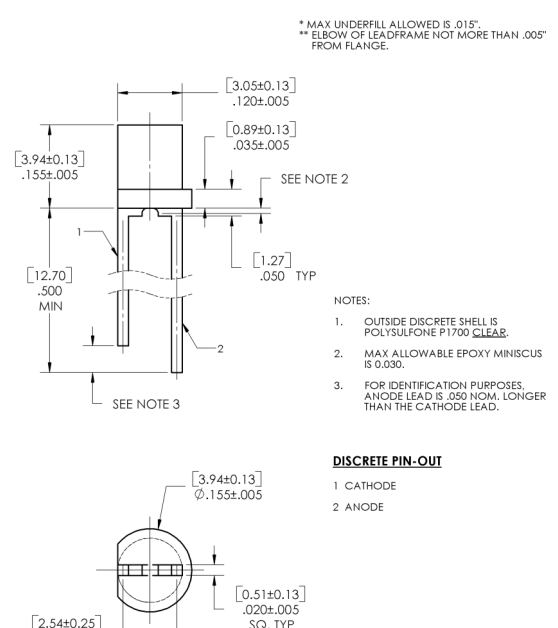


DIMENSIONS ARE IN: [MILLIMETERS] INCHES

## OP266 (A, B, D)



## OP266W



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.

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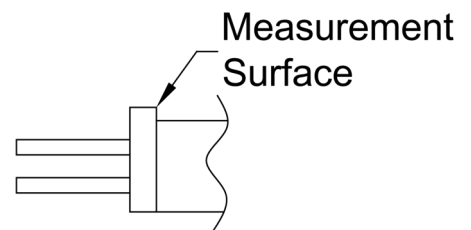
## Electrical Specifications

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 $\mu\text{s}$ pulse width, 300 pps)	3.0 A
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron]	$260^\circ\text{C}$
Power Dissipation	$100\text{ mW}^{(1)}$

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 OP265A, OP266A	2.70	-	-	$\text{mW}/\text{cm}^2$	$I_F = 20\text{ mA}^{(2)}$
	OP265B, OP266B	1.65	-	4.70		
	OP265D, OP266D	0.54	-	-		
$P_O$	Radiant Power Output OP265, OP266 (A, B, D)	-	-	-	mW	$I_F = 20\text{ mA}$
	OP265W, OP266W	1.00	-	-		
$V_F$	Forward Voltage	-	-	1.80	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2\text{ V}$
$\lambda_P$	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 OP265, OP266 (A, B, D) OP265W, OP266W	-	$\pm 0.30$	-	$\text{nm}/^\circ\text{C}$	$I_F = \text{Constant}$
		-	$\pm 0.18$	-		
$\theta_{HP}$	Emission Angle at Half Power Points OP265, OP266 (A, B, D) OP265W, OP266W	-	18	-	Degree	$I_F = 20\text{ mA}$
		-	90	-		
$t_r$	Output Rise Time	-	500	-	ns	$I_{F(PK)} = 100\text{ mA}$ , PW=10 $\mu\text{s}$ , D.C.=10.0%
$t_f$	Output Fall Time	-	250	-	ns	$I_{F(PK)} = 100\text{ mA}$ , PW=10 $\mu\text{s}$ , D.C.=10.0%

**Notes:**

- Derate linearly  $1.33\text{ mW}/^\circ\text{C}$  above  $25^\circ\text{C}$
- $E_{E(APT)}$  is a measurement of the average 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 areas.



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## Performance

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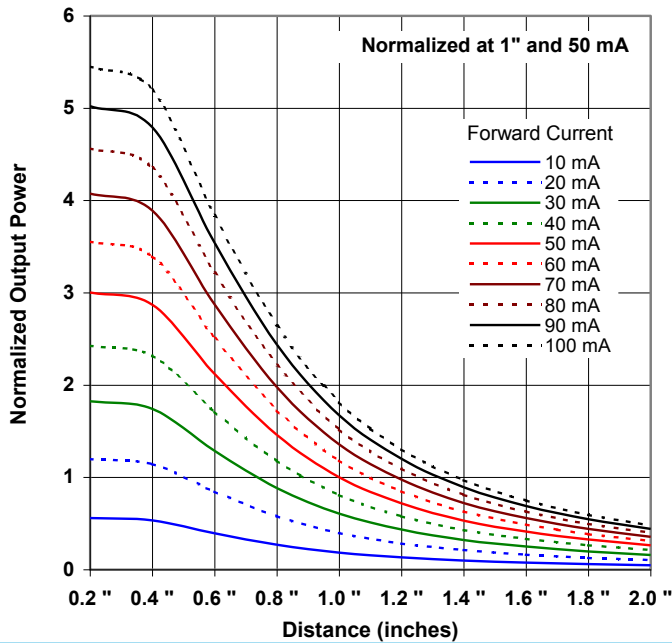
Forward Voltage vs Forward Current vs Temperature



Optical Power vs  $I_F$  vs Temperature



Distance vs Output Power vs Forward Current



Relative Radiant Intensity vs. Angular Displacement



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