

# 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			
OP266B		1.65 / 4.70		18°	
OP266D		0.54 / NA			
OP266W		1.00 / NA		90°	



RoHS

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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www.optekinc.com | www.ttelectronics.com

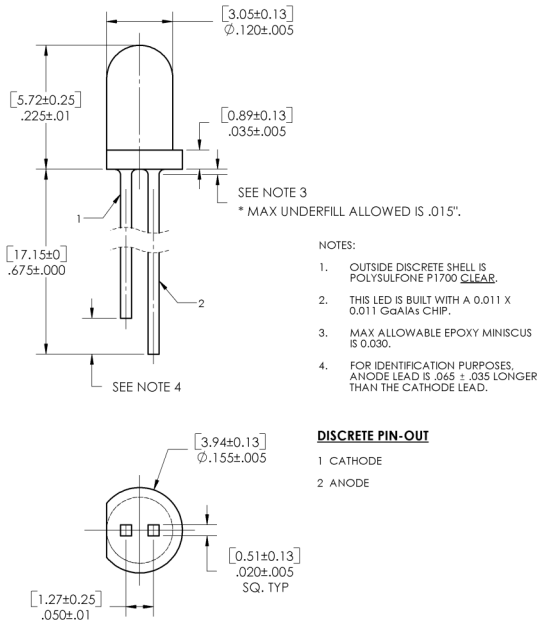
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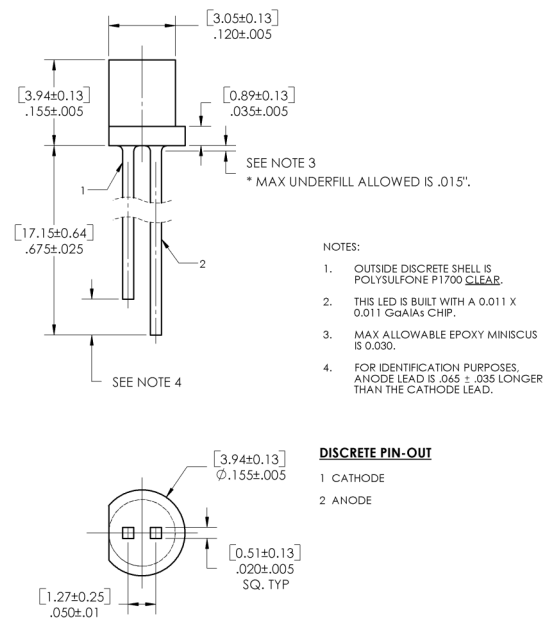
(A, B, D, W)



## OP265 (A, B, D)

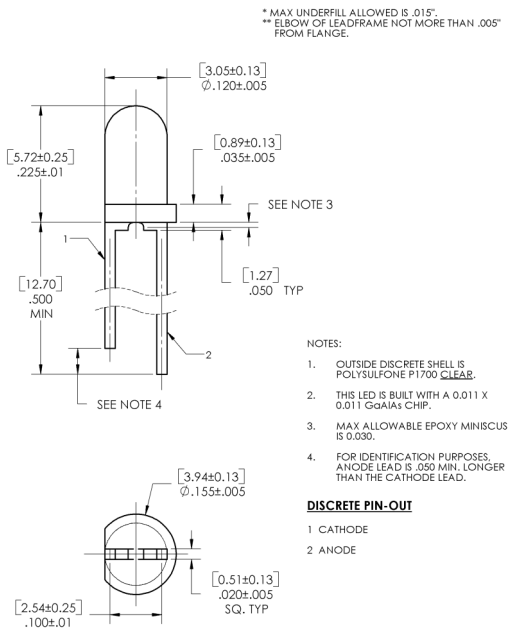


## OP265W

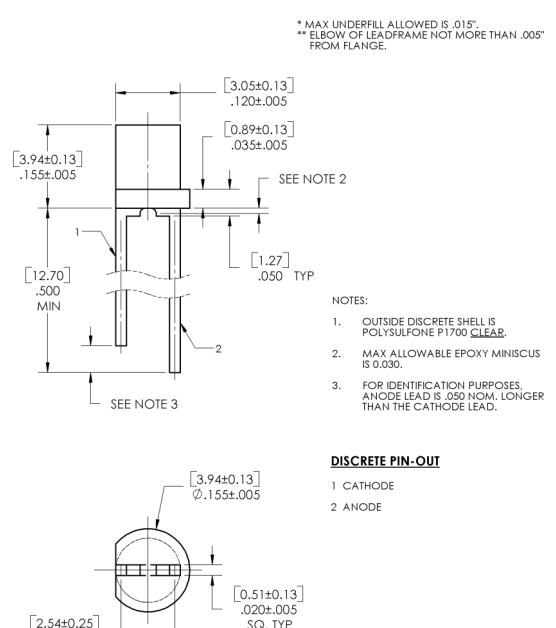


DIMENSIONS ARE IN: [MILLIMETERS]  
[INCHES]

## 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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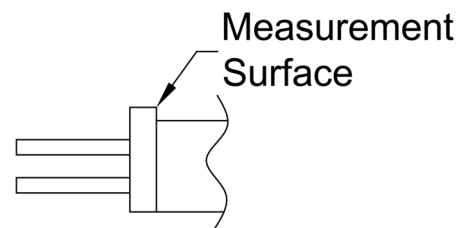
## Electrical Specifications

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	2.70	-	-	$\text{mW}/\text{cm}^2$	$I_F = 20\text{ mA}^{(2)}$
	OP265A, OP266A	1.65	-	4.70		
	OP265B, OP266B OP265D, OP266D	0.54	-	-		
$P_O$	Radiant Power Output	-	-	-	mW	$I_F = 20\text{ mA}$
	OP265, OP266 (A, B, D) 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,	-	$\pm 0.30$	nm/ $^\circ\text{C}$	$I_F = \text{Constant}$
		OP266 (A, B, D) OP265W, OP266W	-	$\pm 0.18$		
$\theta_{HP}$	Emission Angle at Half Power Points	OP265,	-	18	Degree	$I_F = 20\text{ mA}$
		OP266 (A, B, D) OP265W, OP266W	-	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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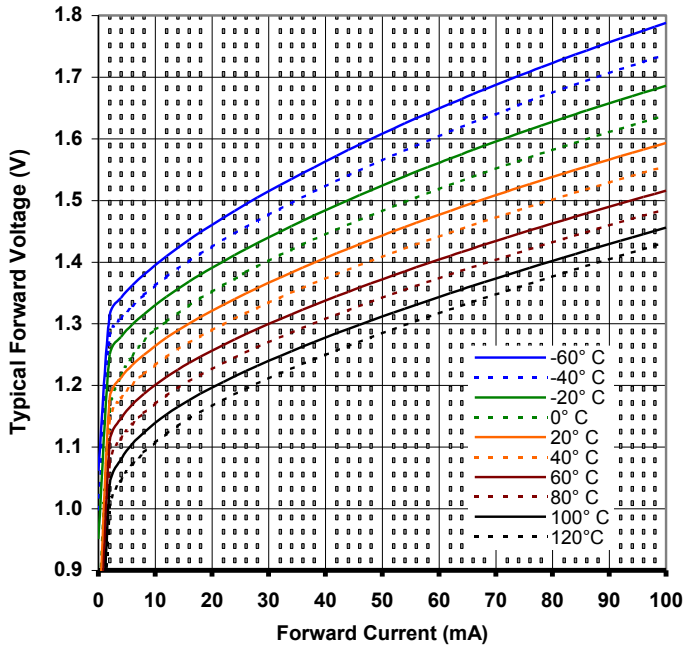
(A, B, D, W)



## Performance

OP265, OP266 (A, B, D, W)

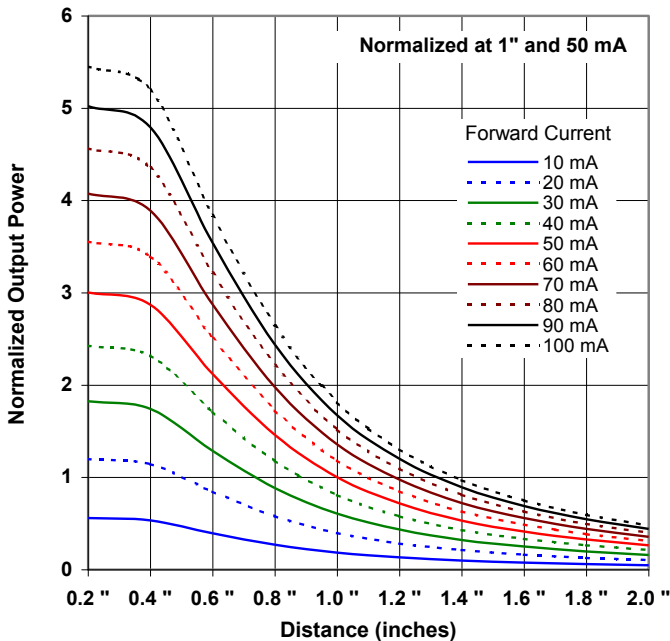
Forward Voltage vs Forward Current vs Temperature



Optical Power vs  $I_F$  vs Temperature



Distance vs Output Power vs Forward Current



Relative Radiant Intensity vs. Angular Displacement



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