

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 ²) Min / Max | I _F (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.

OPTEK Technology, Inc.
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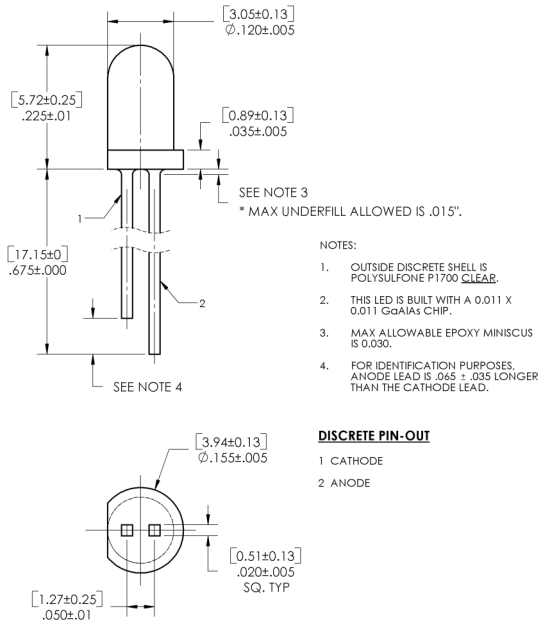
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OP265, OP266 Series

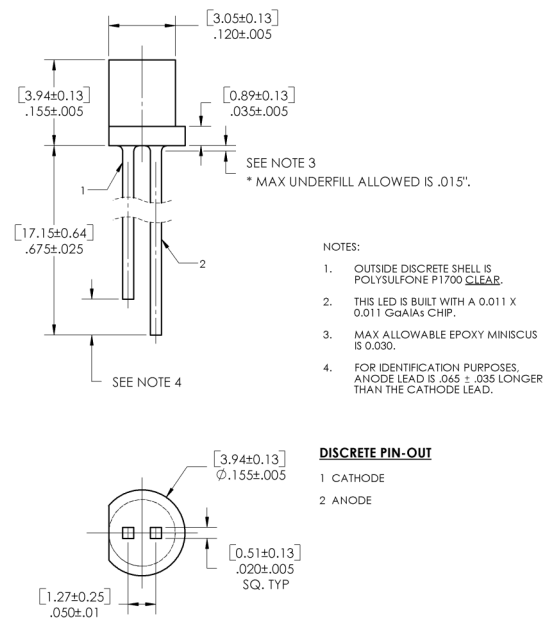
(A, B, D, W)



OP265 (A, B, D)

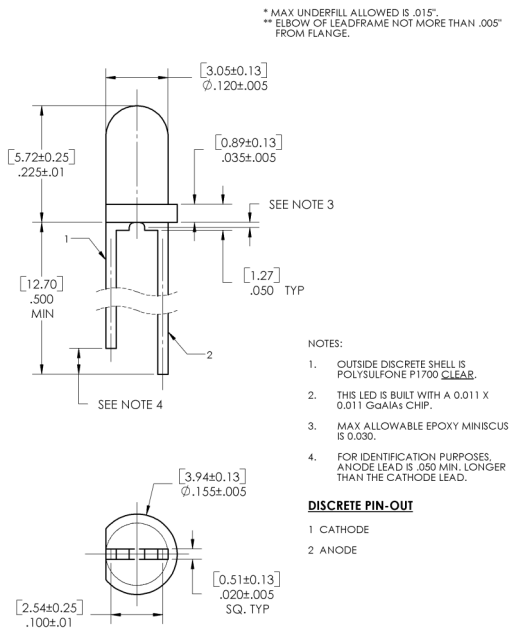


OP265W

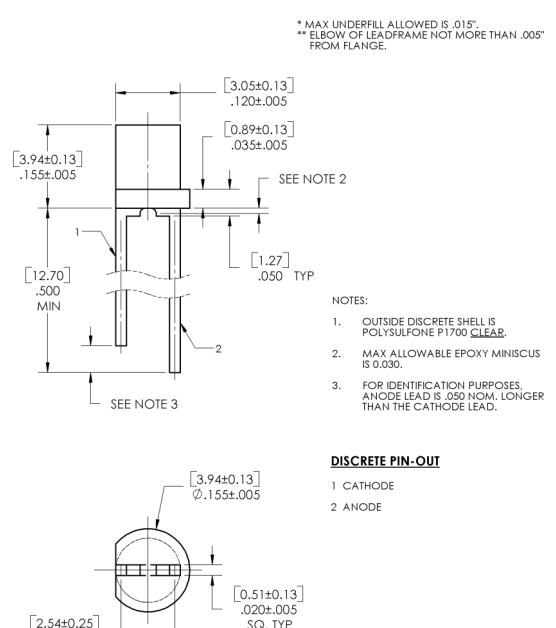


DIMENSIONS ARE IN: [MILLIMETERS] / [INCHES]

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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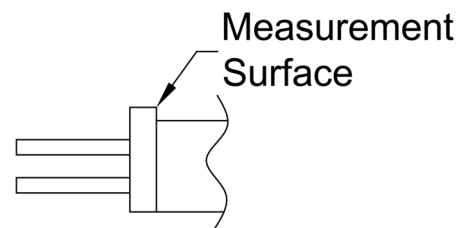
Electrical Specifications

| Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted) | |
|---|---|
| Storage and Operating Temperature Range | -40°C to $+100^\circ\text{C}$ |
| Reverse Voltage | 2.0 V |
| Continuous Forward Current | 50 mA |
| Peak Forward Current (1 μs 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°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 | |
| Input Diode | | | | | | | |
| $E_{E(APT)}$ | Apertured Radiant Incidence | 2.70 | - | - | mW/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 | μA | $V_R = 2\text{ V}$ | |
| λ_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, | - | ± 0.30 | - | $\text{nm}/^\circ\text{C}$ | $I_F = \text{Constant}$ |
| | | OP266 (A, B, D) OP265W, OP266W | - | ± 0.18 | - | | |
| θ_{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 μs , D.C.=10.0% | |
| t_f | Output Fall Time | - | 250 | - | ns | $I_{F(PK)}=100\text{ mA}$, PW=10 μs , D.C.=10.0% | |

Notes:

- Derate linearly $1.33\text{ mW}/^\circ\text{C}$ above 25°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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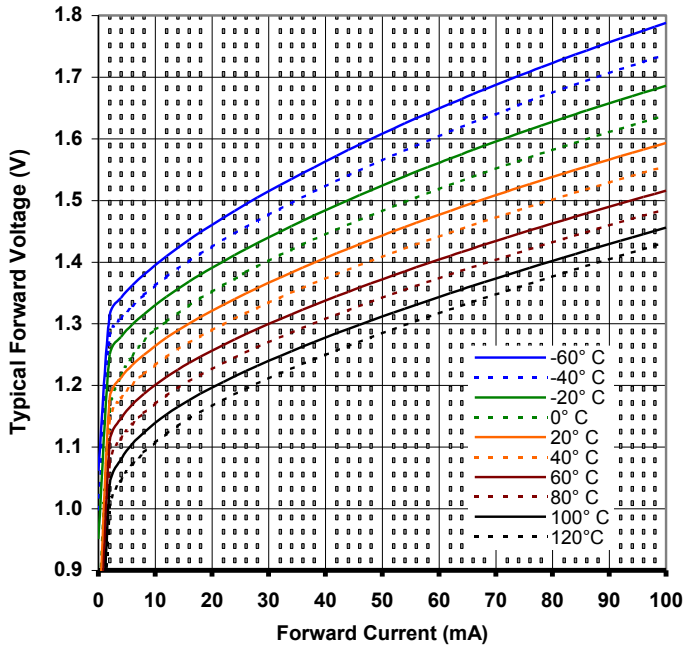
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Performance

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

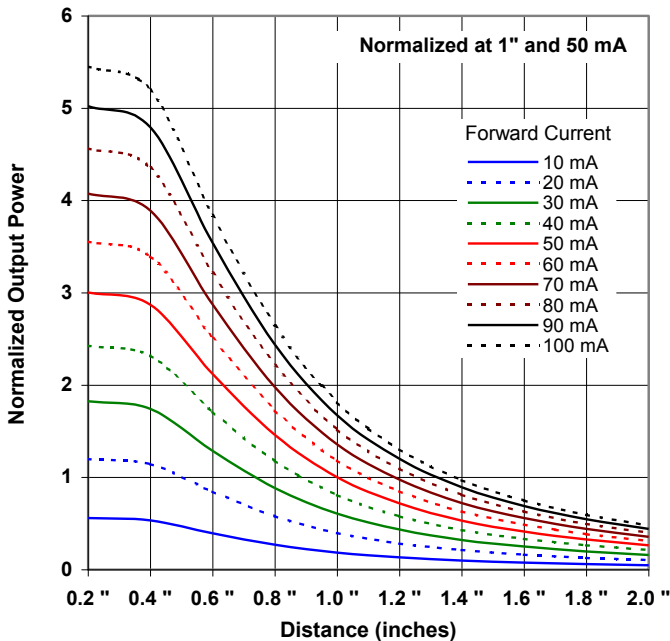
Forward Voltage vs Forward Current vs Temperature



Optical Power vs I_F vs Temperature



Distance vs Output Power vs Forward Current



Relative Radiant Intensity vs. Angular Displacement



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