

Plastic Infrared Emitting Diode

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



Description:

Each device in the **OP265** and **OP266** series is a high intensity gallium aluminum arsenide infrared emitting diode (GaAlAs) 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 | | 90° | |
| OP265W | | 1.00 / NA | | 18° | |
| OP266A | | 2.70 / NA | | 18° | |
| OP266B | | 1.65 / 4.70 | | 90° | |
| OP266D | | 0.54 / NA | | 18° | |
| OP266W | | 1.00 / NA | | 90° | |



RoHS

General Note

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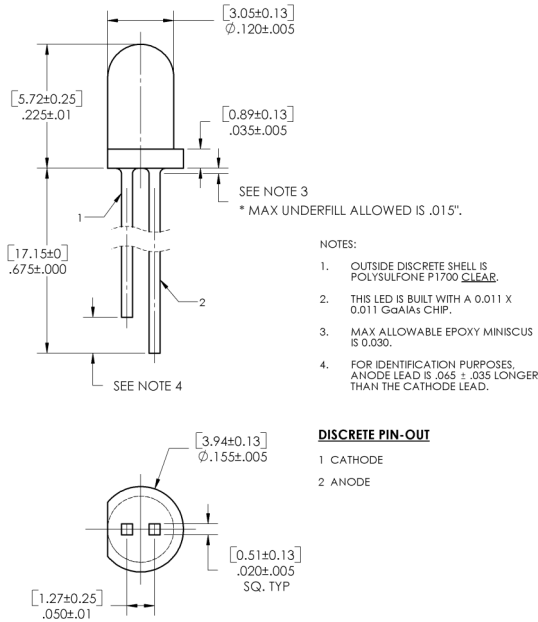
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Plastic Infrared Emitting Diode

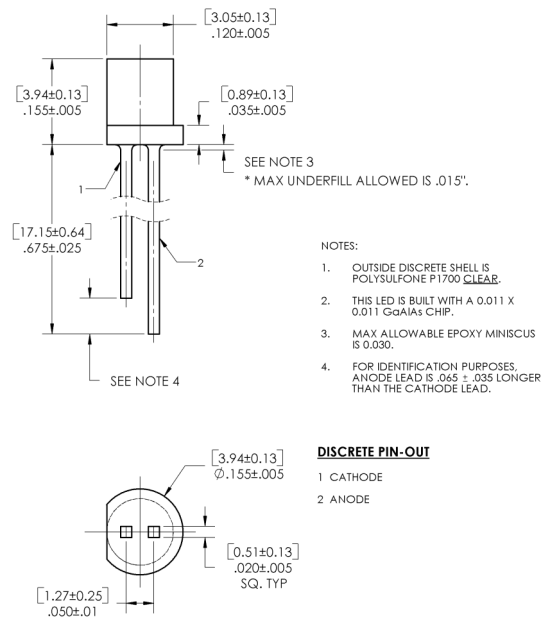
OP265 (A, B, W), OP266 (A, B, D, W)



OP265 (A, B)



OP265W

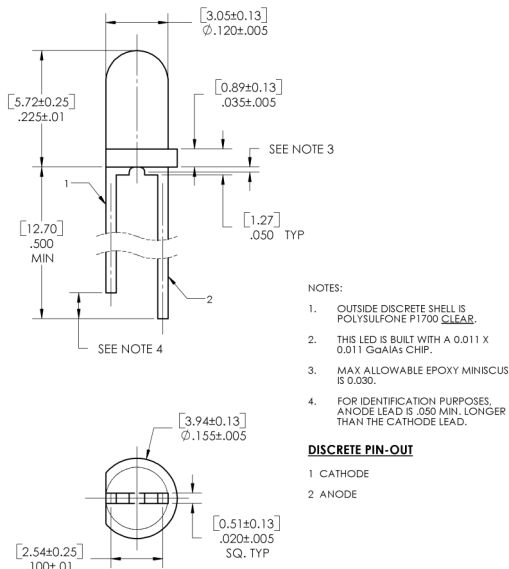


DIMENSIONS ARE IN:

[MILLIMETERS]
INCHES

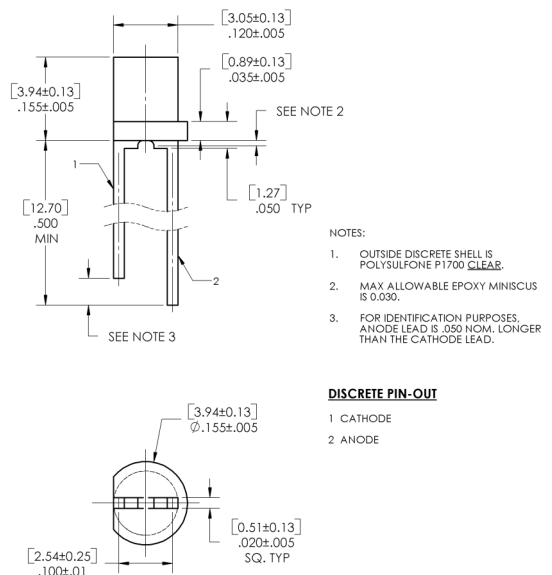
OP266 (A, B, D)

* MAX UNDERFILL ALLOWED IS .015".
** ELBOW OF LEADFRAME NOT MORE THAN .005" FROM FLANGE.



OP266W

* MAX UNDERFILL ALLOWED IS .015".
** ELBOW OF LEADFRAME NOT MORE THAN .005" FROM FLANGE.



| 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)

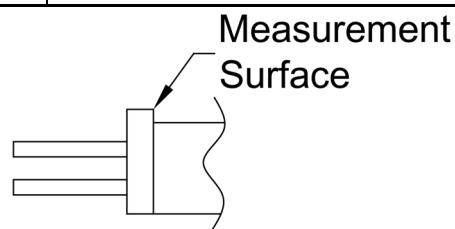
| | |
|---|-------------------|
| Storage and Operating Temperature Range | -40° C to +100° C |
| Reverse Voltage | 2.0 V |
| Continuous Forward Current | 50 mA |
| Peak Forward Current (1 μs pulse width, 300 pps) | 3.0 A |
| Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron] | 260° C |
| Power Dissipation ⁽¹⁾ | 100 mW |

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|----------------------------|--|----------------------|--------------------------|----------------|--------------------|---|
| Input Diode | | | | | | |
| $E_{E(APT)}^{(2)}$ | Apertured Radiant Incidence OP265A, OP266A OP265B, OP266B OP266D | 2.70 1.65 0.54 | - - - | - 4.70 - | mW/cm ² | $I_F = 20\text{ mA}$ |
| P_O | Radiant Power Output OP265 (A, B), OP266 (A, B, D) OP265W, OP266W | - 1.00 | - - | - - | mW | $I_F = 20\text{ mA}$ |
| V_F | Forward Voltage | 1.00 | - | 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 (A, B), OP266 (A, B, D) OP265W, OP266W | - - | ± 0.30 ± 0.18 | - - | nm/° C | $I_F = \text{Constant}$ |
| θ_{HP} | Emission Angle at Half Power Points OP265 (A, B), OP266 (A, B, D) OP265W, OP266W | - - | 18 90 | - - | Degree | $I_F = 20\text{ mA}$ |
| 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 1.07 mW/° 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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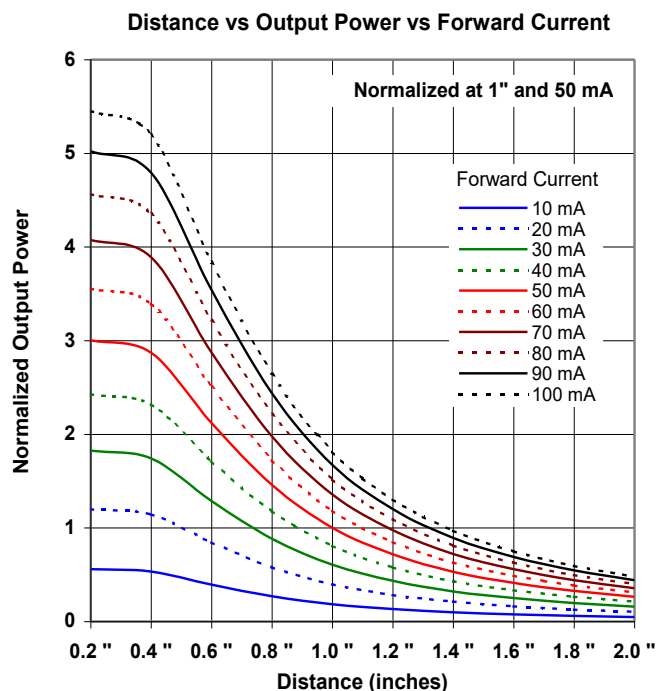
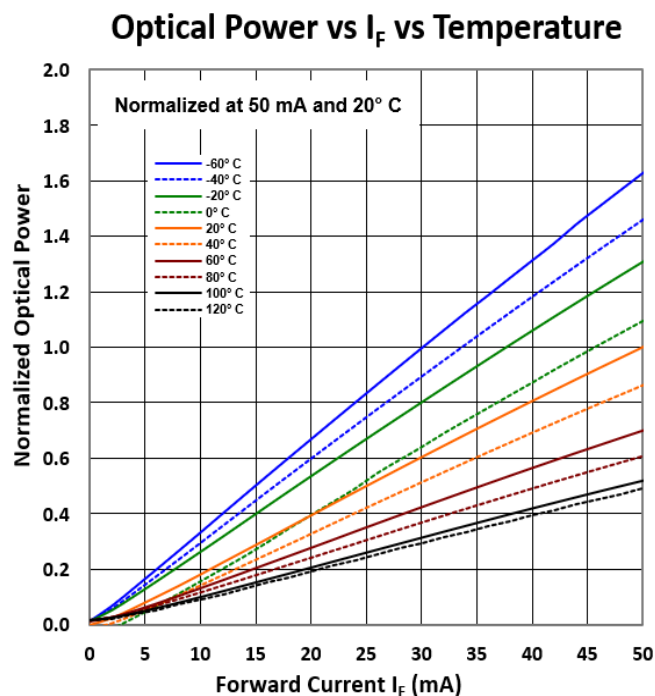
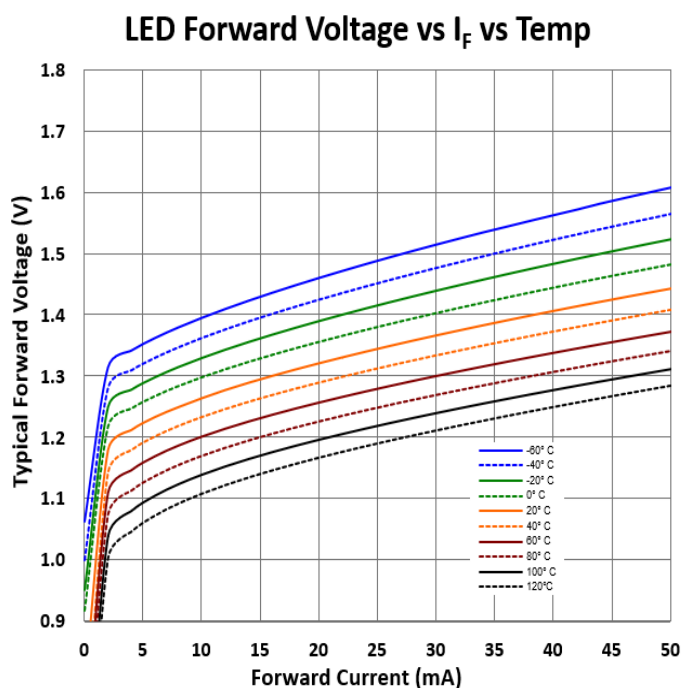
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Typical Performance

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



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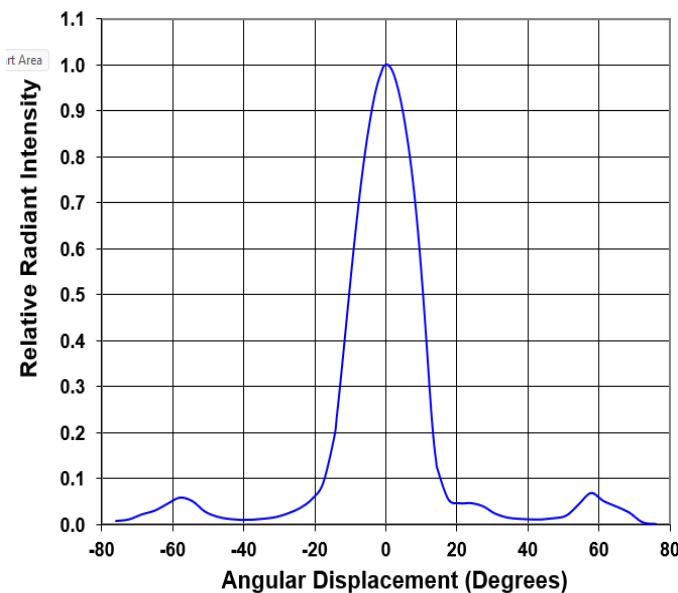
OP265 (A, B, W), OP266 (A, B, D, W)



Typical Performance

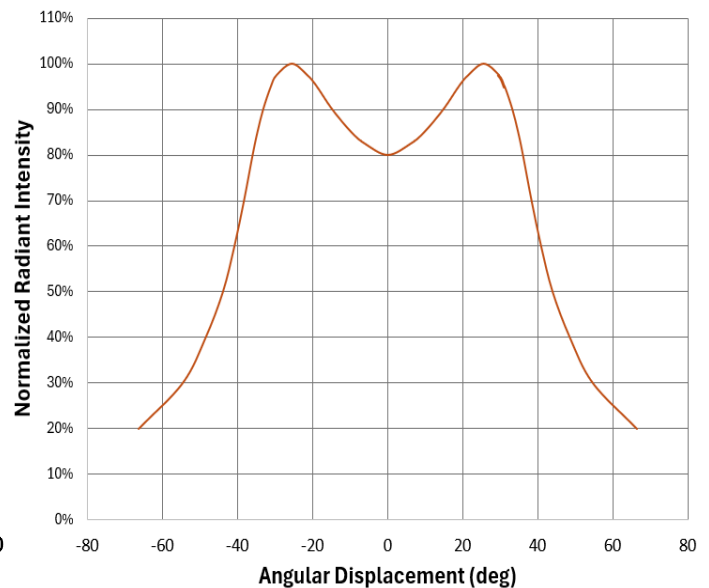
OP265 (A, B), OP266 (A, B, D)

Relative Radiant Intensity vs Angular Displacement



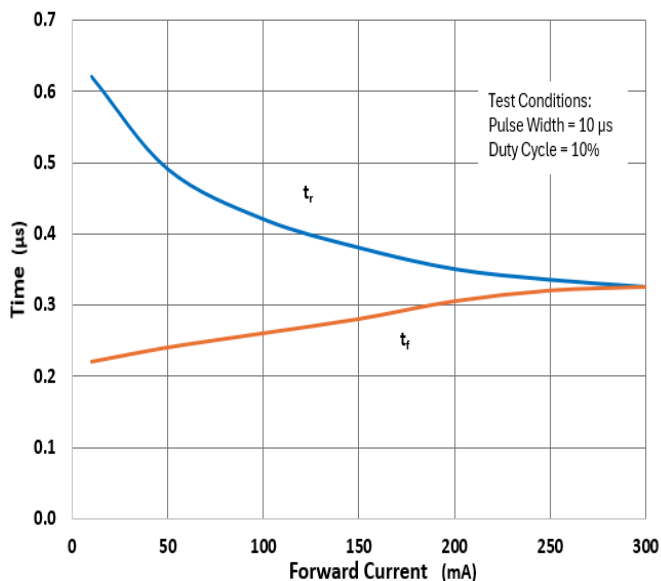
OP265W, OP266W

Relative Radiant Intensity vs Angular Displacement

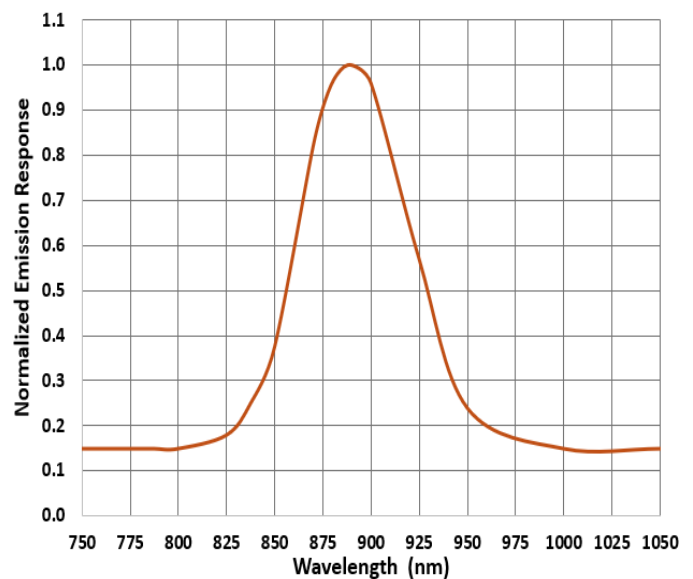


OP265 OP265W OP266 OP266W

Rise and Fall Time vs Forward Current



GaAlAs LED Spectral Output



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