

# Plastic Infrared Emitting Diode

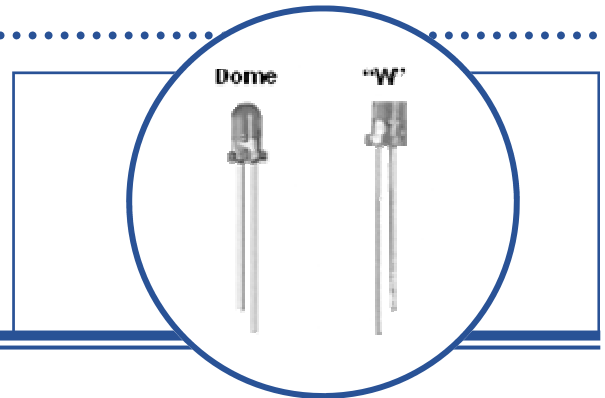
## OP265, OP266 Series

(A, B, C, 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 (GaAlAs) that is molded in an IR transmissive clear or amber-tinted 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°              | 0.50"       |
| OP265B               |                     | 1.65 / 4.70                                  |                               |                  |             |
| OP265C               |                     | 0.54 / 3.30                                  |                               |                  |             |
| OP265D               |                     | 0.54 / NA                                    |                               |                  |             |
| OP265W               |                     | 1.00 / NA                                    |                               | 90°              |             |
| OP266A               |                     | 2.70 / NA                                    |                               |                  |             |
| OP266B               |                     | 1.65 / 4.70                                  |                               | 18°              |             |
| OP266C               |                     | 0.54 / 3.30                                  |                               |                  |             |
| OP266D               |                     | 0.54 / NA                                    |                               |                  |             |
| OP266W               |                     | 1.00 / NA                                    |                               |                  |             |



RoHS

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

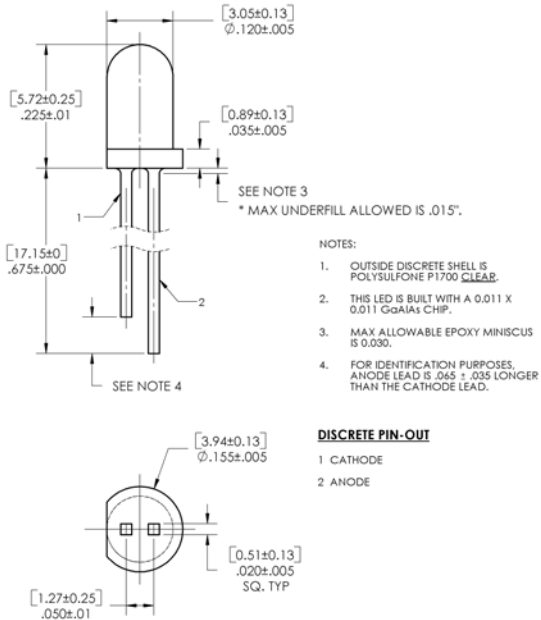
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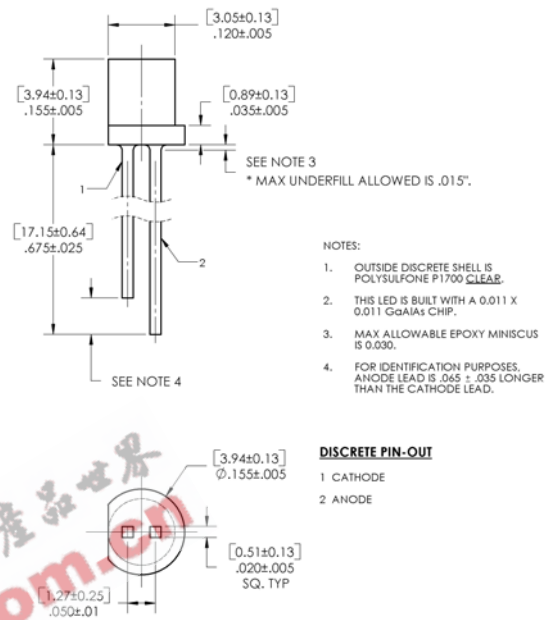
(A, B, C, D, W)



### OP265 (A, B, C, D)

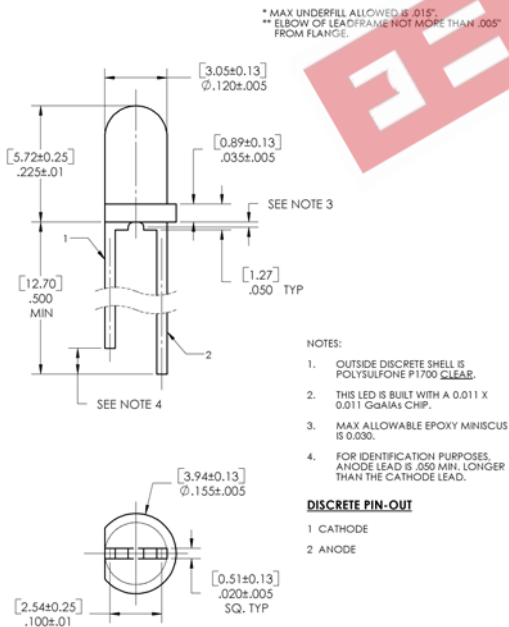


### OP265W

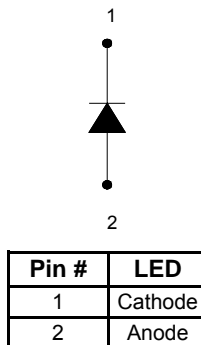
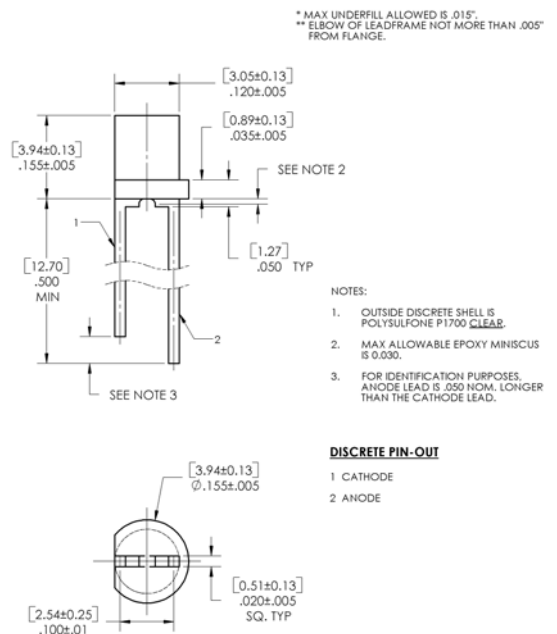


DIMENSIONS ARE IN: [MILLIMETERS] INCHES

### OP266 (A, B, C, D)



### OP266W



**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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**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 $\mu\text{s}$ 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° C <sup>(1)</sup> |
| Power Dissipation                                                                           | 100 mW <sup>(2)</sup> |

Notes:

1. RMA flux is recommended. Duration can be extended to 10 second maximum when flow soldering. A maximum of 20 grams force may be applied to the leads when soldering.
2. Derate linearly at 1.33 mW/° C above 25° C.
3.  $E_{E(APT)}$  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 area.

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

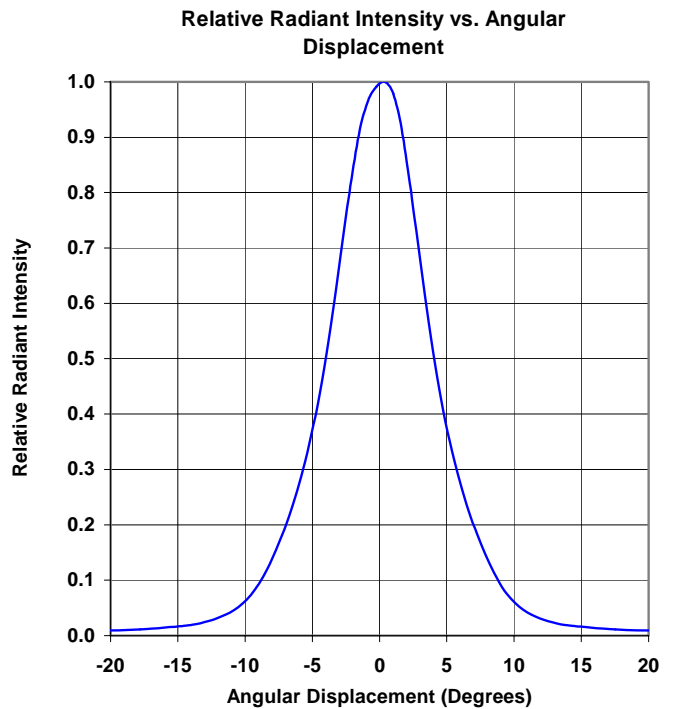
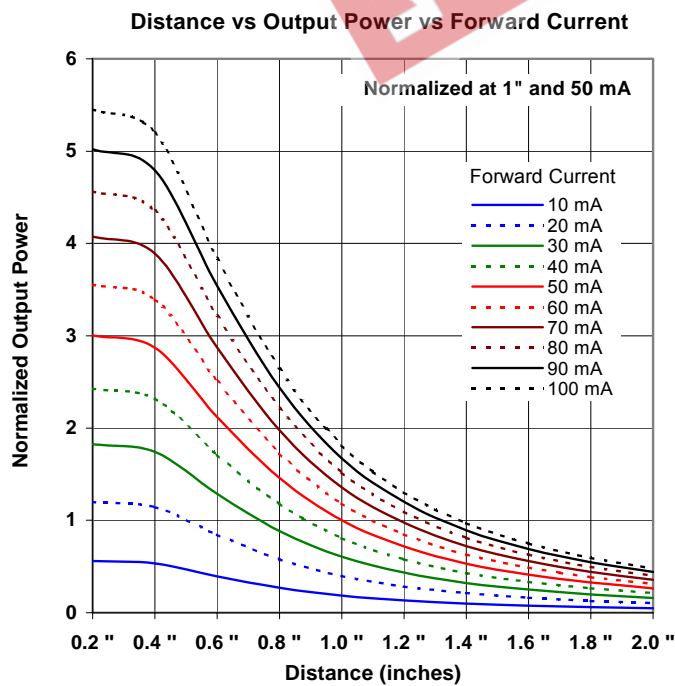
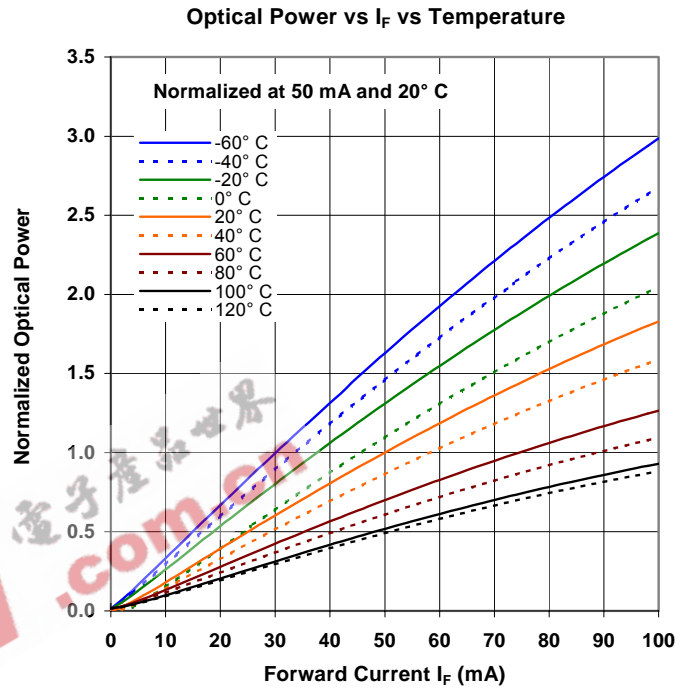
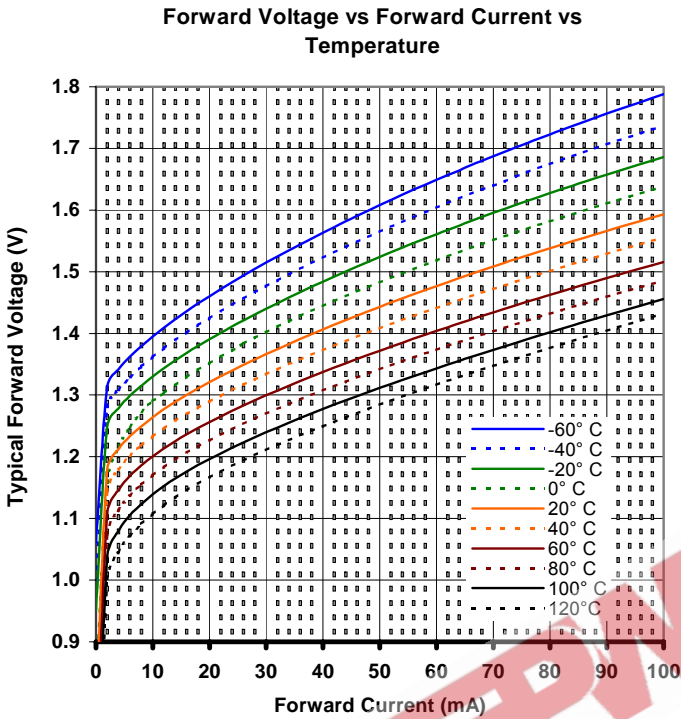
| SYMBOL                     | PARAMETER                                    | MIN       | TYP                      | MAX    | UNITS              | TEST CONDITIONS                                                |
|----------------------------|----------------------------------------------|-----------|--------------------------|--------|--------------------|----------------------------------------------------------------|
| <b>Input Diode</b>         |                                              |           |                          |        |                    |                                                                |
| $E_{E(APT)}$               | Apertured Radiant Incidence                  |           |                          |        |                    |                                                                |
|                            | OP265A, OP266A                               | 2.70      | -                        | -      | mW/cm <sup>2</sup> | $I_F = 20\text{ mA}^{(3)}$                                     |
|                            | OP265B, OP266B                               | 1.65      | -                        | 4.70   |                    |                                                                |
|                            | OP265C, OP266C                               | 0.54      | -                        | 3.30   |                    |                                                                |
| OP265D, OP266D             | 0.54                                         | -         | -                        |        |                    |                                                                |
| $P_O$                      | Radiant Power Output                         |           |                          |        | mW                 | $I_F = 20\text{ mA}$                                           |
|                            | OP265, OP266 (A, B, C, D)<br>OP265W, OP266W  | -<br>1.00 | -<br>-                   | -<br>- |                    |                                                                |
| $V_F$                      | 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              |           |                          |        | nm/°C              | $I_F = \text{Constant}$                                        |
|                            | OP265, OP266 (A, B, C, D)<br>OP265W, OP266W  | -<br>-    | $\pm 0.30$<br>$\pm 0.18$ | -<br>- |                    |                                                                |
| $\theta_{HP}$              | Emission Angle at Half Power Points          |           |                          |        | Degree             | $I_F = 20\text{ mA}$                                           |
|                            | OP265, OP266 (A, B, C, D)<br>OP265W, OP266W  | -<br>-    | 18<br>90                 | -<br>- |                    |                                                                |
| $t_r$                      | 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                 |                                                                |

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