

# Plastic Infrared Emitting Diode

OP265FAA Series  
 Obsolete (OP265FAC)



## Features:

- T-1 (3 mm) package style
- Narrow irradiance pattern
- Dome lens
- Higher power output than GaAs at equivalent drive currents
- 850 nm diode

## Description:

Each device in the **OP265FAA** series is a high intensity gallium arsenide infrared emitting diode (GaAIAs) that is molded in an IR transmissive clear epoxy package with a dome lens. Devices feature a narrow source irradiance pattern and a variety of electrical characteristics. The small T-1 package style makes these devices ideal for space-limited applications.

These devices are mechanically and spectrally matched to other OPTEK products as follows:

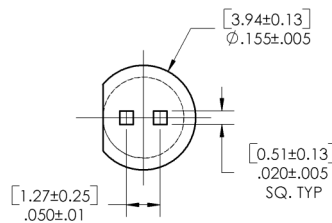
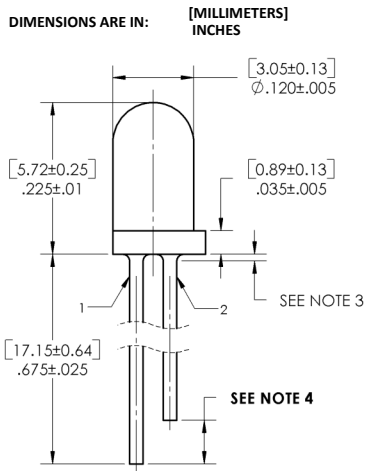
*OP265 devices conform to the OP505 and OP535 series devices.*

*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 |
| OP265FAA             | 850 nm              | 5.5 / NA                                     | 20 / 50                       | 18°              | 0.50"       |
| OP265FAB             |                     | 7.5 / 12.5                                   |                               |                  |             |
| OP265FAC (Obsolete)  |                     | 11.5 / 16.5                                  |                               |                  |             |



### DISCRETE PIN-OUT

- 1 CATHODE
- 2 ANODE



**IMPORTANT:**  
 For identification purposes, ANODE lead is shorter than the CATHODE lead in order to differentiate this product from regular OP265 and/or OP313.

### NOTES:

1. OUTSIDE DISCRETE SHELL IS POLYSULFONE P1700 CLEAR.
2. THIS LED IS BUILT WITH A 850nm CHIP.
3. MAX ALLOWABLE EPOXY MINUSCUS IS 0.030.
4. FOR IDENTIFICATION PURPOSES, ANODE LEAD IS .065 ± .035 SHORTER THAN THE CATHODE LEAD.

| 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.



RoHS

### General Note

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TT Electronics | OPTEK Technology  
 2900 E. Plano Pkwy, Plano, TX 75074 | Ph: +1 972 323 2200  
 www.ttelectronics.com | sensors@ttelectronics.com

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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 $\mu\text{s}$ 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<br>OP265FAA<br>OP265FAB | 5.50<br>7.50 | -<br>-     | -<br>12.5 | mW/cm <sup>2</sup> | $I_F = 20\text{ mA}$<br>Aperture = 0.081" diameter<br>Distance = 0.590" from seating surface<br>to aperture surface |
| $V_F$                      | Forward Voltage                                     | -            | -          | 1.80      | V                  | $I_F = 20\text{ mA}$  |
| $I_R$                      | Reverse Current                                     | -            | 10         | -         | $\mu\text{A}$      | $V_R = 10\text{ V}$   |
| $\lambda_P$                | Wavelength at Peak Emission                         | -            | 850        | -         | nm                 | $I_F = 10\text{ mA}$  |
| $\Delta\lambda_P/\Delta T$ | Spectral Shift with Temperature                     | -            | $\pm 0.18$ | -         | nm/° C             | $I_F = \text{Constant}$   |
| $\theta_{HP}$              | Emission Angle at Half Power Points                 | -            | 18         | -         | Degree             | $I_F = 20\text{ mA}$  |
| $t_r$                      | Output Rise Time                                    | -            | 10         | -         | ns                 | $I_{F(PK)} = 100\text{ mA}$ , PW = 10 $\mu\text{s}$ , D.C. = 10.0 %   |
| $t_f$                      | Output Fall Time                                    | -            | 10         | -         | ns                 | $I_{F(PK)} = 100\text{ mA}$ , PW = 10 $\mu\text{s}$ , D.C. = 10.0 %   |

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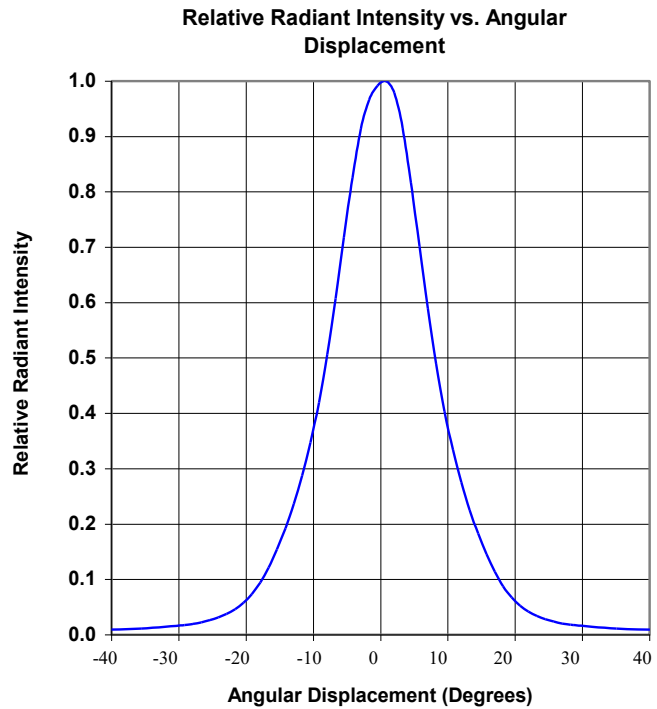
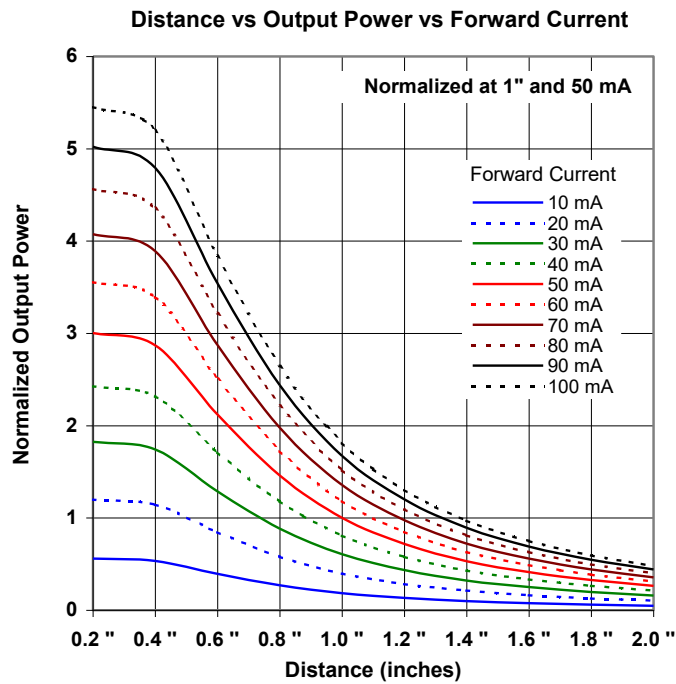
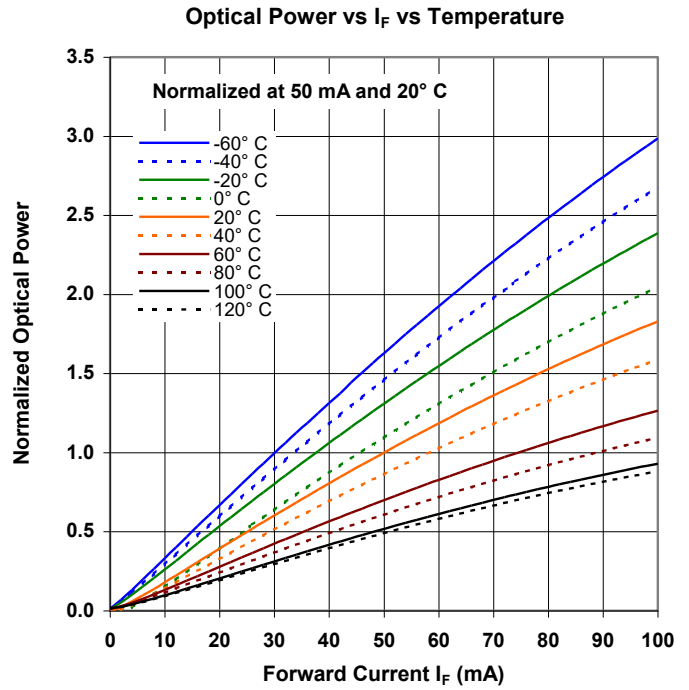
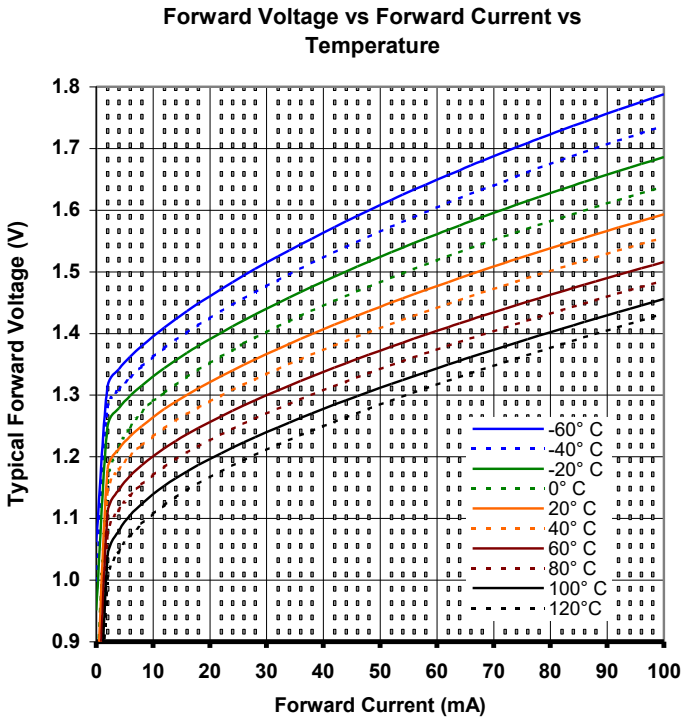
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## Performance OP265F (AA, AB)



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[www.ttelectronics.com](http://www.ttelectronics.com) | [sensors@ttelectronics.com](mailto:sensors@ttelectronics.com)