

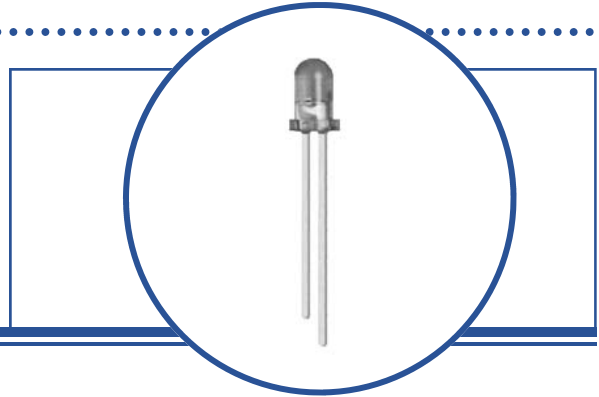
Plastic Infrared Emitting Diode

OP265AA Series



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 **OP265AA** 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 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.

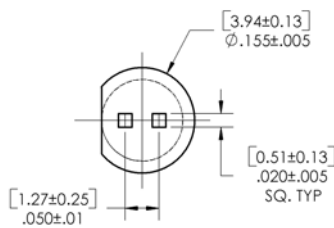
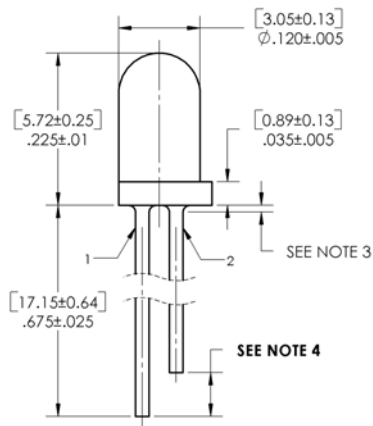
Please refer to Application Bulletins 208 and 210 for additional design information and reliability (degradation) data.

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 ²) Min / Max | I _F (mA) Typ / Max | Total Beam Angle | Lead Length |
| OP265AA | 850 nm | 6.0 / NA | 20 / 50 | 18° | 0.50" |
| OP265AB | | 8.0 / 12.0 | | | |
| OP265AC | | 12.0 / 16.0 | | | |
| OP265AD | | 16.0 / NA | | | |

DIMENSIONS ARE IN: [MILLIMETERS]
INCHES



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 MINISCUS IS 0.030.
4. FOR IDENTIFICATION PURPOSES, ANODE LEAD IS .065 ± .035 SHORTER THAN THE CATHODE LEAD.

| Pin # | LED |
|-------|---------|
| 1 | Cathode |
| 2 | Anode |



RoHS

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

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.

Plastic Infrared Emitting Diode

OP265AA Series



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 ⁽¹⁾ |
| Power Dissipation | 100 mW ⁽²⁾ |

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 |
|--------|-----------|-----|-----|-----|-------|-----------------|
|--------|-----------|-----|-----|-----|-------|-----------------|

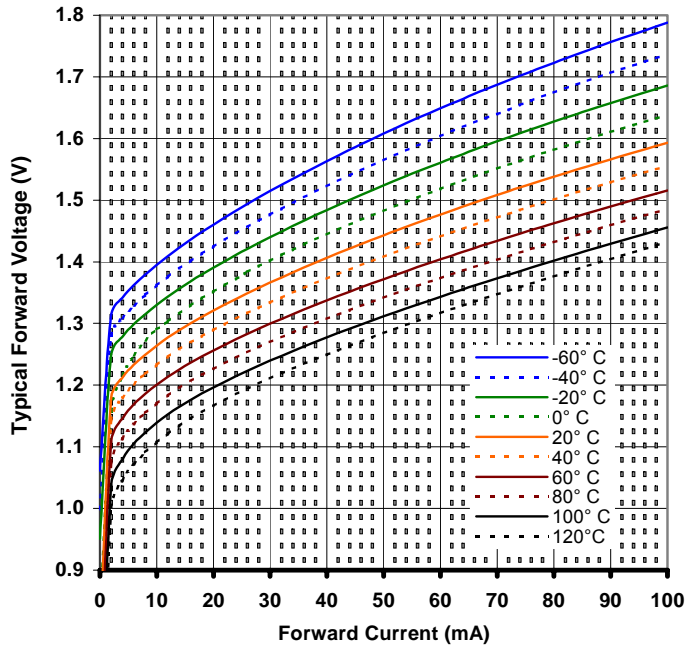
Input Diode

| | | | | | | |
|------------------------------|---|--------------------------------|------------------|------------------------|--------------------|--|
| $E_{E(APT)}$ | Apertured Radiant Incidence OP265AA OP265AB OP265AC OP265AD | 5.50 7.50 11.50 15.50 | - - - - | - 12.5 16.5 - | mW/cm ² | $I_F = 20\text{ mA}$ Aperture = 0.081" diameter Distance = 0.590" from seating surface to aperture surface |
| V_F | Forward Voltage | - | - | 1.80 | V | $I_F = 20\text{ mA}$ |
| I_R | Reverse Current | - | 10 | - | μA | $V_R = 10\text{ V}$ |
| λ_P | Wavelength at Peak Emission | - | 850 | - | nm | $I_F = 10\text{ mA}$ |
| $\Delta\lambda_P / \Delta T$ | Spectral Shift with Temperature | - | ± 0.18 | - | nm/°C | $I_F = \text{Constant}$ |
| θ_{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 μs , D.C.=10.0% |
| t_f | Output Fall Time | - | 10 | - | ns | |

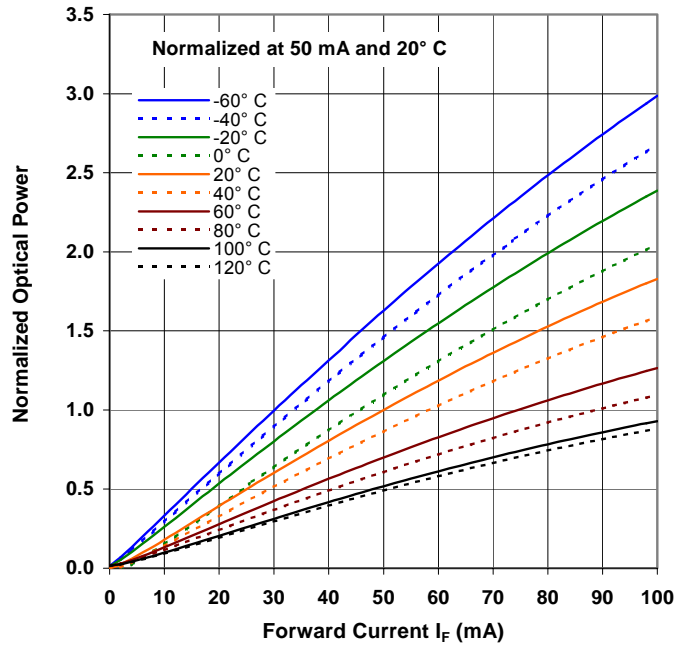
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OP265 (AA, AB, AC, AD)

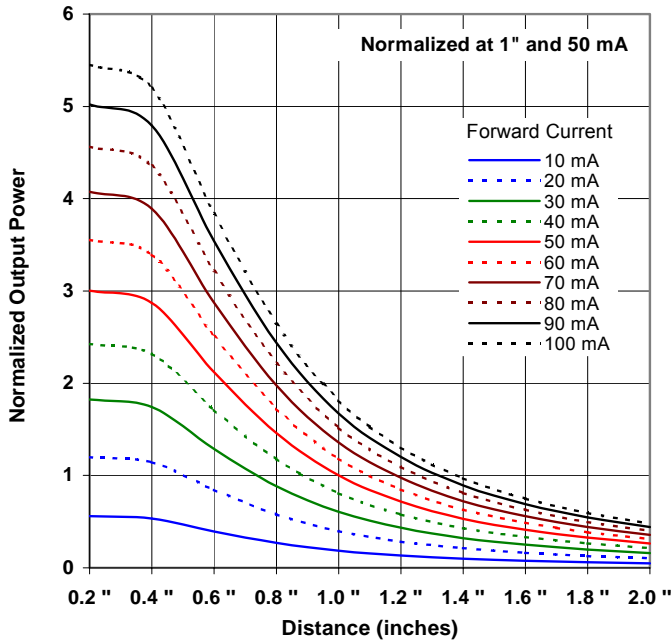
Forward Voltage vs Forward Current vs Temperature



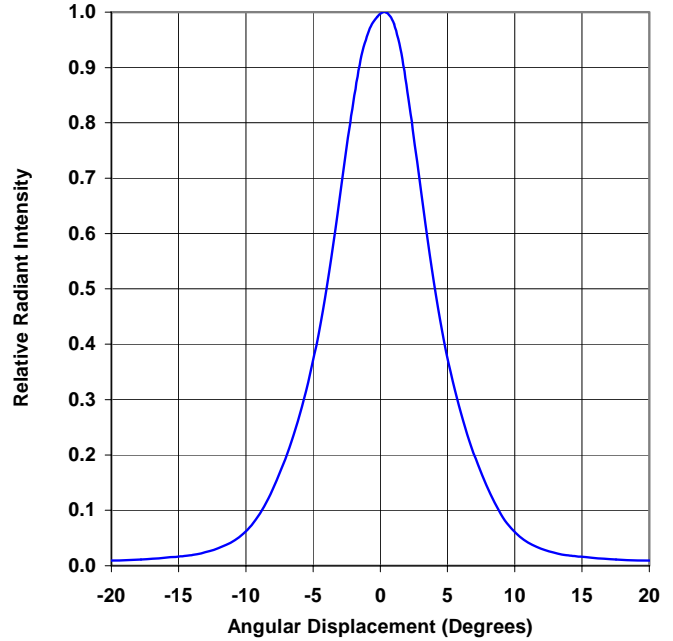
Optical Power vs I_F vs Temperature



Distance vs Output Power vs Forward Current



Relative Radiant Intensity vs. Angular Displacement



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