

# SEP8506

## GaAs Infrared Emitting Diode

### FEATURES

- Side-emitting plastic package
- 50° (nominal) beam angle
- 935 nm wavelength
- Mechanically and spectrally matched to SDP8406 phototransistor, SDP8106 photodarlington and SDP8000/8600 series Schmitt trigger

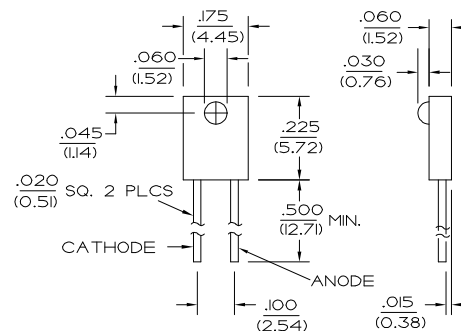


### DESCRIPTION

The SEP8506 is a gallium arsenide infrared emitting diode molded in a side-emitting red plastic package. The chip is positioned to emit radiation through a plastic lens from the side of the package.

### OUTLINE DIMENSIONS in inches (mm)

Tolerance 3 plc decimals  $\pm 0.005(0.12)$   
2 plc decimals  $\pm 0.020(0.51)$



DIM\_071.ds4

# SEP8506

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### ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

| PARAMETER                       | SYMBOL                          | MIN  | TYP | MAX  | UNITS              | TEST CONDITIONS          |
|---------------------------------|---------------------------------|------|-----|------|--------------------|--------------------------|
| Irradiance <sup>(1)</sup>       | H                               |      |     |      | mW/cm <sup>2</sup> | I <sub>F</sub> =20 mA    |
| SEP8506-001                     |                                 | 0.05 |     | 0.36 |                    |                          |
| SEP8506-002                     |                                 | 0.33 |     | 0.52 |                    |                          |
| SEP8506-003                     |                                 | 0.45 |     | 0.90 |                    |                          |
| Forward Voltage                 | V <sub>F</sub>                  |      |     | 1.5  | V                  | I <sub>F</sub> =20 mA    |
| Reverse Breakdown Voltage       | V <sub>BR</sub>                 | 3.0  |     |      | V                  | I <sub>R</sub> =10 μA    |
| Peak Output Wavelength          | λ <sub>p</sub>                  |      | 935 |      | nm                 |                          |
| Spectral Bandwidth              | Δλ                              |      | 50  |      | nm                 |                          |
| Spectral Shift With Temperature | Δλ <sub>p</sub> /ΔT             |      | 0.3 |      | nm/°C              |                          |
| Beam Angle <sup>(2)</sup>       | Ø                               |      | 50  |      | degr.              | I <sub>F</sub> =Constant |
| Radiation Rise And Fall Time    | t <sub>r</sub> , t <sub>f</sub> |      | 0.7 |      | μs                 |                          |

#### Notes

1. Measured in mW/cm<sup>2</sup> into a 0.104 (2.64) diameter aperture placed 0.535 (13.6) from the lens tip.
2. Beam angle is defined as the total included angle between the half intensity points.

### ABSOLUTE MAXIMUM RATINGS

(25°C Free-Air Temperature unless otherwise noted)

|                               |                       |
|-------------------------------|-----------------------|
| Continuous Forward Current    | 50 mA                 |
| Power Dissipation             | 100 mW <sup>(1)</sup> |
| Storage Temperature Range     | -40°C to 85°C         |
| Operating Temperature Range   | -40°C to 85°C         |
| Soldering Temperature (5 sec) | 240°C                 |

#### Notes

1. Derate linearly from 25°C free-air temperature at the rate of 0.78 mW/°C.

### SCHEMATIC

Anode



Cathode

Honeywell reserves the right to make changes in order to improve design and supply the best products possible.

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Fig. 1 Radiant Intensity vs Angular Displacement

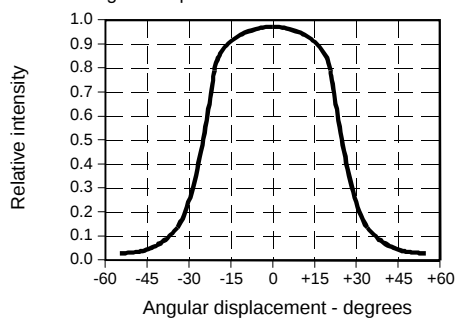


Fig. 2 Radiant Intensity vs Forward Current

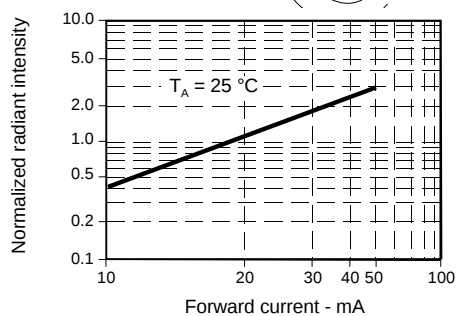


Fig. 3 Forward Voltage vs Forward Current

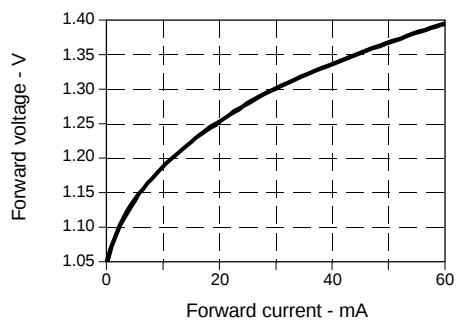


Fig. 4 Forward Voltage vs Temperature

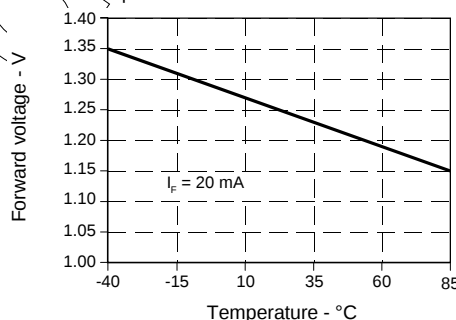


Fig. 5 Spectral Bandwidth

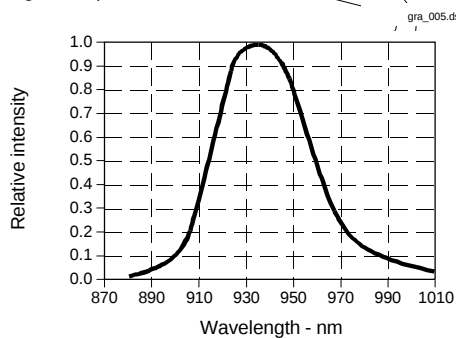
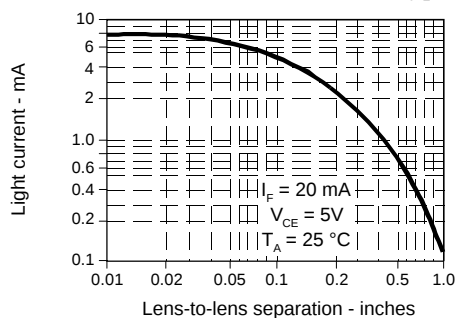


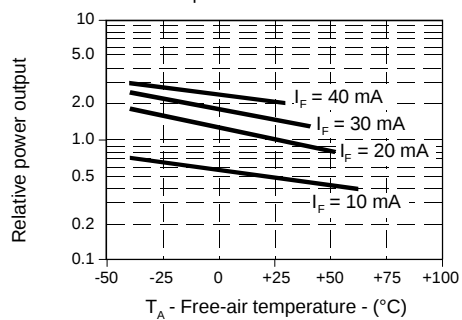
Fig. 6 Coupling Characteristics with SDP8406



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Fig. 7 Relative Power Output vs  
Free Air Temperature



All Performance Curves Show Typical Values

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