

# SEP8705

## AlGaAs Infrared Emitting Diode

### FEATURES

- T-1 package
- 15° (nominal) beam angle
- 880 nm wavelength
- Consistent optical properties
- Higher output than GaAs at equivalent drive current
- Mechanically and spectrally matched to SDP8405 phototransistor and SDP8105 photodarlington



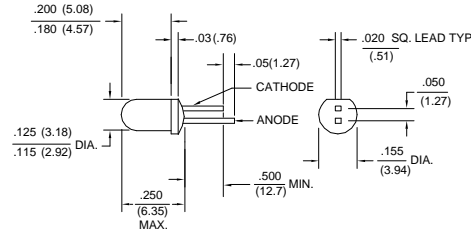
INFRA-55.TIF

### DESCRIPTION

The SEP8705 is an aluminum gallium arsenide infrared emitting diode transfer molded in a T-1 smoke gray plastic package. Transfer molding of this device assures superior optical centerline performance compared to other molding processes. These devices typically exhibit 70% greater power intensity compared to GaAs devices at the same forward current. Lead lengths are staggered to provide a simple method of polarity identification.

### OUTLINE DIMENSIONS in inches (mm)

Tolerance 3 plc decimals ±0.005(0.12)  
2 plc decimals ±0.020(0.51)



DIM\_101.d54

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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
SEP8705-001		0.54				
SEP8705-002		1.4	5.6			
SEP8705-003		2.7	7.8			
Forward Voltage	V <sub>F</sub>			1.7	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>		880		nm	
Spectral Bandwidth	Δλ		80		nm	
Spectral Shift With Temperature	Δλ <sub>p</sub> /ΔT		0.2		nm/°C	
Beam Angle <sup>(2)</sup>	∅		15		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 0.081(2.05) diameter aperture placed 0.40(10.16) 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	70 mW <sup>(1)</sup>
Operating Temperature Range	-40°C to 85°C
Storage 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 0.18 mW/°C.

### SCHEMATIC



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

# Honeywell

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Fig. 1 Radiant Intensity vs Angular Displacement gra\_027.ds4

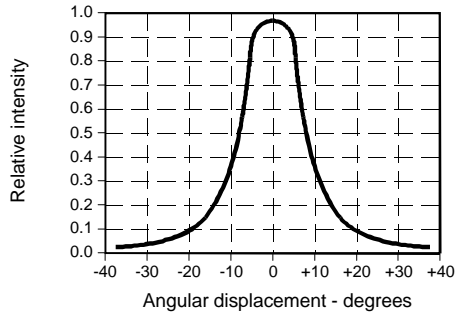


Fig. 2 Radiant Intensity vs Forward Current gra\_028.ds4

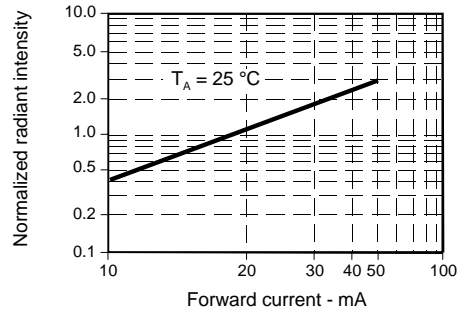


Fig. 3 Forward Voltage vs Forward Current gra\_201.ds4

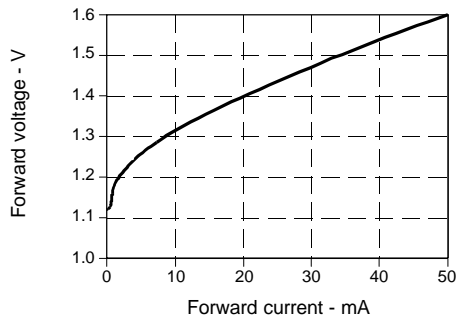


Fig. 4 Forward Voltage vs Temperature gra\_208.ds4

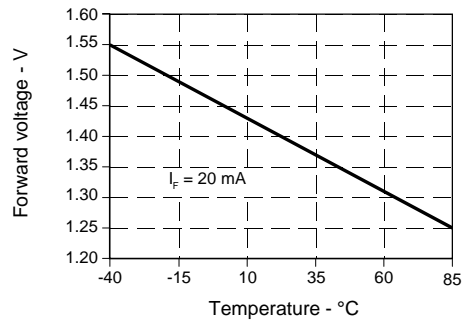


Fig. 5 Spectral Bandwidth gra\_011.ds4

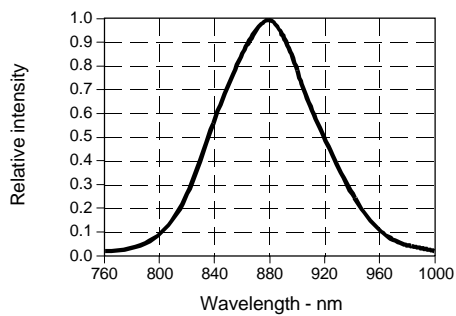
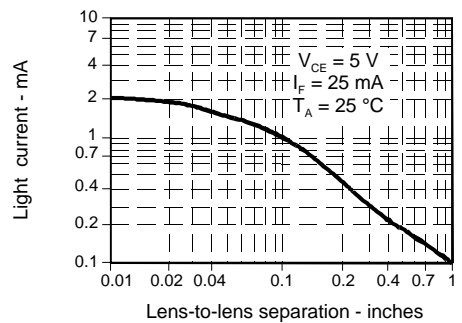
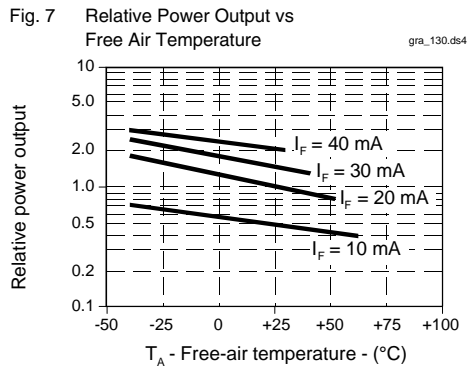


Fig. 6 Coupling Characteristics with SDP8405 gra\_029.ds4



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All Performance Curves Show Typical Values