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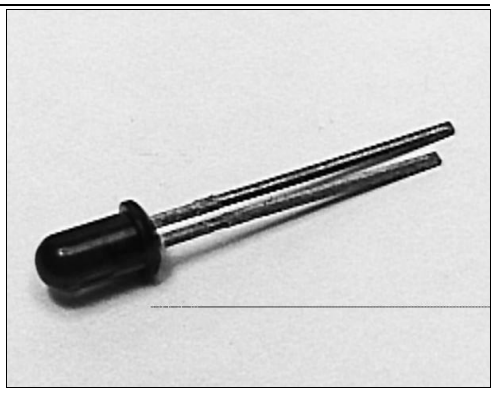
SEP8705

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



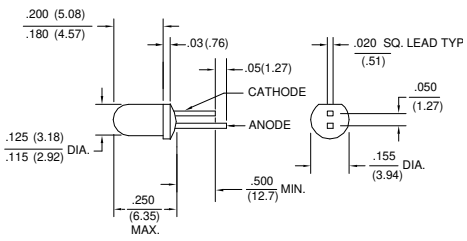
INFRA-55.TIF

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)



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SEP8705

AlGaAs Infrared Emitting Diode

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Irradiance [1]	H				mW/cm²	I_F=20 mA
SEP8705-001		0.54				
SEP8705-002		1.4		5.6		
SEP8705-003		2.7		7.8		
Forward Voltage	V_F			1.7	V	I_F=20 mA
Reverse Breakdown Voltage	V_{BR}	3.0			V	I_R=10 µA
Peak Output Wavelength	λ_p		880		nm	
Spectral Bandwidth	$\Delta\lambda$		80		nm	
Spectral Shift With Temperature	$\Delta\lambda_p/\Delta_T$		0.2		nm/°C	
Beam Angle [2]	Ø		15		degr.	I_F=Constant
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. Measured in mW/cm² 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 [1]
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

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SEP8705

AlGaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

gra_027.ds4

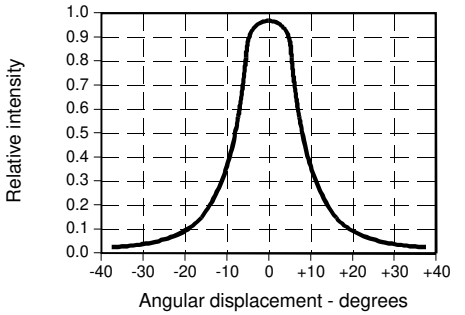


Fig. 2 Radiant Intensity vs Forward Current

gra_028.ds4

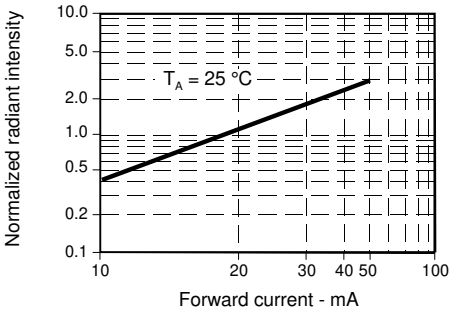


Fig. 3 Forward Voltage vs Forward Current

gra_201.ds4

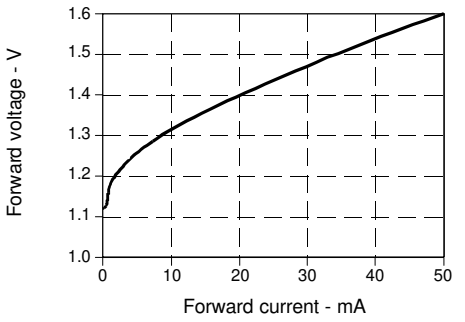


Fig. 4 Forward Voltage vs Temperature

gra_208.ds4

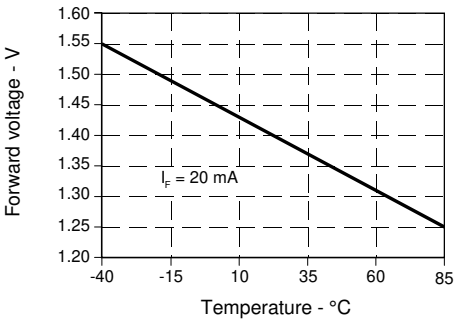


Fig. 5 Spectral Bandwidth

gra_011.ds4

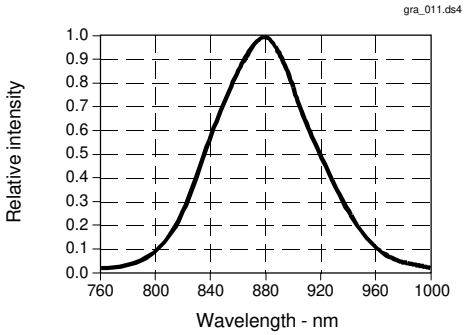
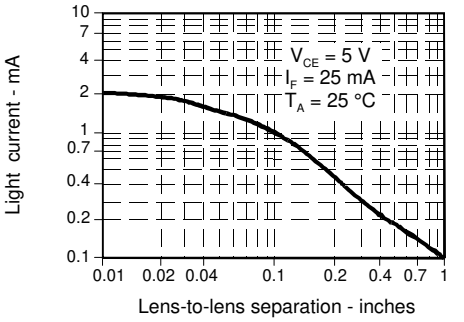


Fig. 6 Coupling Characteristics with SDP8405

gra_029.ds4



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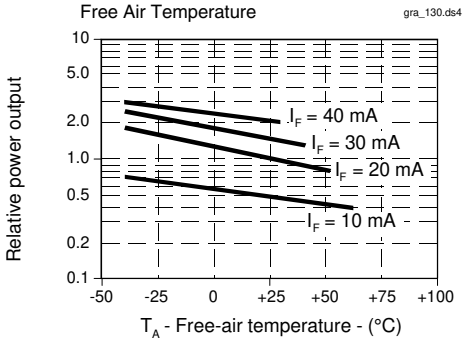
AlGaAs Infrared Emitting Diode

Fig. 7 Relative Power Output vs Free Air Temperature



All Performance Curves Show Typical Values