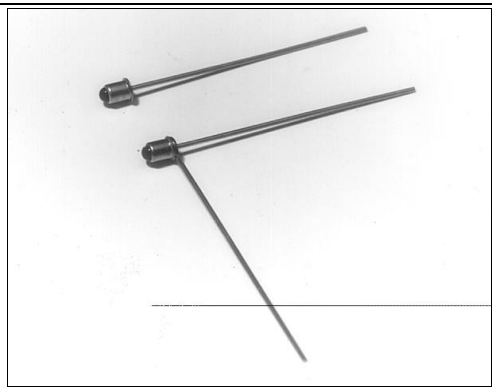
SE1450

GaAs Infrared Emitting Diode

FEATURES

- Compact, metal can coaxial package
- 24° (nominal) beam angle
- 935 nm wavelength
- Wide operating temperature range (- 55°C to +125°C)
- Mechanically and spectrally matched to SD1420 photodiode, SD1440 phototransistor and SD1410 photodarlington



INFRA-63.TIF

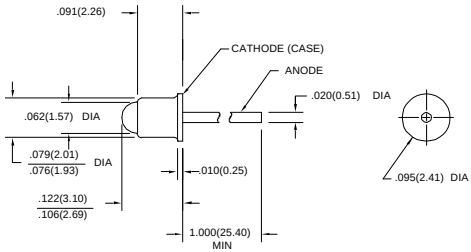
DESCRIPTION

The SE1450 is a gallium arsenide infrared emitting diode mounted in a glass lensed, metal can coaxial package. The package may have a tab or second lead welded to the can as an optional feature (SE1450-XXXL). Both leads are flexible and may be formed as required to fit various mounting configurations.

OUTLINE DIMENSIONS in inches (mm)

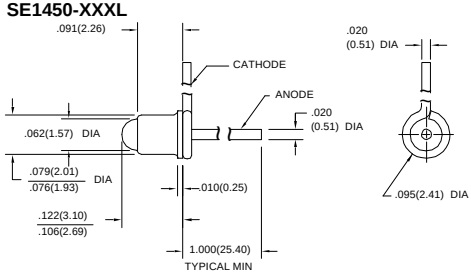
Tolerance	3 plc decimals	±0.005(0.12)
	2 plc decimals	±0.020(0.51)

SE1450-XXX



DIM_001a.ds4

SE1450-XXXL



DIM_001b.ds4

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SE1450

GaAs Infrared Emitting Diode

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Total Power Output	P_O				mW	I_F=50 mA
SE1450-001, SE1450-001 L		0.20				
SE1450-002, SE1450-002 L		0.35				
SE1450-003, SE1450-003 L		0.70				
SE1450-004, SE1450-004 L		1.00				
Forward Voltage	V_F			1.6	V	I_F=50 mA
Reverse Breakdown Voltage	V_{BR}	3.0			V	I_R=10 µA
Peak Output Wavelength	λ_p		935		nm	
Spectral Bandwidth	$\Delta\lambda$		50		nm	
Spectral Shift With Temperature	$\Delta\lambda_p/\Delta_T$		0.3		nm/°C	
Beam Angle (1)	Ø		24		degr.	I_F=Constant
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. Beam angle is defined as the total included angle between the half intensity points.

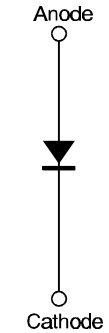
ABSOLUTE MAXIMUM RATINGS

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

Continuous Forward Current	50 mA
Power Dissipation	75 mW (1)
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Soldering Temperature (10 sec)	260°C

Notes
1. Derate linearly from 25°C free-air temperature at the rate of 0.71 mW/°C.

SCHEMATIC



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SE1450

GaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

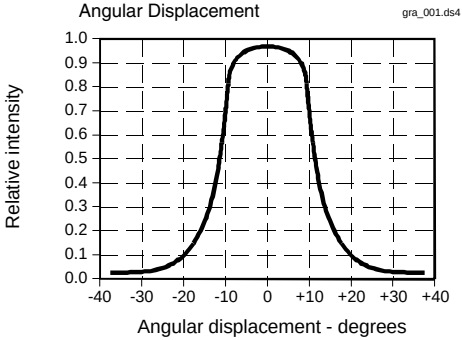

Fig. 2 Radiant Intensity vs Forward Current

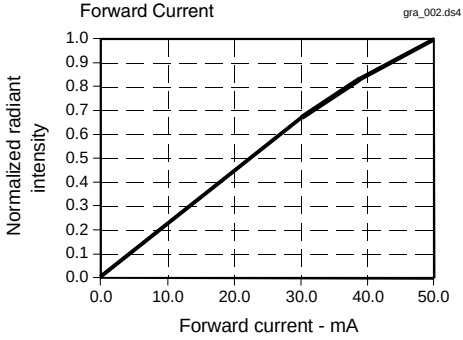

Fig. 3 Forward Voltage vs Forward Current

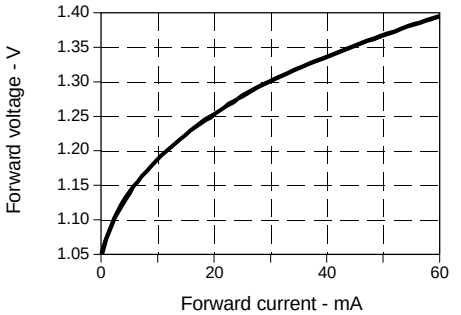

Fig. 4 Forward Voltage vs Temperature

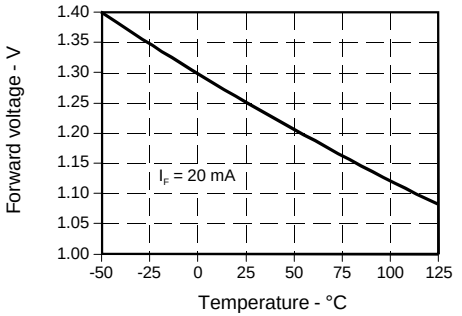

Fig. 5 Spectral Bandwidth

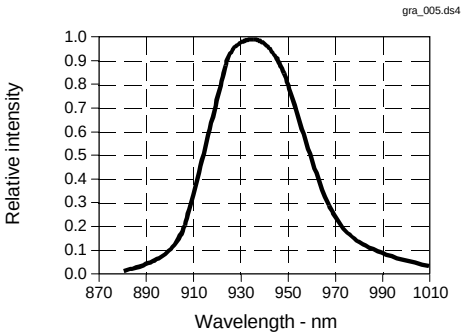

Fig. 6 Coupling Characteristics with SD1440

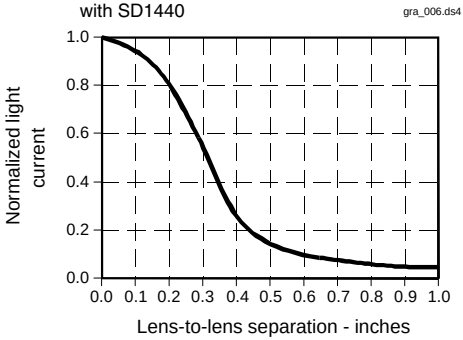

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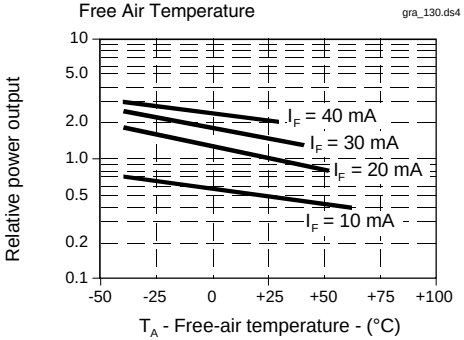
Fig. 7 Relative Power Output vs Free Air Temperature



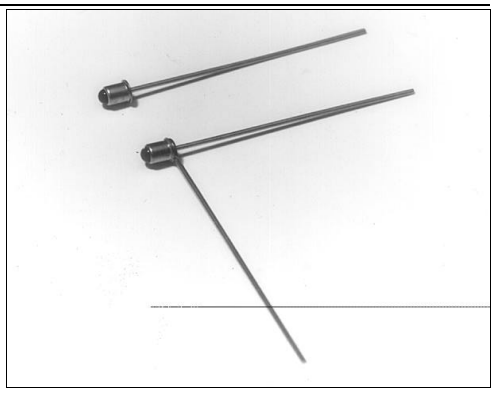
All Performance Curves Show Typical Values

SE1470

AlGaAs Infrared Emitting Diode

FEATURES

- Compact metal can coaxial package
- 24° (nominal) beam angle
- 880 nm wavelength
- Higher output power than GaAs at equivalent drive currents
- Wide operating temperature range (- 55°C to +125°C)
- Mechanically and spectrally matched to SD1420 photodiode, SD1440 phototransistor and SD1410 photodarlington



INFRA-63.TIF

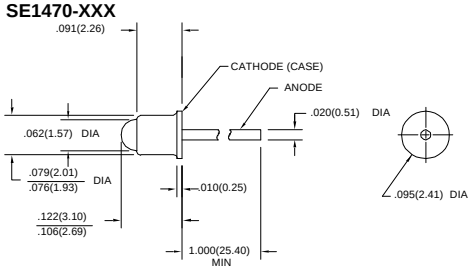
DESCRIPTION

The SE1470 is a high intensity aluminum gallium arsenide infrared emitting diode mounted in a glass lensed metal can coaxial package. The package may have a tab or second lead welded to the can as an optional feature (SE1470-XXXL). Both leads are flexible and may be formed as required to fit various mounting configurations. These devices typically exhibit 70% greater power intensity than gallium arsenide devices at the same forward current.

OUTLINE DIMENSIONS in inches (mm)

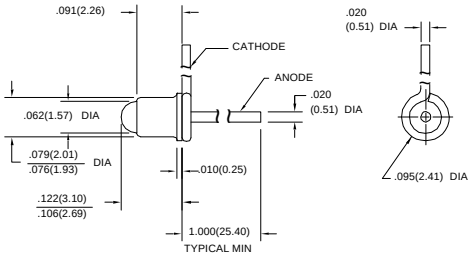
Tolerance	3 plc decimals	±0.005(0.12)
	2 plc decimals	±0.020(0.51)

SE1470-XXX



DIM_001a.ds4

SE1470-XXXL



DIM_001b.ds4

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SE1470

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
SE1470-001, SE1470-001 L		0.35				
SE1470-002, SE1470-002 L		0.65				
SE1470-003, SE1470-003 L		1.10		4.5		
SE1470-004, SE1470-004 L		1.65				
Forward Voltage	V_F			1.8	V	I_F=50 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		24		degr.	I_F=Constant
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. Measured in mW/cm² into a 0.104 (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	75 mW (1)
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Soldering Temperature (10 sec)	260°C

Notes
1. Derate linearly from 25°C free-air temperature at the rate of 0.71 mW/°C.

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SE1470

AlGaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

gra_007.ds4

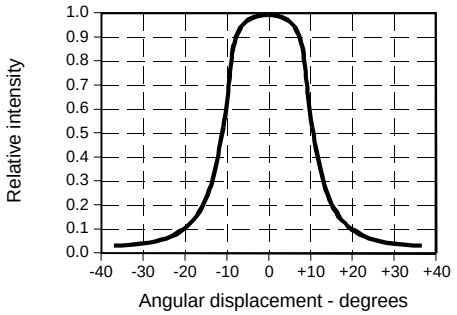


Fig. 2 Radiant Intensity vs Forward Current

gra_008.ds4

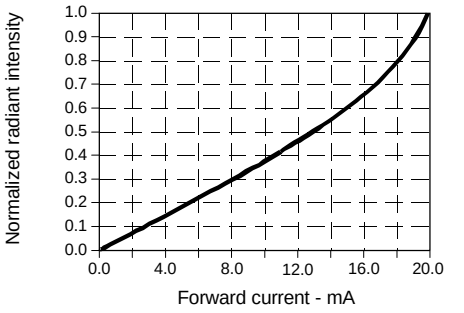


Fig. 3 Forward Voltage vs Forward Current

gra_201.ds4

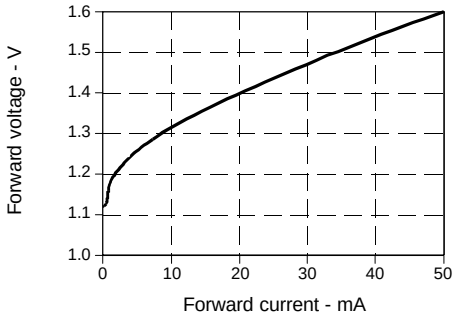


Fig. 4 Forward Voltage vs Temperature

gra_202.ds4

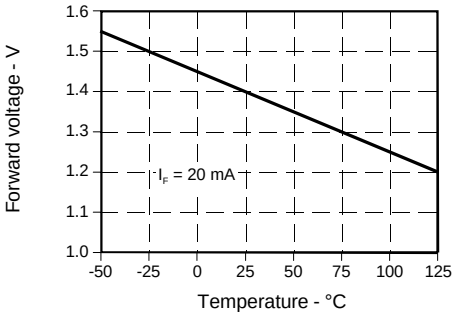


Fig. 5 Spectral Bandwidth

gra_011.ds4

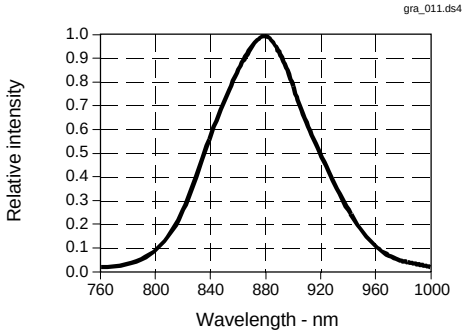
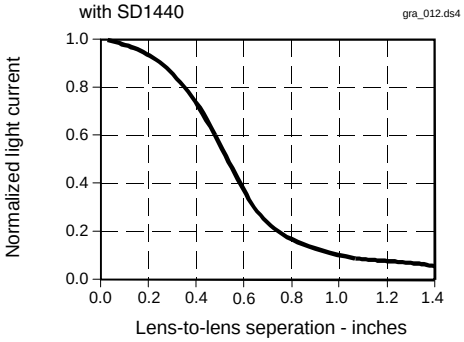


Fig. 6 Coupling Characteristics with SD1440

gra_012.ds4



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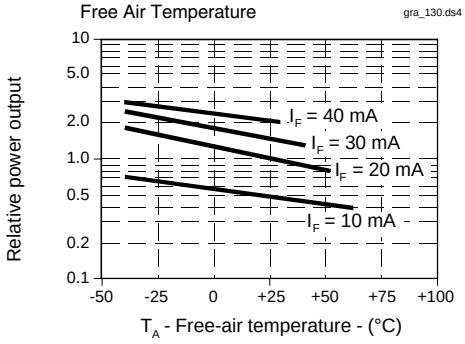
SE1470

AlGaAs Infrared Emitting Diode

Fig. 7 Relative Power Output vs Free Air Temperature



All Performance Curves Show Typical Values

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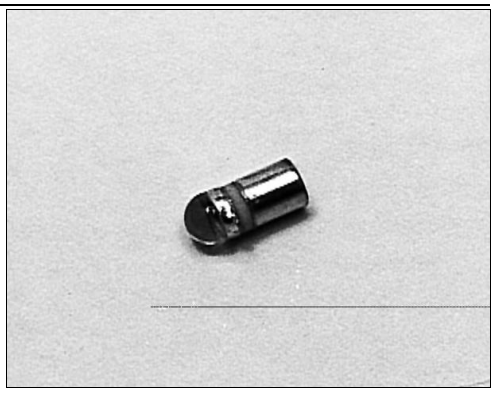
SE2460

GaAs Infrared Emitting Diode

FEATURES

- Miniature, hermetically sealed, pill style, metal can package
- 18° (nominal) beam angle
- Wide operating temperature range (- 55°C to +125°C)
- Ideal for direct mounting to printed circuit boards
- 935 nm wavelength
- Mechanically and spectrally matched to SD2420 photodiode, SD2440 phototransistor and SD2410 photodarlington



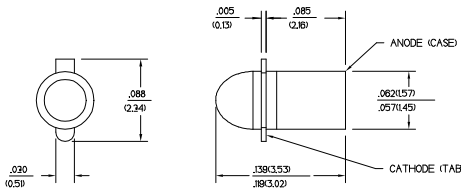
INFRA--1.TIF

DESCRIPTION

The SE2460 is a gallium arsenide infrared emitting diode mounted in a hermetically sealed, glass lensed, metal can package. This package directly mounts in double sided PC boards.

OUTLINE DIMENSIONS in inches (mm)

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



DIM_002.ds4

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SE2460

GaAs Infrared Emitting Diode

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Total Power Output	P_O				mW	I_F=50 mA
SE2460-001		0.27				
SE2460-002		0.40				
SE2460-003		1.00				
Forward Voltage	V_F			1.6	V	I_F=50 mA
Reverse Breakdown Voltage	V_{BR}	3.0			V	I_R=10 µA
Peak Output Wavelength	λ_p		935		nm	
Spectral Bandwidth	$\Delta\lambda$		50		nm	
Spectral Shift With Temperature	$\Delta\lambda_p/\Delta_T$		0.3		nm/°C	
Beam Angle (1)	Ø		18		degr.	I_F=Constant
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. 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	75 mA
Power Dissipation	125 mW (1)
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Soldering Temperature (10 sec)	260°C

Notes
1. Derate linearly from 25°C free-air temperature at the rate of 1.19 mW/°C,when soldered into a double sided printed circuit board.

SCHEMATIC

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SE2460

GaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

gra_111.ds4

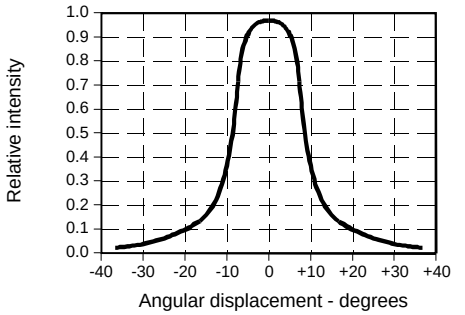

Fig. 2 Radiant Intensity vs Forward Current

gra_014.ds4

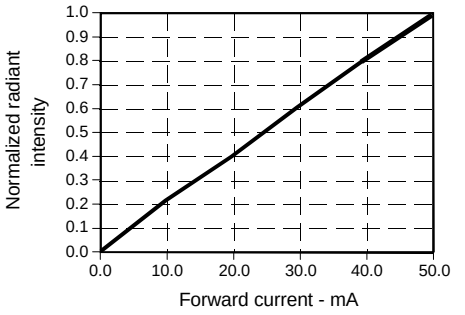

Fig. 3 Forward Voltage vs Forward Current

gra_203.ds4

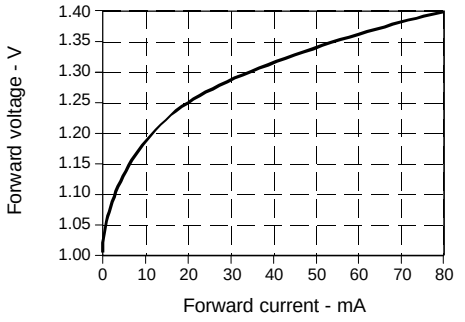

Fig. 4 Forward Voltage vs Temperature

gra_200.ds4

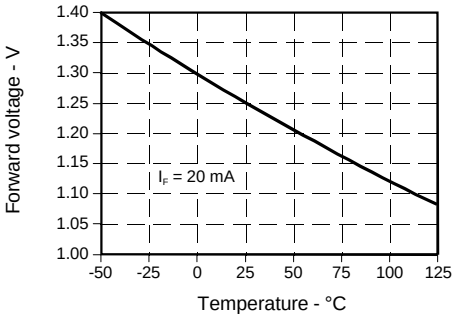

Fig. 5 Spectral Bandwidth

gra_005.ds4

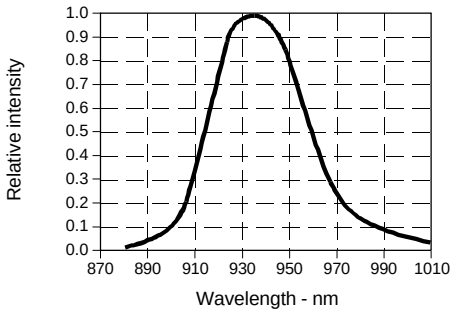

Fig. 6 Coupling Characteristics with SD2440

gra_015.ds4

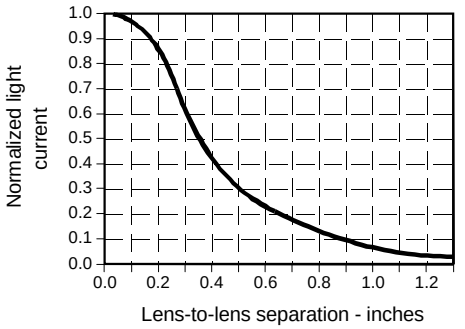

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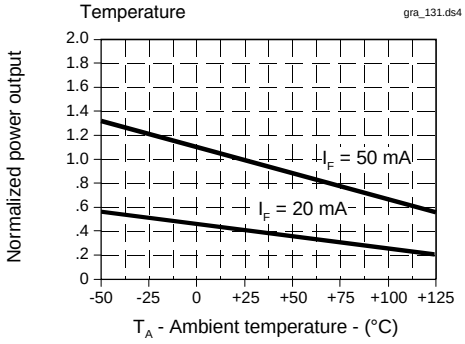
Fig. 7 Normalized Power Output vs Temperature



All Performance Curves Show Typical Values

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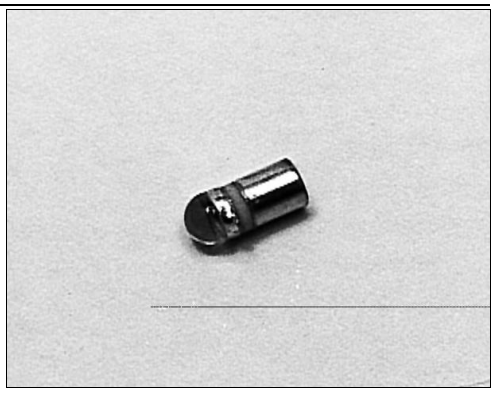
SE2470

AlGaAs Infrared Emitting Diode

FEATURES

- Miniature, hermetically sealed, pill style, metal can package
- 18° (nominal) beam angle
- Wide operating temperature range (- 55°C to +125°C)
- Higher power output than GaAs at equivalent drive currents
- Ideal for direct mounting to printed circuit boards
- 880 nm wavelength
- Mechanically and spectrally matched to SD2420 photodiode, SD2440 phototransistor and SD2410 photodarlington



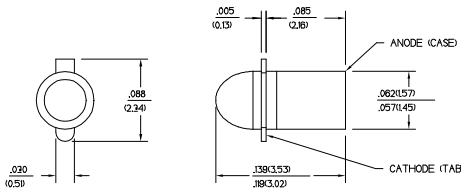
INFRA--1.TIF

DESCRIPTION

The SE2470 is a high intensity aluminum gallium arsenide infrared emitting diode mounted in a hermetically sealed, glass lensed, metal can package. This package directly mounts in double sided PC boards. These devices typically exhibit 70% greater power intensity than gallium arsenide devices at the same forward current.

OUTLINE DIMENSIONS in inches (mm)

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



DIM_002.ds4

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SE2470

AlGaAs Infrared Emitting Diode

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Radiant Intensity (1)	IE				mW/sr	I_F=50 mA
SE2470-001		1.7				
SE2470-002		6.0				
Forward Voltage	V_F			1.8	V	I_F=50 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		18		degr.	I_F=Constant
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. Measured in mW/steradian (sr) into 0.01 steradians.
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	75 mA
Power Dissipation	125 mW (1)
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Soldering Temperature (10 sec)	260°C

Notes
1. Derate linearly from 25°C free-air temperature at the rate of 1.19 mW/°C,when soldered into a double sided printed circuit board.

SCHEMATIC

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SE2470

AlGaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

gra_111.ds4

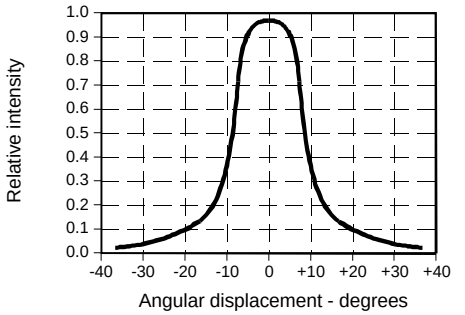


Fig. 2 Radiant Intensity vs Forward Current

gra_016.ds4

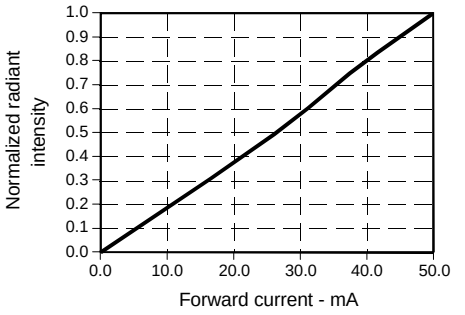


Fig. 3 Forward Voltage vs Forward Current

gra_204.ds4

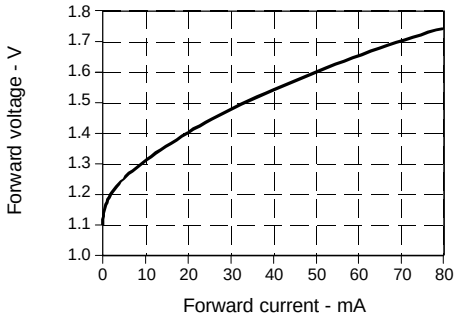


Fig. 4 Forward Voltage vs Temperature

gra_202.ds4

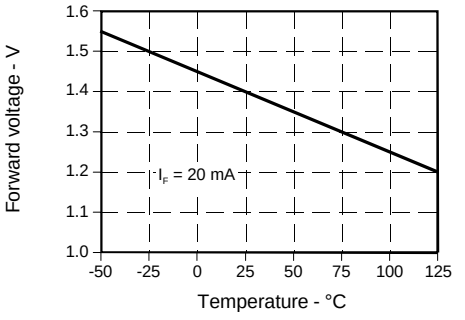


Fig. 5 Spectral Bandwidth

gra_011.ds4

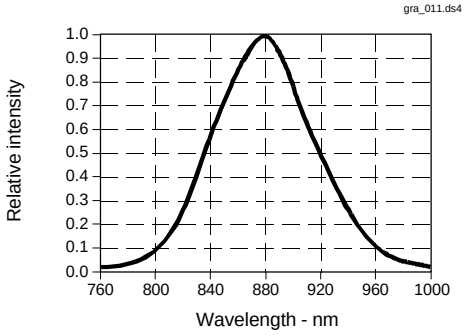
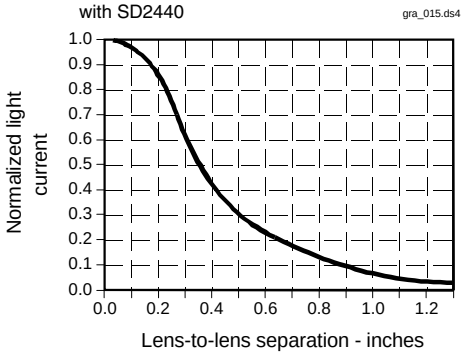


Fig. 6 Coupling Characteristics with SD2440

gra_015.ds4



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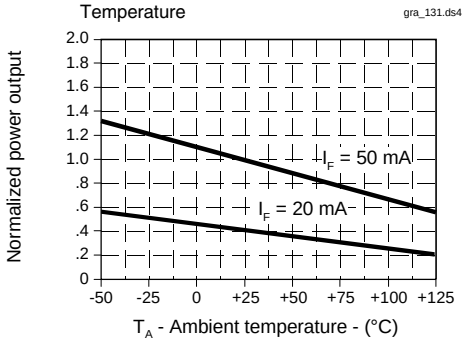
SE2470

AlGaAs Infrared Emitting Diode

Fig. 7 Normalized Power Output vs Temperature



All Performance Curves Show Typical Values

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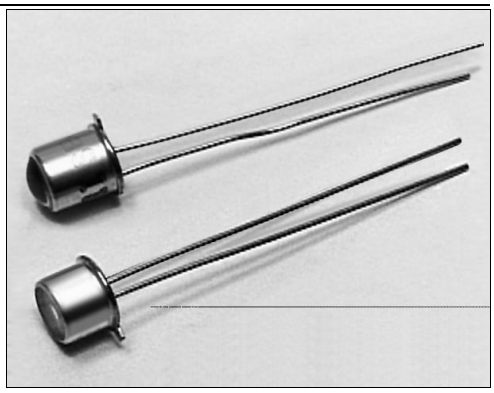
SE3450/5450

GaAs Infrared Emitting Diode

FEATURES

- TO-46 metal can package
- Choice of flat window or lensed package
- 90° or 20° (nominal) beam angle option
- 935 nm wavelength
- Wide operating temperature range (- 55°C to +125°C)
- Mechanically and spectrally matched to SD3421/5421 photodiode, SD3443/5443/5491phototransistor, SD3410/5410 photodarlington and SD5600 series Schmitt trigger



INFRA-83.TIF

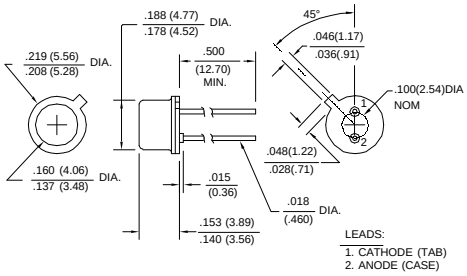
DESCRIPTION

The SE3450/5450 series consists of a gallium arsenide infrared emitting diode mounted in a TO-46 metal can package. The SE3450 series has flat window cans providing a wide beam angle, while the SE5450 series has glass lensed cans providing a narrow beam angle. The TO-46 packages offer high power dissipation capability and are ideally suited for operation in hostile environment.

OUTLINE DIMENSIONS in inches (mm)

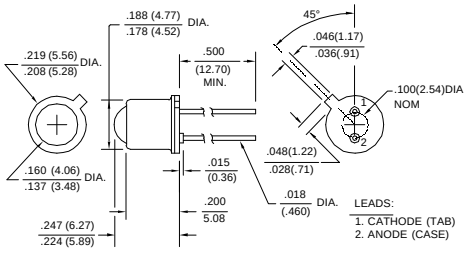
Tolerance	3 plc decimals	±0.005(0.12)
	2 plc decimals	±0.020(0.51)

SE3450



DIM_003a.ds4

SE5450



DIM_003b.ds4

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SE3450/5450

GaAs 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=100 mA
SE3450-011, SE5450-011		0.30				
SE3450-012, SE5450-012		0.50				
SE3450-013, SE5450-013		1.00				
SE3450-014, SE5450-014		1.50				
Forward Voltage	V_F			1.7	V	I_F=100 mA
Reverse Breakdown Voltage	V_{BR}	3.0			V	I_R=10 µA
Peak Output Wavelength	λ_p		935		nm	
Spectral Bandwidth	$\Delta\lambda$		50		nm	
Spectral Shift With Temperature	$\Delta\lambda_p/\Delta_T$		0.3		nm/°C	
Beam Angle (2)	Ø				degr.	I_F=Constant
SE3450			90			
SE5450			20			
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. SE3450 measured into a 0.250 (6.35) diameter aperture placed 0.33(8.4) from window surface. SE5450 measured into a 0.250 (6.35) diameter aperture placed 1.20 (30.5) from lens tip.
2. Beam angle is defined as the total included angle between the half intensity points.

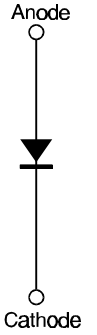
ABSOLUTE MAXIMUM RATINGS

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

Continuous Forward Current	100 mA
Power Dissipation	150 mW (1)
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Soldering Temperature (10 sec)	260°C

Notes
1. Derate linearly from 25°C free-air temperature at the rate of 1.43 mW/°C.

SCHEMATIC



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SE3450/5450

GaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement (SE3450)

gra_017.ds4

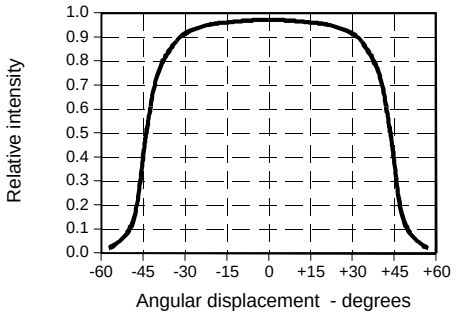


Fig. 2 Radiant Intensity vs Angular Displacement (SE5450)

gra_023.ds4

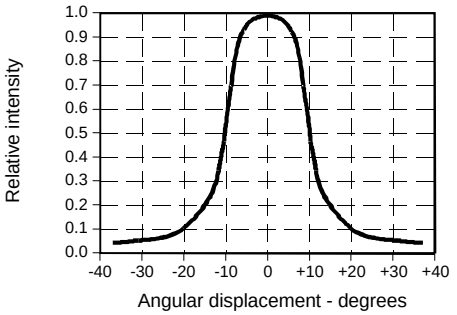


Fig. 3 Radiant Intensity vs Forward Current

gra_018.ds4

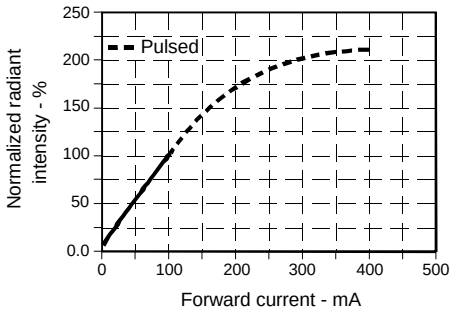


Fig. 4 Forward Voltage vs Forward Current

gra_205.ds4

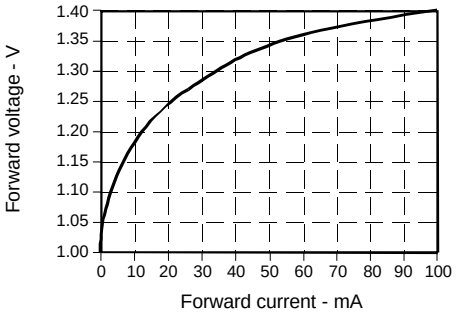


Fig. 5 Forward Voltage vs Temperature

gra_206.ds4

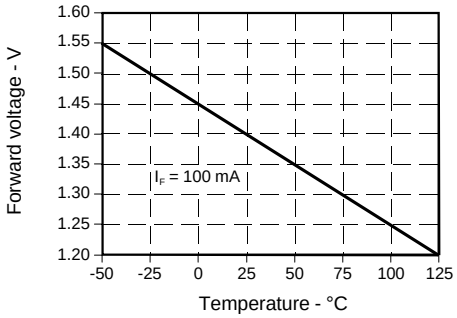
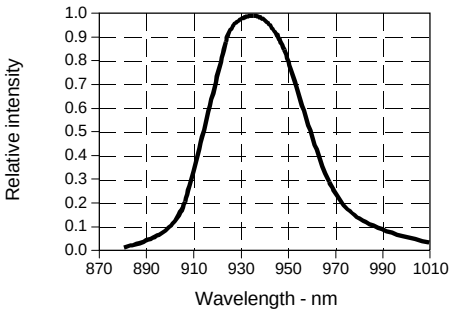


Fig. 6 Spectral Bandwidth

gra_005.ds4



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SE3450/5450

GaAs Infrared Emitting Diode

Fig. 7 Coupling Characteristics
SE3450 with SD3443

gra_021.ds4

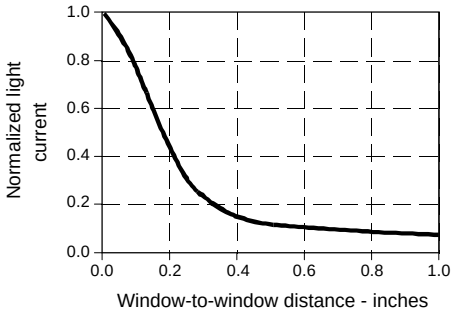


Fig. 8 Coupling Characteristics
SE5450 with SD5443

gra_024.ds4

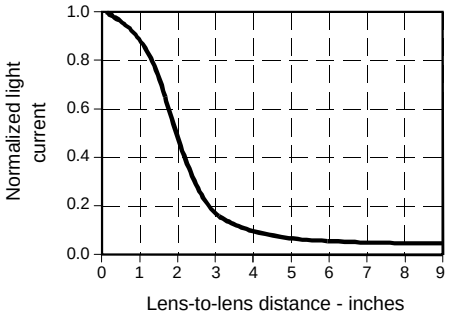
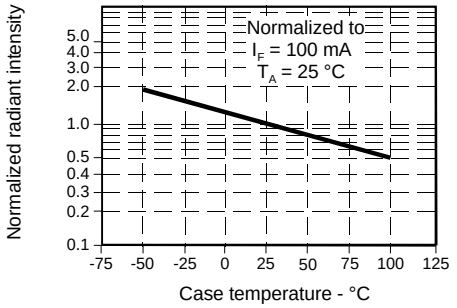


Fig. 9 Radiant Intensity vs
Case Temperature

gra_022.ds4



All Performance Curves Show Typical Values

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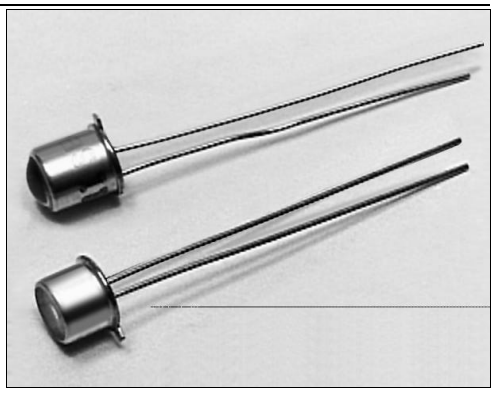
SE3455/5455

GaAs Infrared Emitting Diode

FEATURES

- TO-46 metal can package
- Choice of flat window or lensed package
- 90° or 20° (nominal) beam angle option
- 935 nm wavelength
- Wide operating temperature range (- 55°C to +125°C)
- Ideal for high pulsed current applications
- Mechanically and spectrally matched to SD3421/5421 photodiode, SD3443/5443/5491phototransistor, SD3410/5410 photodarlington and SD5600 series Schmitt trigger



INFRA-83.TIF

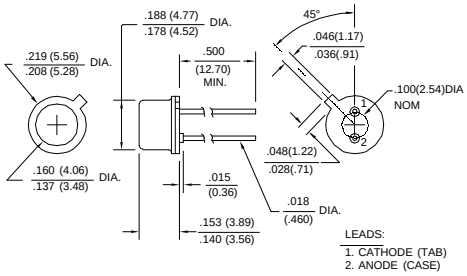
DESCRIPTION

The SE3455/5455 series consists of a gallium arsenide infrared emitting diode mounted in a TO-46 metal can package. The SE3455 series has flat window cans providing a wide beam angle, while the SE5455 series has glass lensed cans providing a narrow beam angle. These devices are constructed with dual bond wires suitable for pulsed current applications. The TO-46 packages offer high power dissipation capability and are ideally suited for operation in hostile environments.

OUTLINE DIMENSIONS in inches (mm)

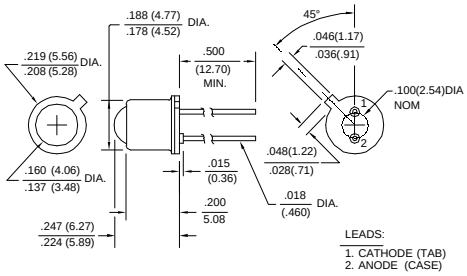
Tolerance	3 plc decimals	±0.005(0.12)
	2 plc decimals	±0.020(0.51)

SE3455



DIM_005a.ds4

SE5455



DIM_005b.ds4

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SE3455/5455

GaAs Infrared Emitting Diode

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Total Power Output	P_O				mW	I_F=100 mA
SE3455-001, SE5455-001		2.0				
SE3455-002, SE5455-002		3.5				
SE3455-003, SE5455-003		4.8				
SE3455-004, SE5455-004		5.4				
Forward Voltage	V_F			1.7	V	I_F=100 mA
Reverse Breakdown Voltage	V_{BR}	3.0			V	I_R=10 µA
Peak Output Wavelength	λ_p		935		nm	
Spectral Bandwidth	$\Delta\lambda$		50		nm	
Spectral Shift With Temperature	$\Delta\lambda_p/\Delta_T$		0.3		nm/°C	
Beam Angle (1)	Ø				degr.	I_F=Constant
SE3455			90			
SE5455			20			
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. 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	100 mA
Peak Forward Current	3 A
(1µs pulse width, 300 pps)	
Power Dissipation	150 mW (1)
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Soldering Temperature (10 sec)	260°C

Notes
1. Derate linearly from 25°C free-air temperature at the rate of 1.43 mW/°C.

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SE3455/5455

GaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement (SE3455)

gra_017.ds4

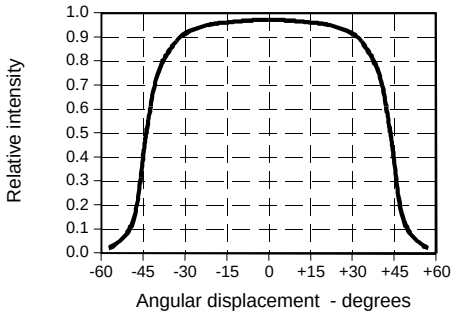


Fig. 2 Radiant Intensity vs Angular Displacement (SE5455)

gra_023.ds4

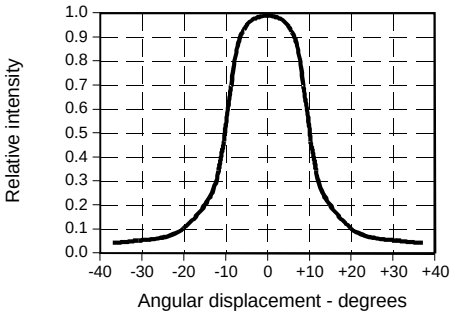


Fig. 3 Radiant Intensity vs Forward Current

gra_018.ds4

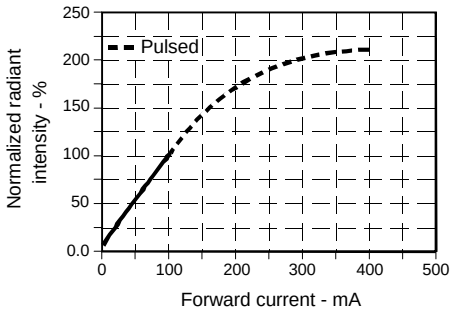


Fig. 4 Forward Voltage vs Forward Current

gra_019.ds4

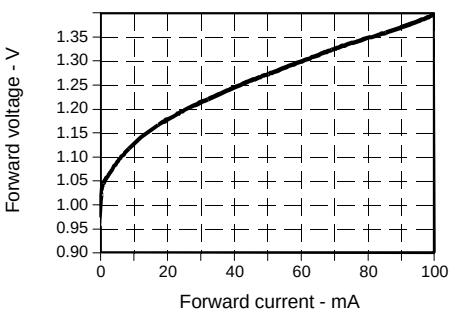


Fig. 5 Forward Voltage vs Temperature

gra_020.ds4

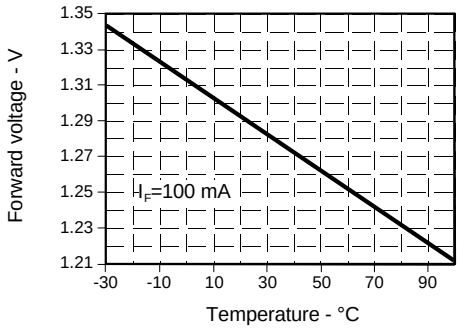
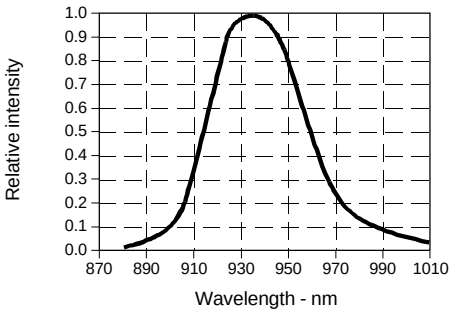


Fig. 6 Spectral Bandwidth

gra_005.ds4



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SE3455/5455

GaAs Infrared Emitting Diode

Fig. 7 Coupling Characteristics
SE3455 with SD3443

gra_021.ds4

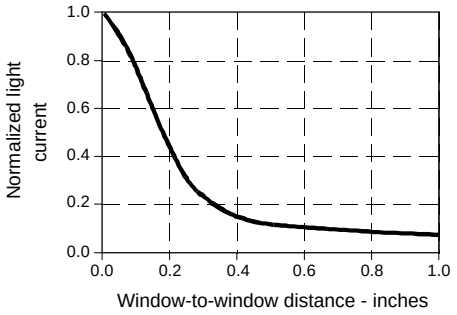


Fig. 8 Coupling Characteristics
SE5455 with SD5443

gra_024.ds4

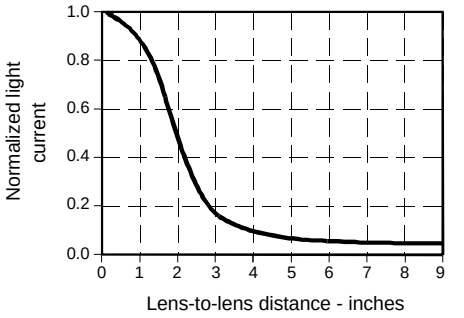
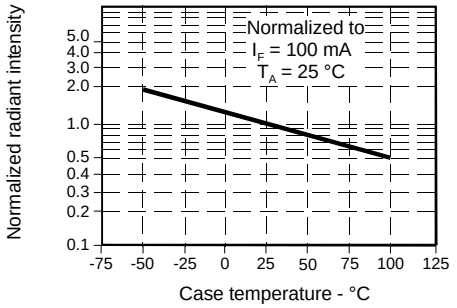


Fig. 9 Radiant Intensity vs
Case Temperature

gra_022.ds4



All Performance Curves Show Typical Values

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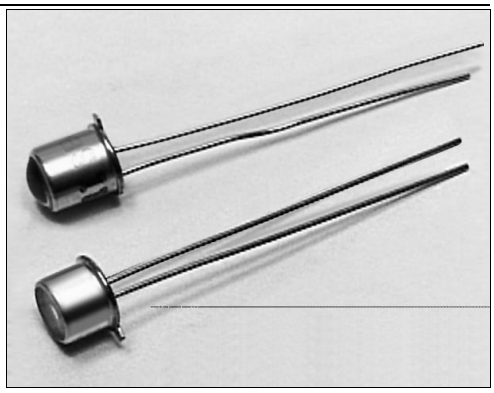
SE3470/5470

AlGaAs Infrared Emitting Diode

FEATURES

- TO-46 metal can package
- Choice of flat window or lensed package
- 90° or 20° (nominal) beam angle option
- 880 nm wavelength
- Higher output power than GaAs at equivalent drive currents
- Wide operating temperature range (- 55°C to +125°C)
- Ideal for high pulsed current applications
- Mechanically and spectrally matched to SD3421/5421 photodiode, SD3443/5443/5491phototransistor, SD3410/5410 photodarlington and SD5600 series Schmitt trigger



INFRA-83.TIF

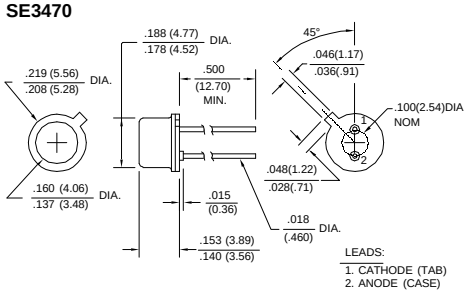
DESCRIPTION

The SE3470/5470 series consists of aluminum gallium arsenide infrared emitting diode mounted in a TO-46 metal can package. The SE3470 series has flat window cans providing a wide beam angle, while the SE5470 series has glass lensed cans providing a narrow beam angle. These devices typically exhibit 70% greater power output than gallium arsenide devices at the same forward current. The TO-46 packages offer high power dissipation capability and are ideally suited for operation in hostile environments.

OUTLINE DIMENSIONS in inches (mm)

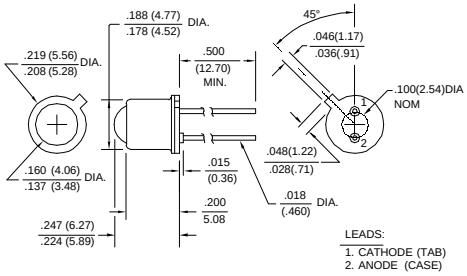
Tolerance	3 plc decimals	±0.005(0.12)
	2 plc decimals	±0.020(0.51)

SE3470



DIM_005a.ds4

SE5470



DIM_005b.ds4

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SE3470/5470

AlGaAs Infrared Emitting Diode

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Total Power Output [1]	P_O				mW	I_F=100 mA
SE3470-001		7.0				
SE3470-002		9.0				
SE3470-003		10.5				
SE5470-001		7.0				
Irradiance [2]	H				mW/cm²	I_F=100 mA
SE5470-002		1.5				
SE5470-003		2.6		5.9		
SE5470-004		3.5				
Forward Voltage	V_F			1.9	V	I_F=100 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 [3]	Ø				degr.	I_F=Constant
SE3470			90			
SE5470			20			
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. Total power emitted from the package in mW.
2. Measured into a 0.25 (6.35) aperture placed at 1.20(30.5) from lens tip.
3. 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	100 mA
Peak Forward Current	3 A
(1µs pulse width, 300 pps)	
Power Dissipation	150 mW [1]
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Soldering Temperature (10 sec)	260°C

Notes
1. Derate linearly from 25°C free-air temperature at the rate of 1.43 mW/°C.

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SE3470/5470

AlGaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement (SE3470)

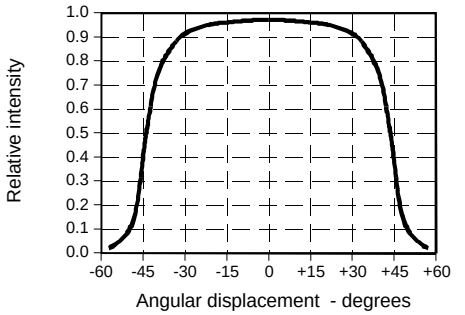


Fig. 2 Radiant Intensity vs Angular Displacement (SE5470)

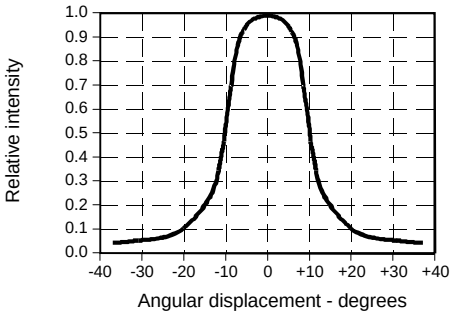


Fig. 3 Radiant Intensity vs Forward Current

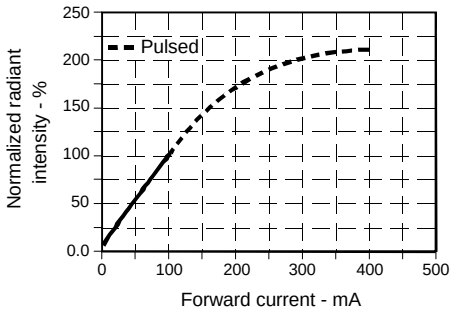


Fig. 4 Forward Voltage vs Forward Current

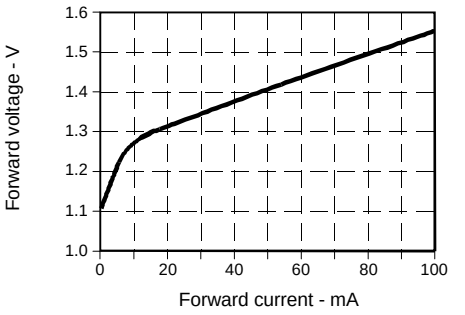


Fig. 5 Forward Voltage vs Temperature

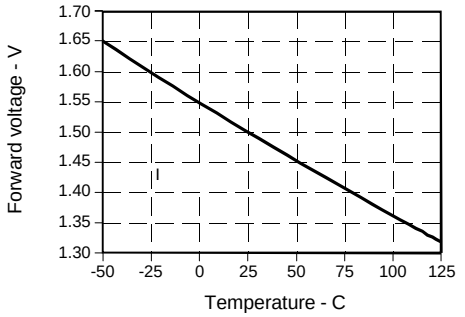
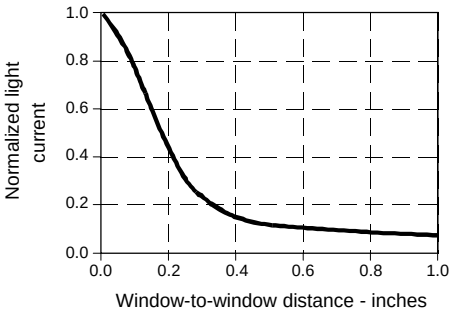


Fig. 6 Coupling Characteristics SE3470 with SD3443



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SE3470/5470

AlGaAs Infrared Emitting Diode

Fig. 7 Spectral Bandwidth

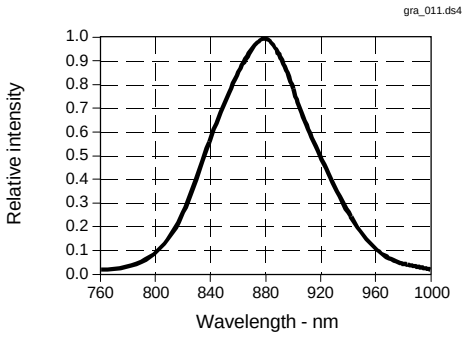


Fig. 8 Radiant Intensity vs Case Temperature

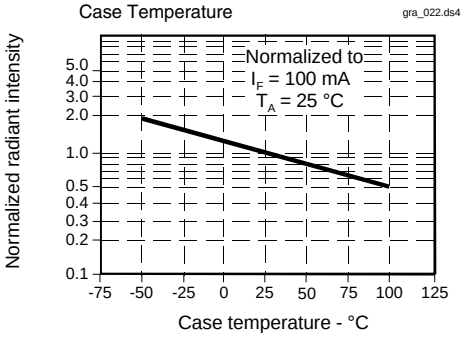
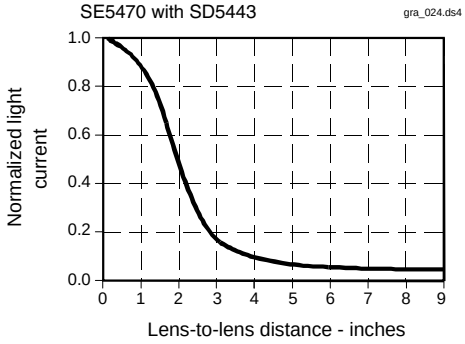


Fig. 9 Coupling Characteristics SE5470 with SD5443



All Performance Curves Show Typical Values

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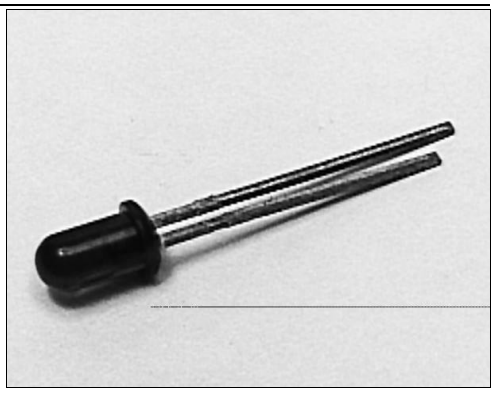
SEP8505

GaAs Infrared Emitting Diode

FEATURES

- T-1 package
- 15° (nominal) beam angle
- 935 nm wavelength
- Consistent on-axis optical properties
- Mechanically and spectrally matched to SDP8405 phototransistor and SDP8105 photodarlington



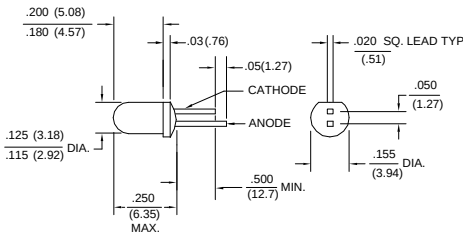
INFRA-55.TIF

DESCRIPTION

The SEP8505 is a gallium arsenide infrared emitting diode transfer molded in a T-1 red plastic package. Transfer molding of this device assures superior optical centerline performance compared to other molding processes. 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.ds4

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SEP8505

GaAs 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
SEP8505-001		0.5				
SEP8505-002		1.0		4.0		
SEP8505-003		2.0		4.0		
Forward Voltage	V_F			1.5	V	I_F=20 mA
Reverse Breakdown Voltage	V_{BR}	3.0			V	I_R=10 µA
Peak Output Wavelength	λ_p		935		nm	
Spectral Bandwidth	$\Delta\lambda$		50		nm	
Spectral Shift With Temperature	$\Delta\lambda_p/\Delta_T$		0.3		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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SEP8505

GaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

gra_027.ds4

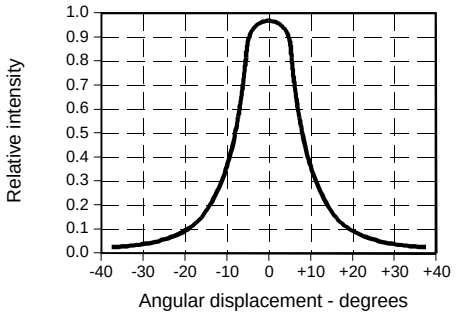


Fig. 2 Radiant Intensity vs Forward Current

gra_028.ds4

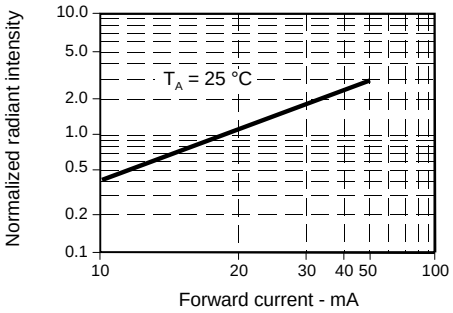


Fig. 3 Forward Voltage vs Forward Current

gra_003.ds4

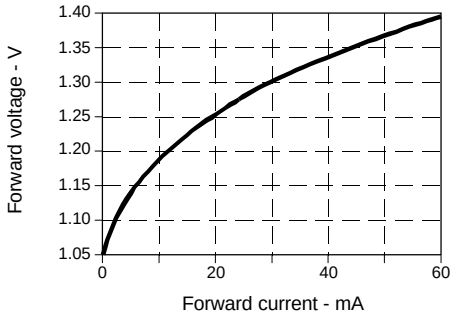


Fig. 4 Forward Voltage vs Temperature

gra_207.ds4

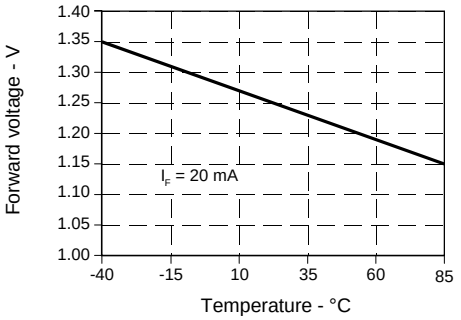


Fig. 5 Spectral Bandwidth

gra_005.ds4

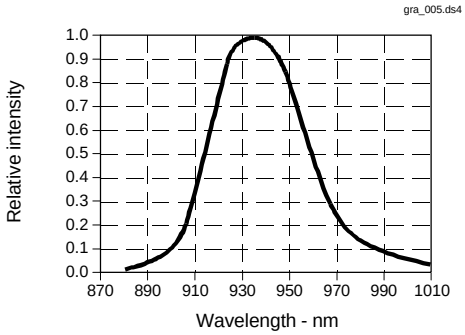
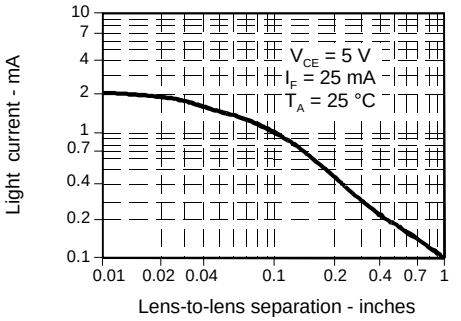


Fig. 6 Coupling Characteristics with SDP8405

gra_029.ds4



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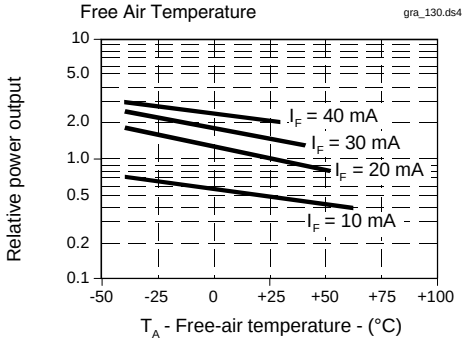
SEP8505

GaAs Infrared Emitting Diode

Fig. 7 Relative Power Output vs Free Air Temperature



All Performance Curves Show Typical Values

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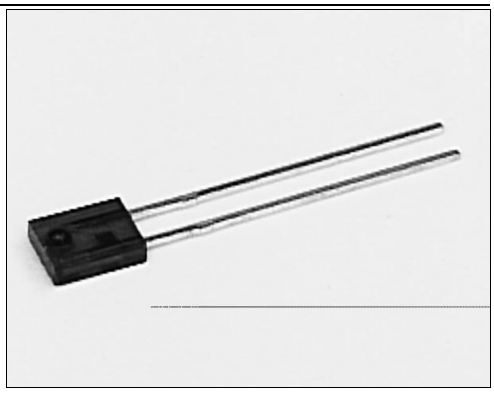
SEP8506

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



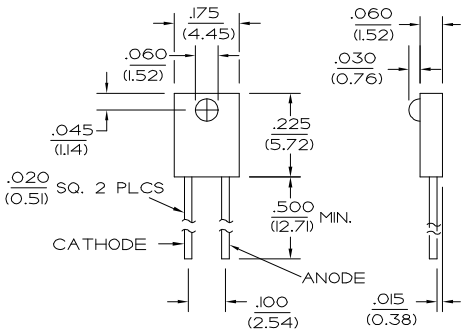
INFRA-20.TIF

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



DIM_071.ds4

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SEP8506

GaAs 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
SEP8506-001		0.05		0.36		
SEP8506-002		0.33		0.52		
SEP8506-003		0.45		0.90		
Forward Voltage	V_F			1.5	V	I_F=20 mA
Reverse Breakdown Voltage	V_{BR}	3.0			V	I_R=10 µA
Peak Output Wavelength	λ_p		935		nm	
Spectral Bandwidth	$\Delta\lambda$		50		nm	
Spectral Shift With Temperature	$\Delta\lambda_p/\Delta_T$		0.3		nm/°C	
Beam Angle (2)	Ø		50		degr.	I_F=Constant
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. Measured in mW/cm² into a 0.104 (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 (1)
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.

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SEP8506

GaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

gra_030.ds4

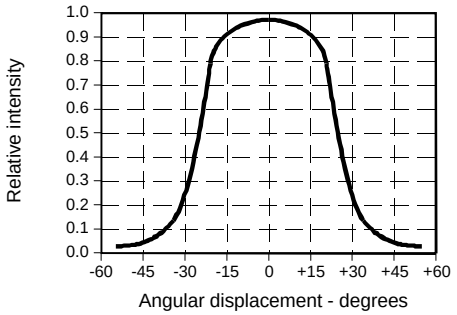


Fig. 2 Radiant Intensity vs Forward Current

gra_028.ds4

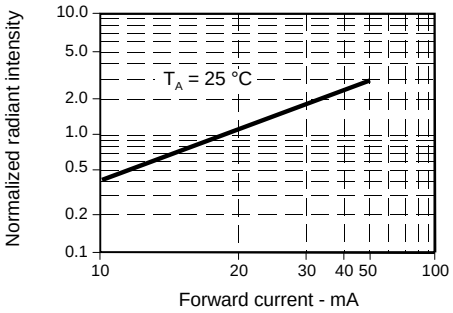


Fig. 3 Forward Voltage vs Forward Current

gra_003.ds4

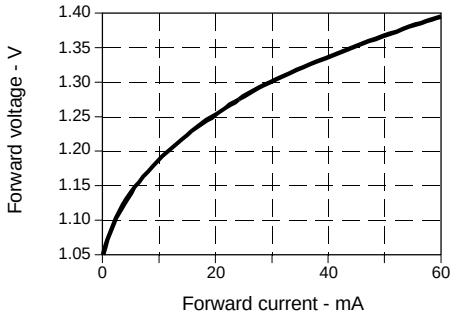


Fig. 4 Forward Voltage vs Temperature

gra_207.ds4

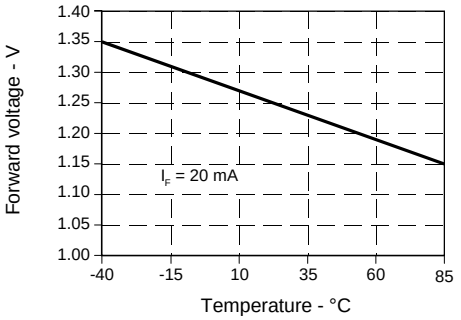


Fig. 5 Spectral Bandwidth

gra_005.ds4

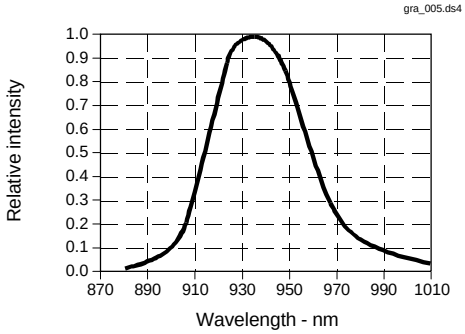
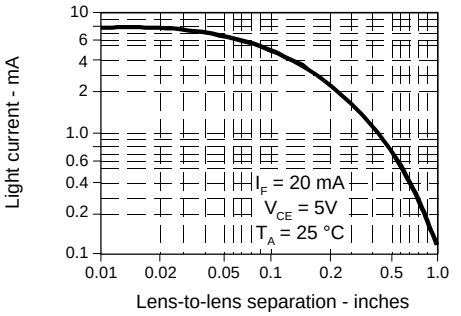


Fig. 6 Coupling Characteristics with SDP8406

gra_031.ds4



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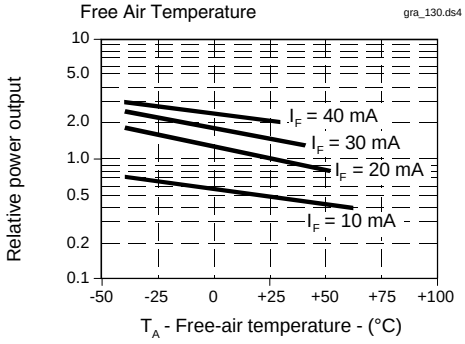
SEP8506

GaAs Infrared Emitting Diode

Fig. 7 Relative Power Output vs Free Air Temperature



All Performance Curves Show Typical Values

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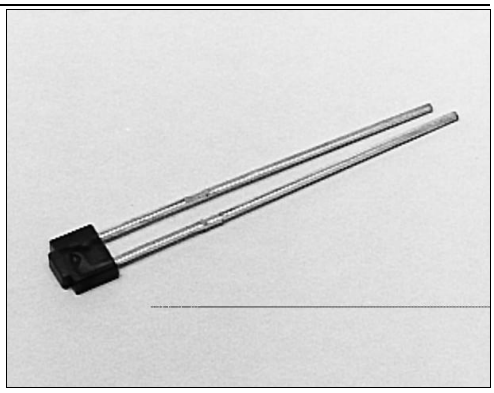
SEP8507

GaAs Infrared Emitting Diode

FEATURES

- End-emitting plastic package
- 135° (nominal) beam angle
- 935 nm wavelength
- Low profile for design flexibility
- Mechanically and spectrally matched to SDP8407 phototransistor



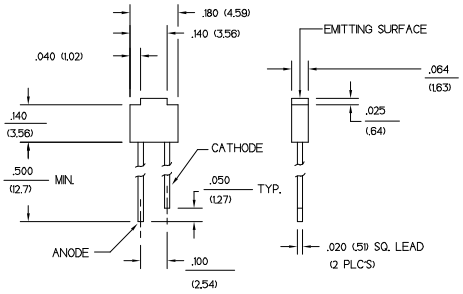
INFRA-18.TIF

DESCRIPTION

The SEP8507 is a gallium arsenide infrared emitting diode molded in an end-emitting red plastic package. The chip is positioned to emit radiation from the top of the package. Lead lengths are staggered to provide a simple method of polarity identification.

OUTLINE DIMENSIONS in inches (mm)

Tolerance	3 plc decimals	±0.008(0.20)
	2 plc decimals	±0.020(0.51)



DIM_009.cdr

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SEP8507

GaAs Infrared Emitting Diode

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Total Power Output SEP8507-001	P_O	0.40			mW	I_F=20 mA
Forward Voltage	V_F			1.5	V	I_F=20 mA
Reverse Breakdown Voltage	V_{BR}	3.0			V	I_R=10 µA
Peak Output Wavelength	λ_p		935		nm	
Spectral Bandwidth	$\Delta\lambda$		50		nm	
Spectral Shift With Temperature	$\Delta\lambda_p/\Delta_T$		0.3		nm/°C	
Beam Angle (1)	Ø		135		degr.	I_F=Constant
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. Beam angle is defined as the total included angle between the half intensity points.

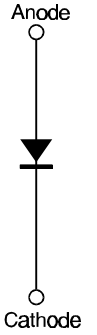
ABSOLUTE MAXIMUM RATINGS

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

Continuous Forward Current	60 mA
Power Dissipation	100 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 0.66 mW/°C.

SCHEMATIC



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SEP8507

GaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

gra_032.ds4

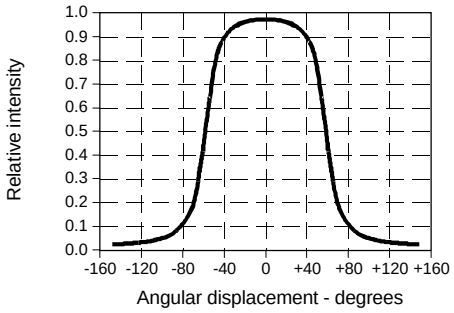


Fig. 2 Radiant Intensity vs Forward Current

gra_028.ds4

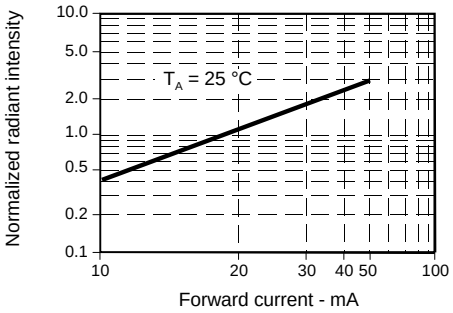


Fig. 3 Forward Voltage vs Forward Current

gra_003.ds4

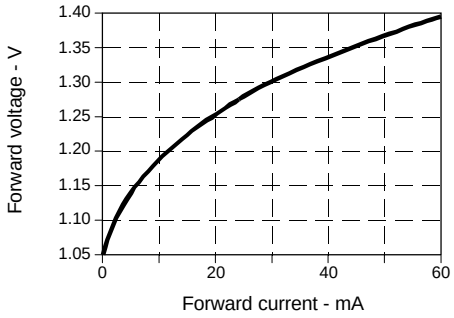


Fig. 4 Forward Voltage vs Temperature

gra_207.ds4

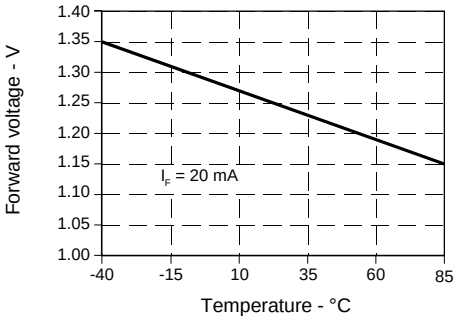


Fig. 5 Spectral Bandwidth

gra_005.ds4

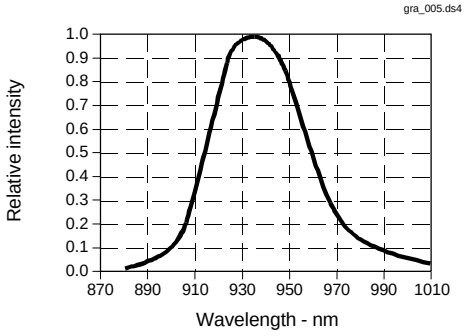
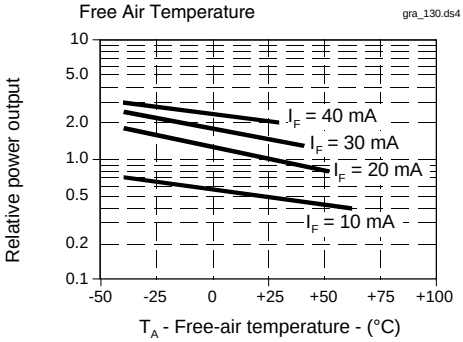


Fig. 6 Relative Power Output vs Free Air Temperature

gra_130.ds4



All Performance Curves Show Typical Values

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SEP8507

GaAs Infrared Emitting Diode

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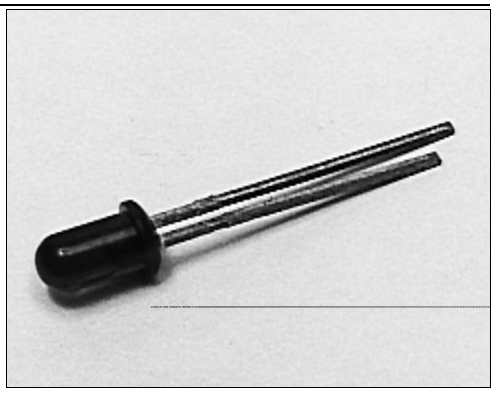
SEP8705

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



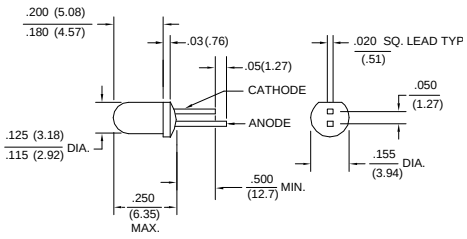
INFRA-55.TIF

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)



DIM_101.ds4

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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.

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SEP8705

AlGaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

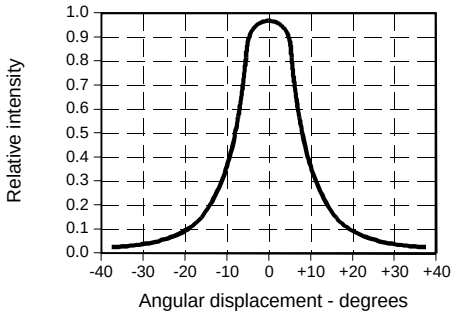


Fig. 2 Radiant Intensity vs Forward Current

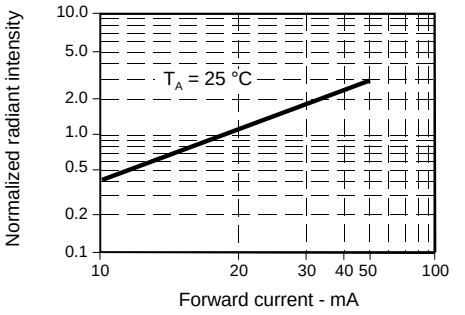


Fig. 3 Forward Voltage vs Forward Current

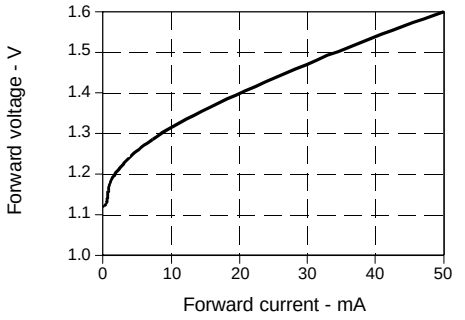


Fig. 4 Forward Voltage vs Temperature

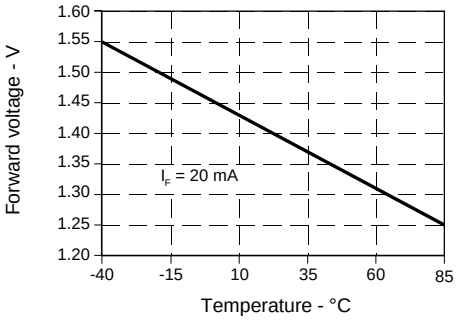


Fig. 5 Spectral Bandwidth

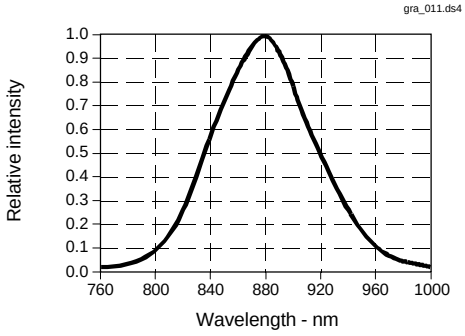
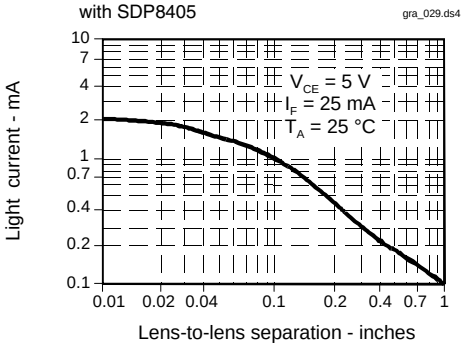


Fig. 6 Coupling Characteristics with SDP8405



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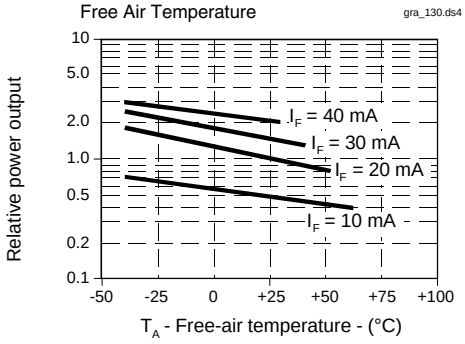
SEP8705

AlGaAs Infrared Emitting Diode

Fig. 7 Relative Power Output vs Free Air Temperature



All Performance Curves Show Typical Values

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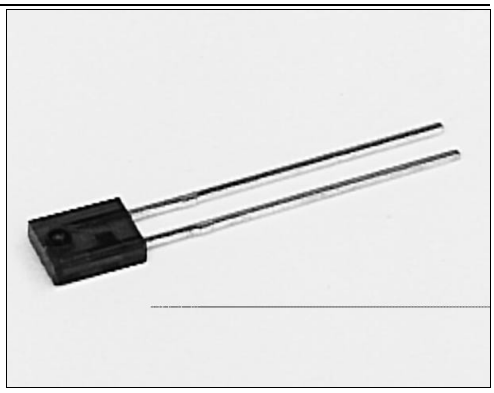
SEP8706

AlGaAs Infrared Emitting Diode

FEATURES

- Side-looking plastic package
- 50° (nominal) beam angle
- 880 nm wavelength
- Higher output power than GaAs at equivalent drive currents
- Mechanically and spectrally matched to SDP8406 phototransistor, SDP8106 photodarlington and SDP8000/8600 series Schmitt trigger



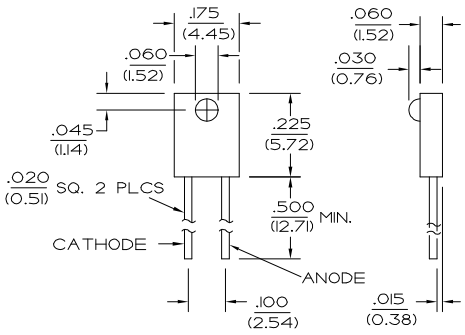
INFRA-20.TIF

DESCRIPTION

The SEP8706 is an aluminum gallium arsenide infrared emitting diode molded in a side-emitting smoke gray plastic package. The chip is positioned to emit radiation through a plastic lens from the side of the package. These devices typically exhibit 70% greater power intensity than gallium arsenide devices at the same forward current.

OUTLINE DIMENSIONS in inches (mm)

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



DIM_071.ds4

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SEP8706

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
SEP8706-001		0.20				
SEP8706-002		0.45		2.6		
SEP8706-003		0.65				
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		50		degr.	I_F=Constant
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. Measured in mW/cm² into a 0.104 (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 [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 0.78 mW/°C.

SCHEMATIC

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SEP8706

AlGaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

gra_030.ds4

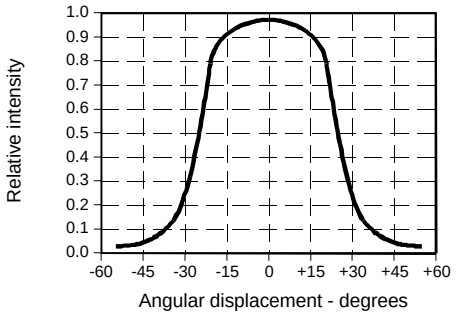


Fig. 2 Radiant Intensity vs Forward Current

gra_028.ds4

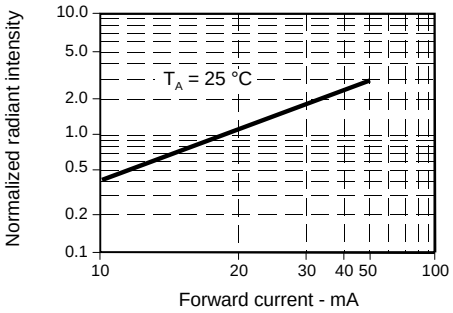


Fig. 3 Forward Voltage vs Forward Current

gra_201.ds4

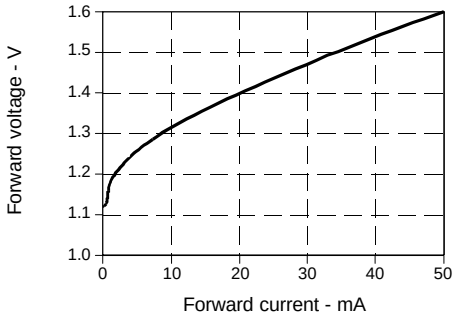


Fig. 4 Forward Voltage vs Temperature

gra_208.ds4

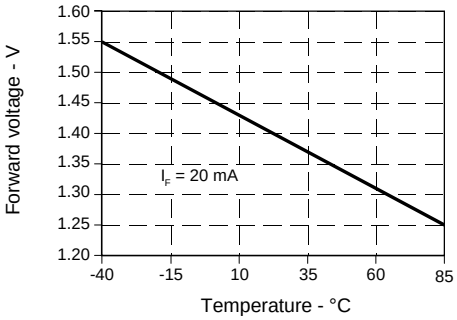


Fig. 5 Spectral Bandwidth

gra_011.ds4

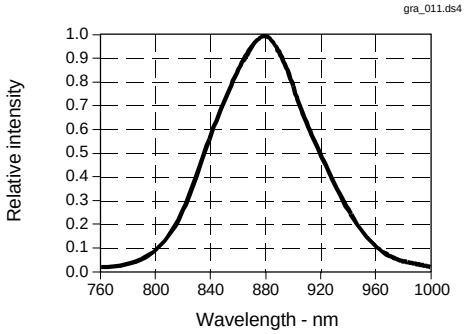
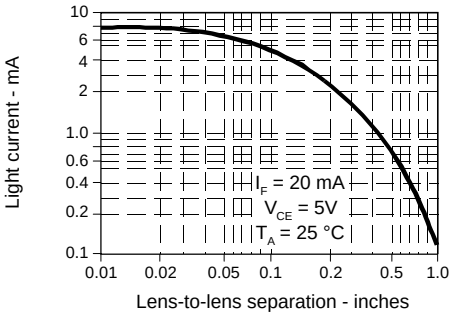


Fig. 6 Coupling Characteristics with SDP8406

gra_031.ds4



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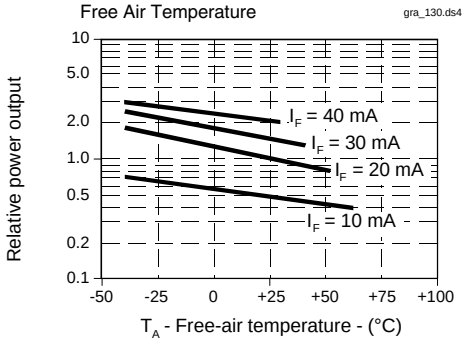
SEP8706

AlGaAs Infrared Emitting Diode

Fig. 7 Relative Power Output vs Free Air Temperature



All Performance Curves Show Typical Values

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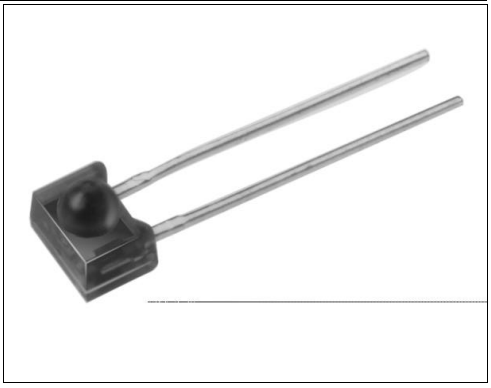
SEP8736

AlGaAs Infrared Emitting Diode

FEATURES

- Side-looking plastic package
- 10° (nominal) beam angle
- 880 nm wavelength
- Enhanced coupling distance
- Mechanically and spectrally matched to SDP8436 phototransistor



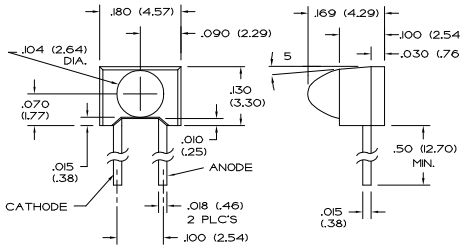
INFRA-80.TIF

DESCRIPTION

The SEP8736 is an aluminum gallium arsenide infrared emitting diode molded in a side-emitting smoke gray plastic package. The body and integral lens design combines the mounting advantage of a side-emitting package with the narrow emission pattern of a T-1 style device. The SEP8736 IRED is designed for those applications which require longer coupling distances than standard side-emitting devices can provide, such as touch screens. The IRED is also especially well suited to applications in which adjacent channel crosstalk could be a problem.

OUTLINE DIMENSIONS in inches (mm)

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



DIM_070.ds4

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SEP8736

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
SEP8736-001		0.5				
SEP8736-002		1.2		3.0		
SEP8736-003		1.7				
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		10		degr.	I_F=Constant
Radiation Rise And Fall Time	t_r, t_f		0.7		µs	

Notes
1. Measured in mW/cm² into a 0.104 (2.64) diameter aperture placed 0.500(12.7) from the lens tip.
2. Beam angle is defined as the total included angle between the half intensity points.

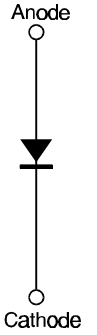
ABSOLUTE MAXIMUM RATINGS

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

Continuous Forward Current	50 mA
Power Dissipation	100 mW [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 0.78 mW/°C.

SCHEMATIC



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SEP8736

AlGaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement

gra_097.ds4

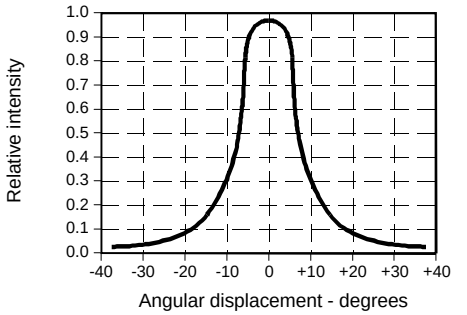


Fig. 2 Radiant Intensity vs Forward Current

gra_033.ds4

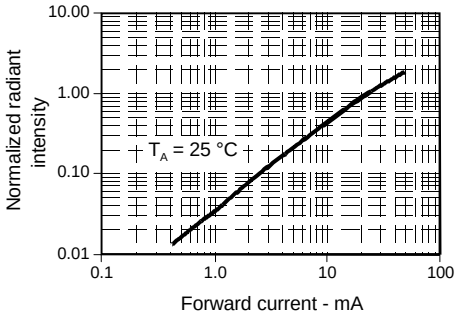


Fig. 3 Forward Voltage vs Forward Current

gra_201.ds4

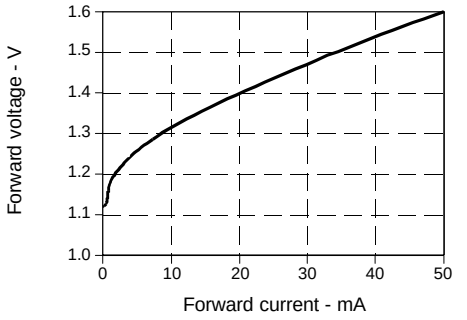


Fig. 4 Forward Voltage vs Temperature

gra_208.ds4

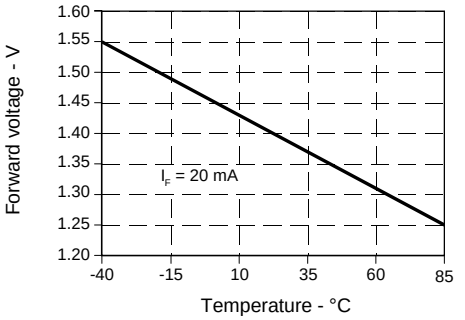


Fig. 5 Spectral Bandwidth

gra_011.ds4

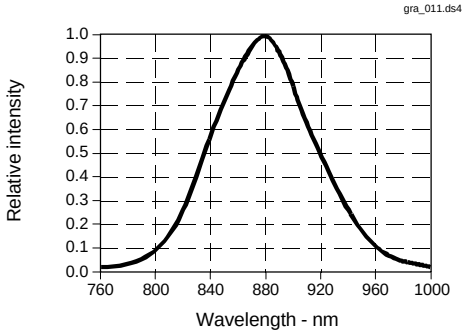
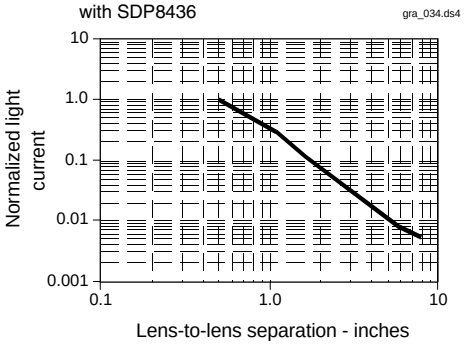


Fig. 6 Coupling Characteristics with SDP8436

gra_034.ds4



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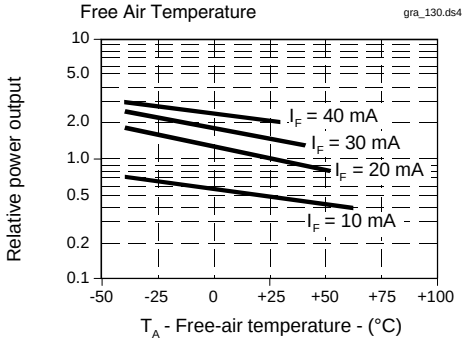
SEP8736

AlGaAs Infrared Emitting Diode

Fig. 7 Relative Power Output vs Free Air Temperature



All Performance Curves Show Typical Values

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