



**THE DATASHEET OF  
SE5470-002**

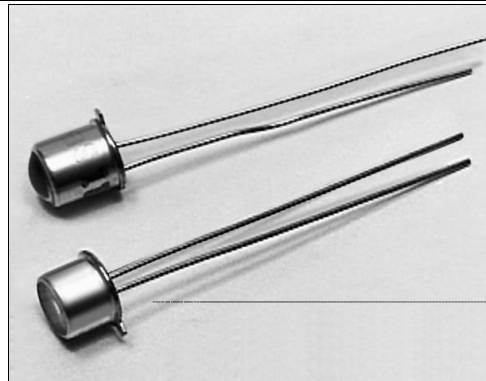


# SE3470/5470

## 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, SD3443/5443/5491 phototransistor, SD3410/5410 photodarlington and SD5600 series Schmitt trigger



INFRA-83.TIF

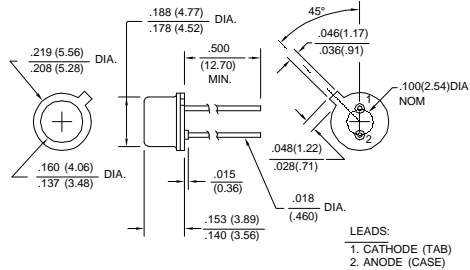
### DESCRIPTION

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)

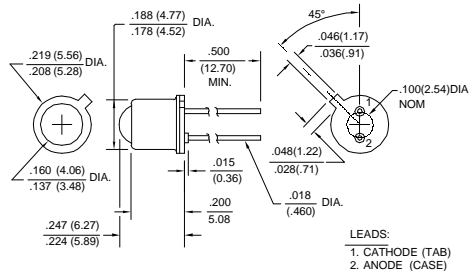
Tolerance	3 plc decimals	±0.005(0.12)
	2 plc decimals	±0.020(0.51)

### SE3470



DIM\_005a.ds4

### SE5470



DIM\_005b.ds4

# SE3470/5470

## AlGaAs Infrared Emitting Diode

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Total Power Output <sup>(1)</sup>	P <sub>o</sub>				mW	I <sub>F</sub> =100 mA
SE3470-001		7.0				
SE3470-002		9.0				
SE3470-003		10.5				
SE5470-001		7.0				
Irradiance <sup>(2)</sup>	H				mW/cm <sup>2</sup>	I <sub>F</sub> =100 mA
SE5470-002		1.5				
SE5470-003		2.6	5.9			
SE5470-004		3.5				
Forward Voltage	V <sub>F</sub>			1.9	V	I <sub>F</sub> =100 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>(3)</sup>	∅				degr.	I <sub>F</sub> =Constant
SE3470			90			
SE5470			20			
Radiation Rise And Fall Time	t <sub>r</sub> , t <sub>f</sub>		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
(1 μs pulse width, 300 pps)	
Power Dissipation	150 mW <sup>(1)</sup>
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



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

# Honeywell

# SE3470/5470

## AlGaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement (SE3470) gra\_017.ds4

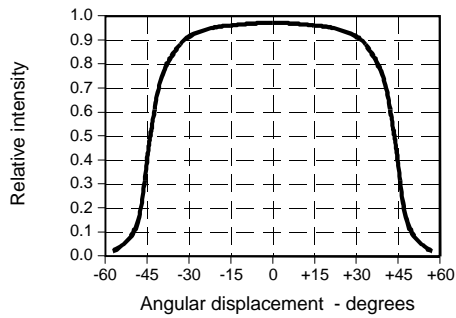


Fig. 2 Radiant Intensity vs Angular Displacement (SE5470) gra\_023.ds4

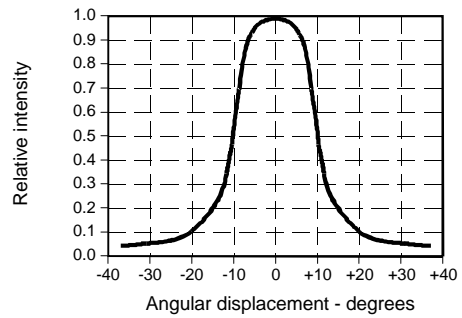


Fig. 3 Radiant Intensity vs Forward Current gra\_018.ds4

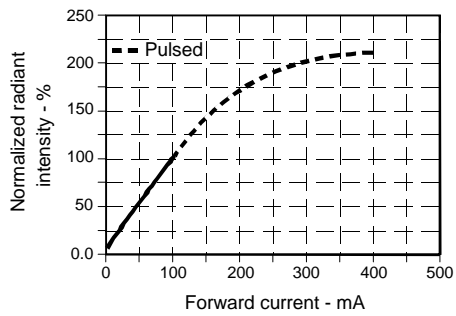


Fig. 4 Forward Voltage vs Forward Current gra\_026.ds4

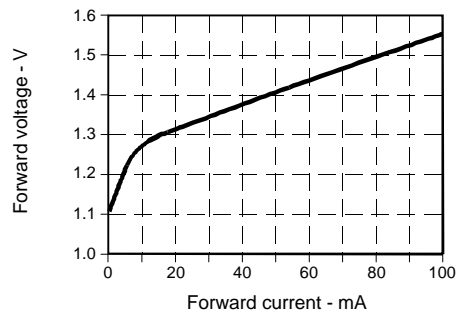


Fig. 5 Forward Voltage vs Temperature gra\_025.ds4

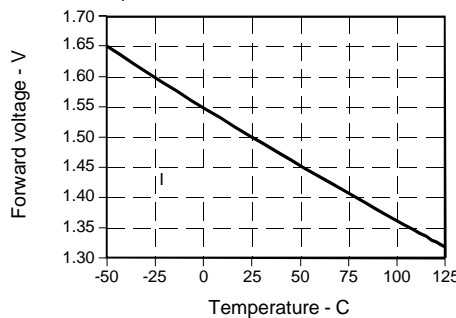
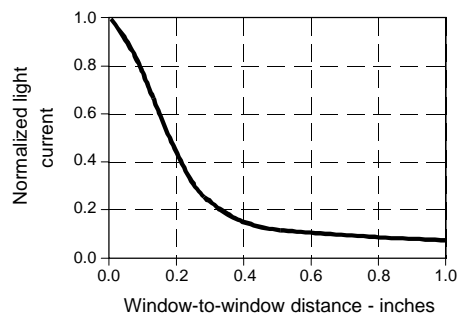


Fig. 6 Coupling Characteristics SE3470 with SD3443 gra\_021.ds4



# SE3470/5470

## AlGaAs Infrared Emitting Diode

Fig. 7 Spectral Bandwidth

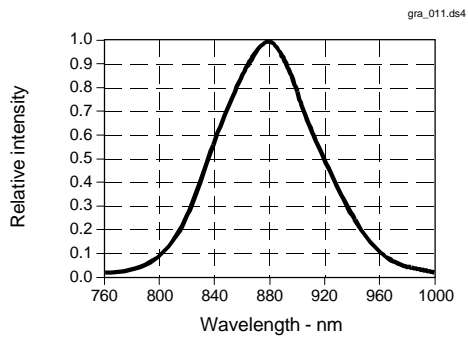


Fig. 8 Radiant Intensity vs Case Temperature

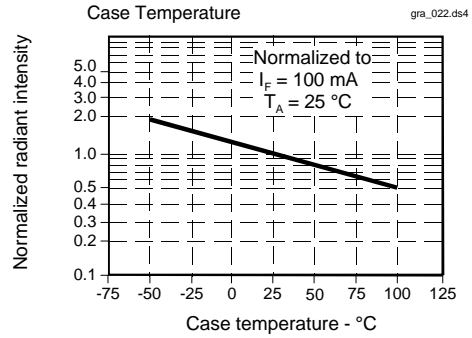
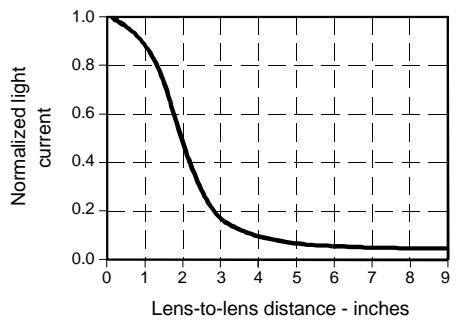


Fig. 9 Coupling Characteristics  
SE5470 with SD5443



All Performance Curves Show Typical Values

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