



**THE DATASHEET OF  
SE5455-001**

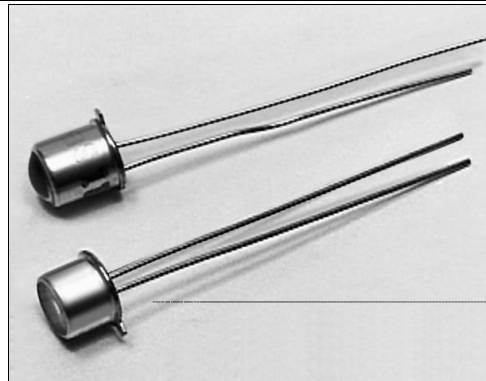


# SE3455/5455

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



INFRA-83.TIF

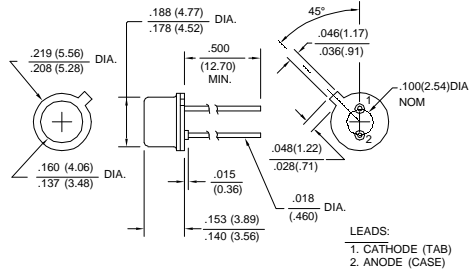
### DESCRIPTION

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)

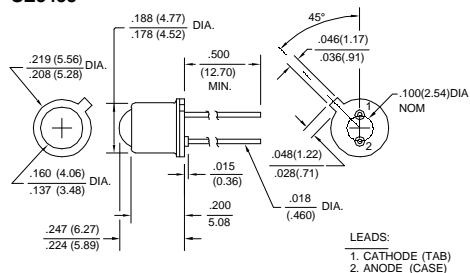
Tolerance 3 plc decimals ±0.005(0.12)  
2 plc decimals ±0.020(0.51)

#### SE3455



DIM\_005a.ds4

#### SE5455



DIM\_005b.ds4

# 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	$I_F=100\text{ mA}$
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	$I_F=100\text{ mA}$
Reverse Breakdown Voltage	$V_{BR}$	3.0			V	$I_R=10\text{ }\mu\text{A}$
Peak Output Wavelength	$\lambda_p$		935		nm	
Spectral Bandwidth	$\Delta\lambda$		50		nm	
Spectral Shift With Temperature	$\Delta\lambda_p/\Delta T$		0.3		nm/°C	
Beam Angle <sup>(1)</sup>	$\emptyset$				degr.	$I_F=\text{Constant}$
SE3455			90			
SE5455			20			
Radiation Rise And Fall Time	$t_r, t_f$		0.7		$\mu\text{s}$	

#### Notes

- 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 $\mu\text{s}$ 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

- 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

# SE3455/5455

## GaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement (SE3455) gra\_017.ds4

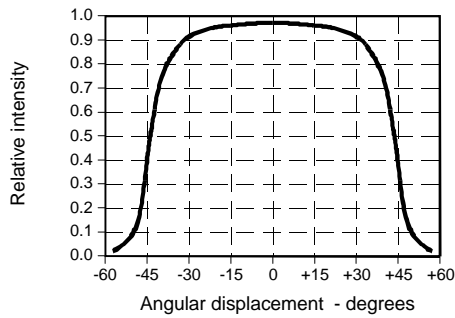


Fig. 2 Radiant Intensity vs Angular Displacement (SE5455) gra\_023.ds4

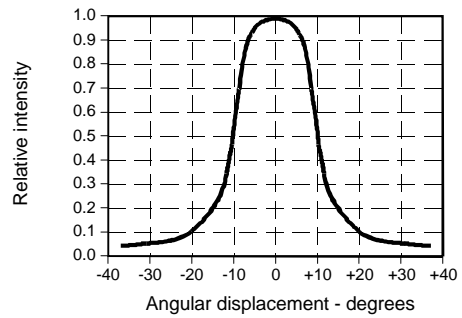


Fig. 3 Radiant Intensity vs Forward Current gra\_018.ds4

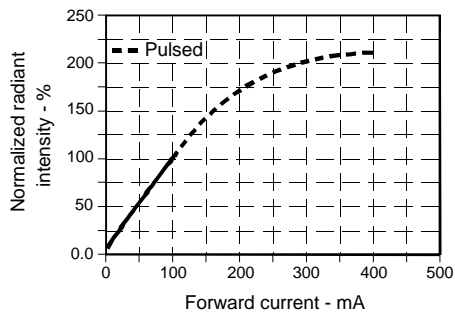


Fig. 4 Forward Voltage vs Forward Current gra\_019.ds4

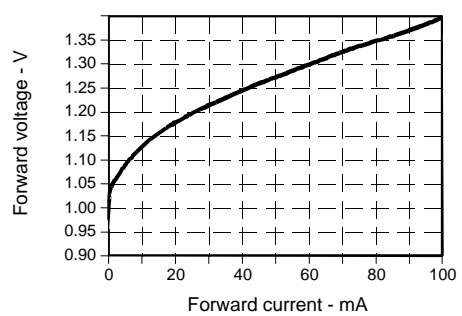


Fig. 5 Forward Voltage vs Temperature gra\_020.ds4

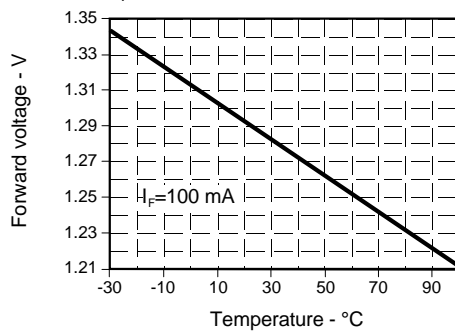
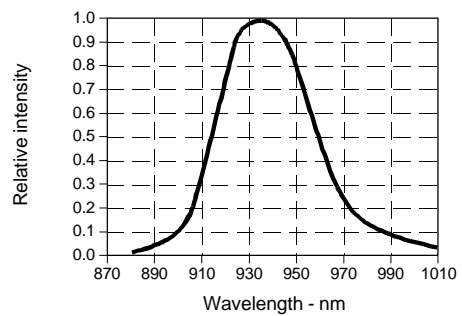


Fig. 6 Spectral Bandwidth gra\_005.ds4



# SE3455/5455

## GaAs Infrared Emitting Diode

Fig. 7 Coupling Characteristics  
SE3455 with SD3443 gra\_021.ds4

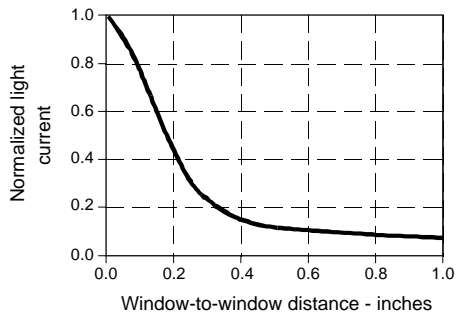


Fig. 8 Coupling Characteristics  
SE5455 with SD5443 gra\_024.ds4

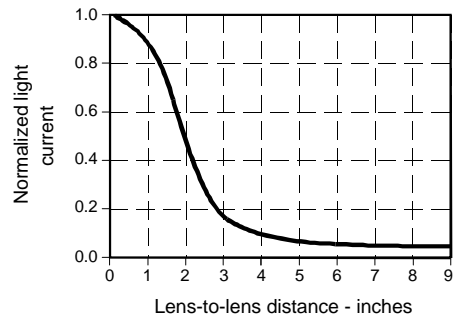
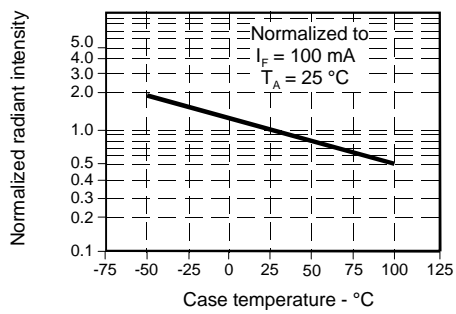




Fig. 9 Radiant Intensity vs  
Case Temperature gra\_022.ds4



All Performance Curves Show Typical Values

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