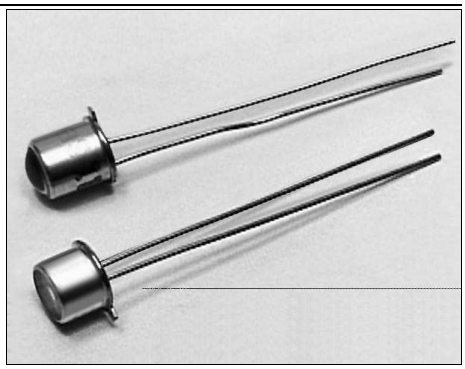
# SE3455/5455

## 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



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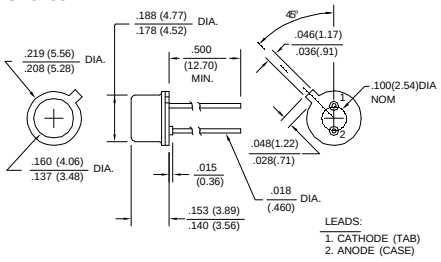
### DESCRIPTION

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**

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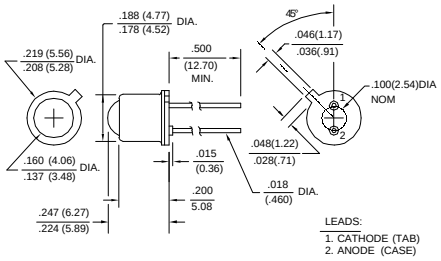
**SE5455**

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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 | $\lambda_P$ | | 935 | | nm | |
| Spectral Bandwidth | $\Delta\lambda$ | | 50 | | nm | |
| Spectral Shift With Temperature | $\Delta\lambda_P/\Delta_T$ | | 0.3 | | nm/°C | |
| Beam Angle (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.

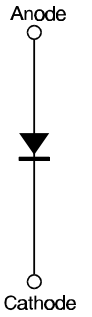
**ABSOLUTE MAXIMUM RATINGS**

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

| | |
|---|---|
| Continuous Forward Current | 100 mA |
| Peak Forward Current (1µs pulse width, 300 pps) | 3 A |
| 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**



# SE3455/5455

## GaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement (SE3455)

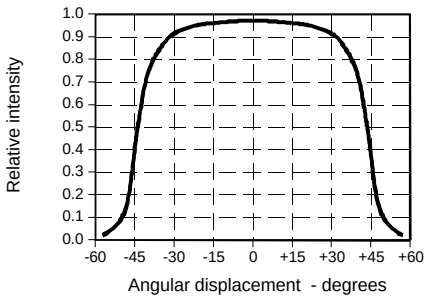



Fig. 2 Radiant Intensity vs Angular Displacement (SE5455)

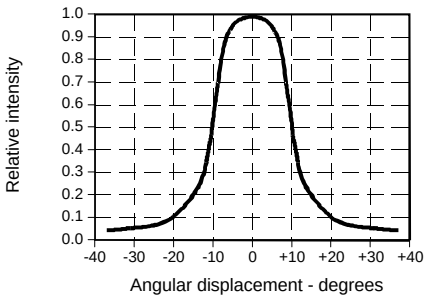



Fig. 3 Radiant Intensity vs Forward Current

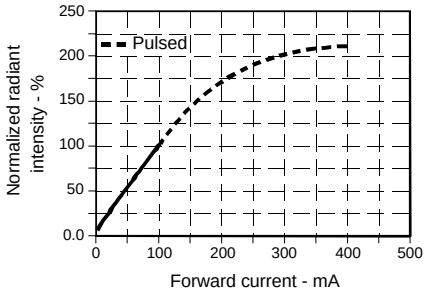



Fig. 4 Forward Voltage vs Forward Current

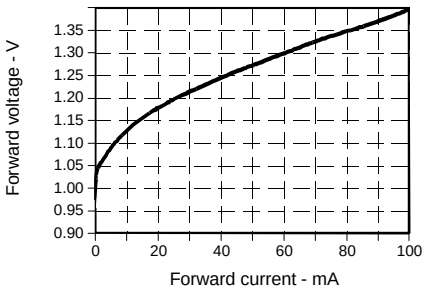



Fig. 5 Forward Voltage vs Temperature

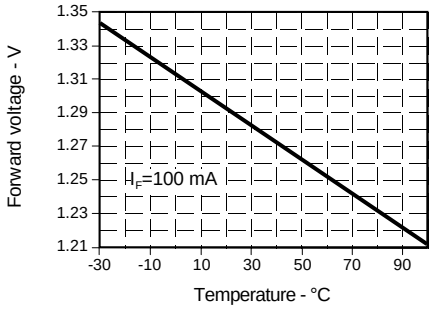



Fig. 6 Spectral Bandwidth

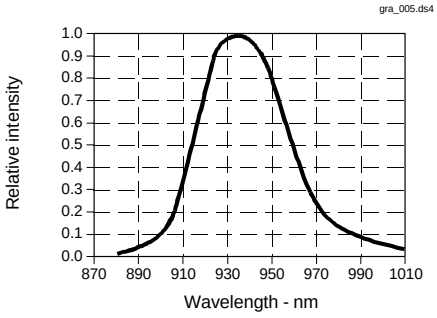





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Fig. 7 Coupling Characteristics
SE3455 with SD3443

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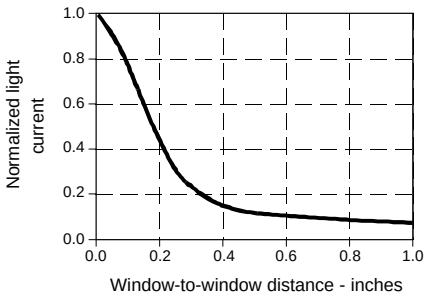


Fig. 8 Coupling Characteristics
SE5455 with SD5443

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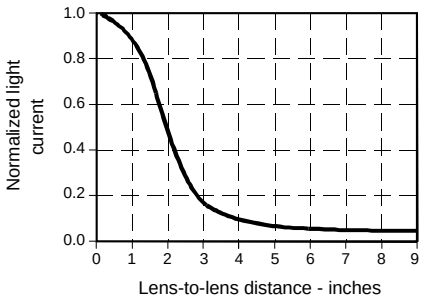


Fig. 9 Radiant Intensity vs
Case Temperature

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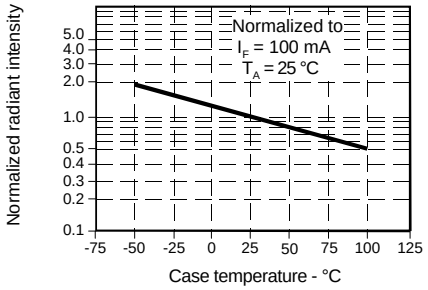


All Performance Curves Show Typical Values