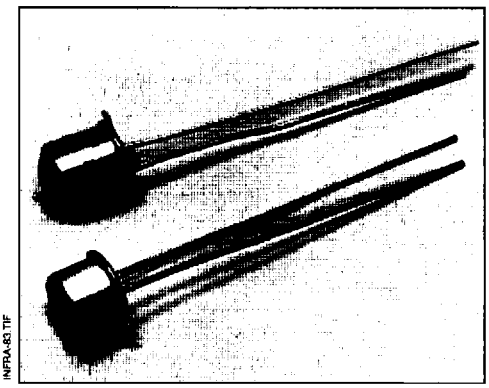
# SE3470/5470

## 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



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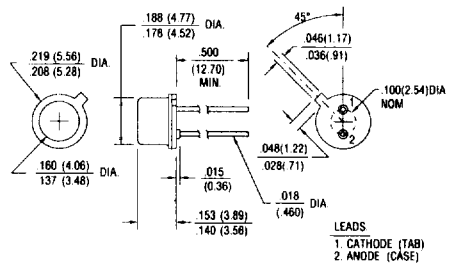
**DESCRIPTION**

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**

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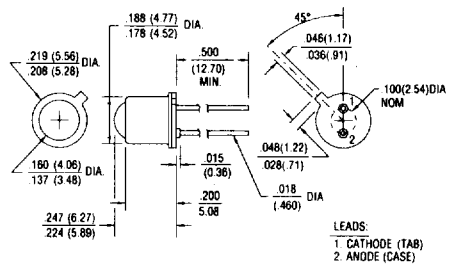
**SE5470**

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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 | $\lambda_p$ | | 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 (1 µs Pulse Width, 300 pps) | 3 A |
| Power Dissipation | 150 mA[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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# SE3470/5470

## AlGaAs Infrared Emitting Diode

Fig. 1 Radiant Intensity vs Angular Displacement (SE3470)

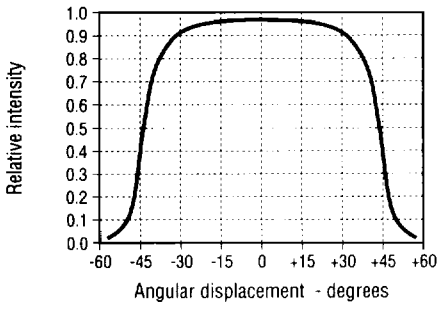


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Fig. 2 Radiant Intensity vs Angular Displacement (SE5470)

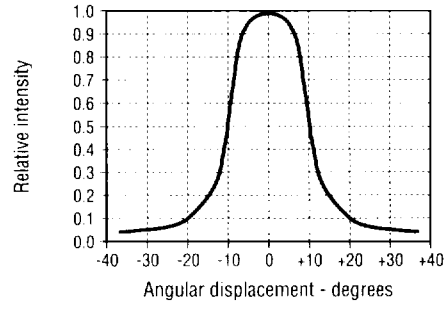


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Fig. 3 Radiant Intensity vs Forward Current

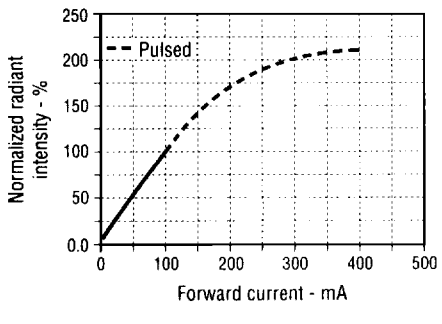


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Fig. 4 Forward Voltage vs Forward Current

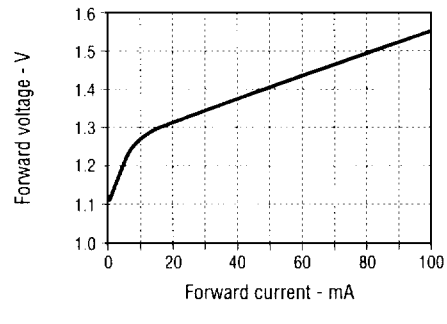


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Fig. 5 Forward Voltage vs Temperature

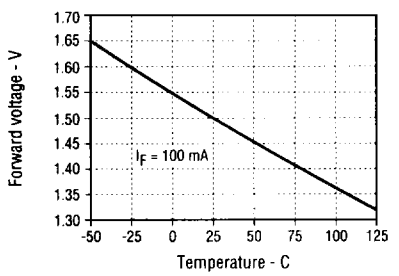


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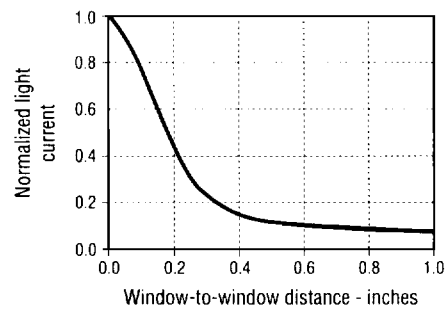
Fig. 6 Coupling Characteristics SE3470 with SD3443

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All Performance Curves Show Typical Values

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## AlGaAs Infrared Emitting Diode

Fig. 7 Spectral Bandwidth

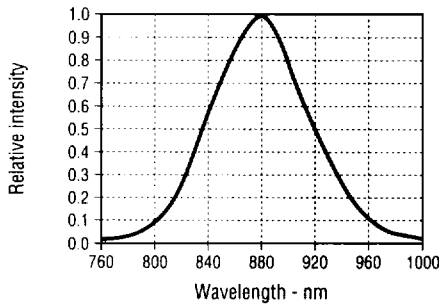



Fig. 8 Radiant Intensity vs Case Temperature

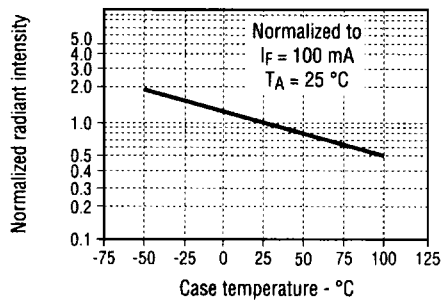
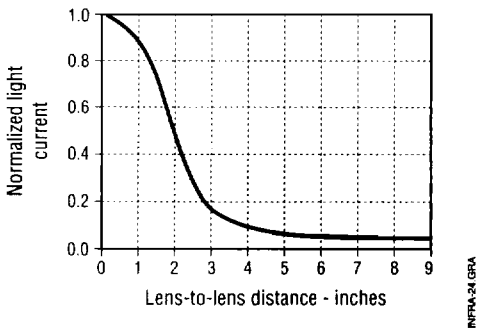



Fig. 9 Coupling Characteristics SE5470 with SD5443



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