# SD5491

## Silicon Phototransistor

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

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Light Current | $I_L$ | | | | mA | $V_{CE}$=5 V |
| SD5491-001 | | 0.50 | | | | H=1.5 mW/cm² (1) |
| SD5491-002 | | 0.50 | | 3.00 | | |
| SD5491-003 | | 2.00 | | 5.00 | | |
| SD5491-004 | | 4.00 | | 8.00 | | |
| SD5491-005 | | 7.00 | | 22.0 | | |
| SD5491-006 | | 15.0 | | | | |
| Collector Dark Current | $I_{CEO}$ | | | 100 | nA | $V_{CE}$=10 V, H=0 |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 30 | | | V | $I_C$=100 µA |
| Emitter-Collector Breakdown Voltage | $V_{(BR)ECO}$ | 5.0 | | | V | $I_E$=100 µA |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | | | 0.4 | V | $I_C$=0.4 mA<br>H=1.5 mW/cm² |
| Angular Response (2) | Ø | | 12 | | degr. | $I_F$=Constant |
| Rise And Fall Time | $t_r$, $t_f$ | | 2.0 | | µs | $V_{CC}$=5 V, $I_L$=1 mA<br>$R_L$=100 Ω |

Notes
1. The radiation source is an IRED with a peak wavelength of 935 nm.
2. Angular response is defined as the total included angle between the half sensitivity points.

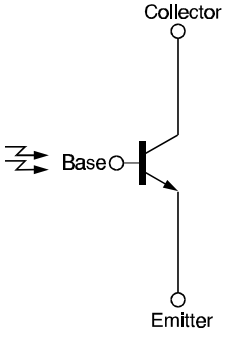
**ABSOLUTE MAXIMUM RATINGS**

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

| | |
|---|---|
| Collector-Emitter Voltage | 30 V |
| Emitter-Collector Voltage | 5 V |
| 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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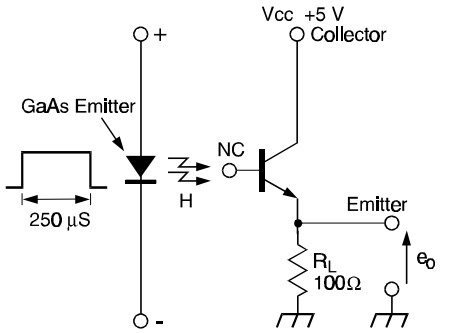
### SWITCHING TIME TEST CIRCUIT

cir_003.cdr




cir_029.cdr

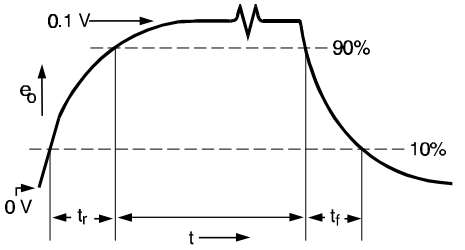



Fig. 1 Responsivity vs Angular Displacement

gra_042.ds4

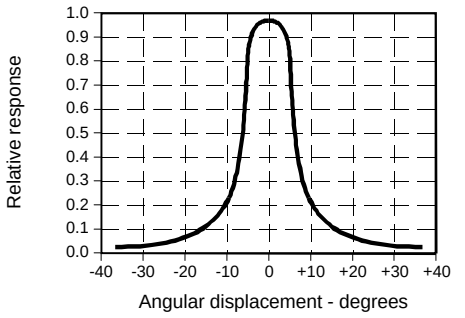



Fig. 2 Collector Current vs Irradiance

gra_043.ds4

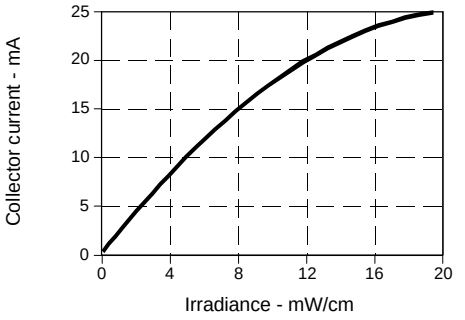



Fig. 3 Dark Current vs Temperature

gra_044.ds4

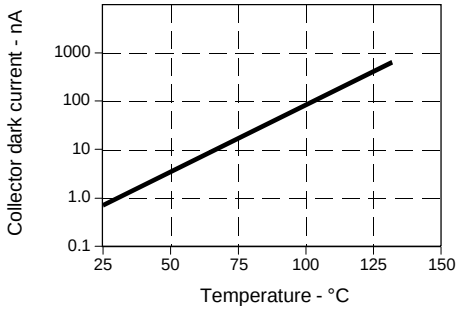



Fig. 4 Rise and Fall Time vs Load Resistance

gra_045.ds4

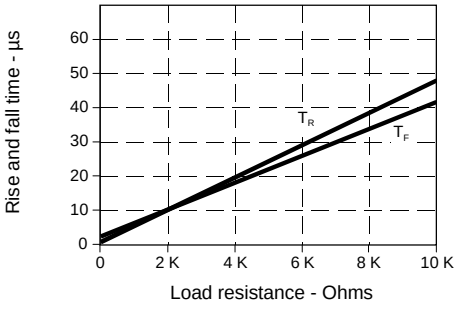





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Fig. 5 Spectral Responsivity

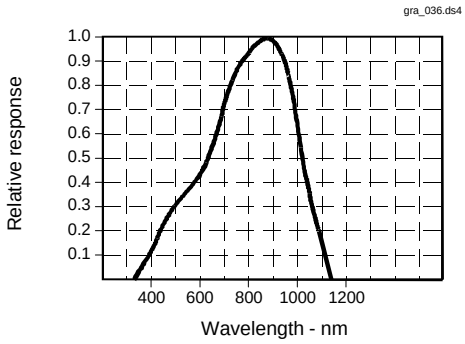



Fig. 6 Coupling Characteristics with SE5470

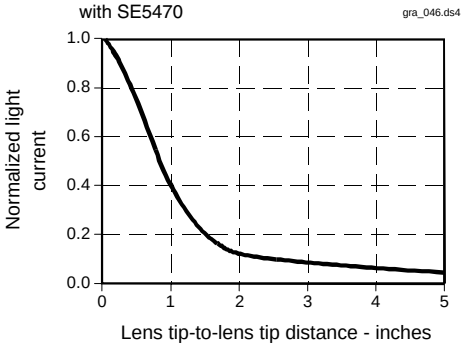
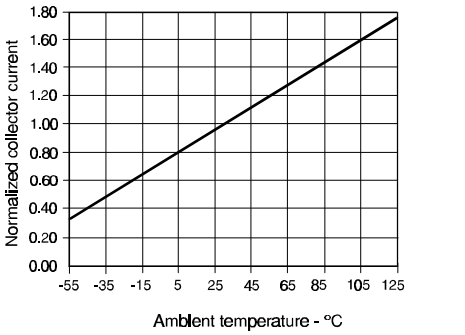



Fig. 7 Collector Current vs Ambient Temperature




All Performance Curves Show Typical Values