

NPN Silicon Phototransistor

OP599 Series



Features:

- Dark blue injection-molded plastic package
- Variety of sensitivity ranges
- T-1¾ package style with TO-18 base
- Excellent optical lens surface
- Excellent chip placement

Description:

Each device in this series consists of a NPN silicon phototransistor mounted in a dark blue plastic injection molded shell package, with a narrow receiving angle that provides excellent on-axis coupling and optical/mechanical axis alignment. The shell also provides excellent optical lens surface, control of chip placement and consistency of the outside package dimensions.

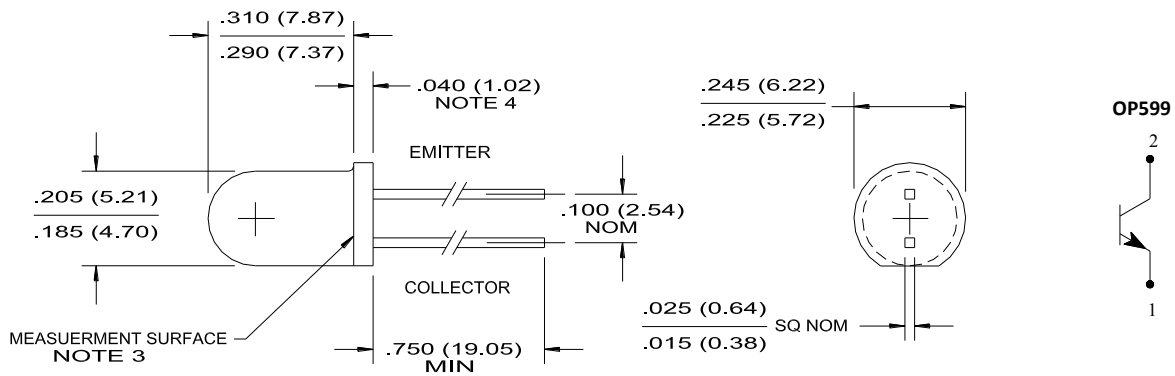
The **OP599** series sensors are 100% production tested for close correlation with OPTEK GaAIAs emitters.

Please refer to Application Bulletins 208 and 210 for additional design information and reliability (degradation) data.

Applications:

- Applications requiring a narrow receiving angle
- Applications that are space-limited

| Ordering Information | | | |
|----------------------|------------|---------------|-------------|
| Part Number | Sensor | Viewing Angle | Lead Length |
| OP599A | Transistor | 20° | 0.75" |
| OP599B | | | |
| OP599C | | | |



DIMENSIONS ARE IN: [MILLIMETERS]
INCHES



| Pin # | Sensor |
|-------|-----------|
| 1 | Emitter |
| 2 | Collector |

CONTAINS POLYSULFONE
To avoid stress cracking, we suggest using ND Industries' **Vibra-Tite** for thread-locking. **Vibra-Tite** evaporates fast without causing structural failure in OPTEK'S molded plastics.

General Note
TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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Electrical Specifications

| Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted) | |
|---|---|
| Storage and Operating Temperature Range | -40°C to $+100^\circ\text{C}$ |
| Collector-Emitter Voltage | 30 V |
| Emitter-Collector Voltage | 5 V |
| Continuous Collector Current | 50 mA |
| Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron] | $260^\circ\text{C}^{(1)}$ |
| Power Dissipation | 100 mW ⁽²⁾ |

| Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|--------------------------------------|------|-----|------|-------|--|
| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
| $I_{C(ON)}$ | On-State Collector Current | | | | | See Note (3). |
| | OP599A | 2.35 | - | 3.85 | mA | |
| | OP599B | 1.20 | - | 1.95 | mA | |
| | OP599C | 0.40 | - | - | mA | |
| I_{CEO} | Collector-Dark Current | - | - | 100 | nA | $V_{CE} = 10.0\text{ V}$, $E_E = 0$ |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | 30 | - | - | V | $I_C = 100\ \mu\text{A}$ |
| $V_{(BR)ECO}$ | Emitter-Collector Breakdown Voltage | 5.0 | - | - | V | $I_E = 100\ \mu\text{A}$ |
| $V_{CE(SAT)}$ | Collector-Emitter Saturation Voltage | - | - | 0.40 | V | $I_C = 100\ \mu\text{A}$, $E_E = 0.25\text{ mW/cm}^2^{(3)}$ |

Notes:

1. RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering. A maximum 20 grams force may be applied to the leads when soldering.
2. Derate linearly 1.33 mW/ $^\circ\text{C}$ above 25°C .
3. $V_{CE} = 5\text{ V}$. Light source is an unfiltered GaAlAs emitting diode operating at peak emission wavelength of 890 nm and $E_{E(APT)}$ of 0.25 mW/cm^2 .
4. This dimension is held to within $\pm 0.005''$ on the flange edge and may vary up to $\pm 0.020''$ in the area of the leads.

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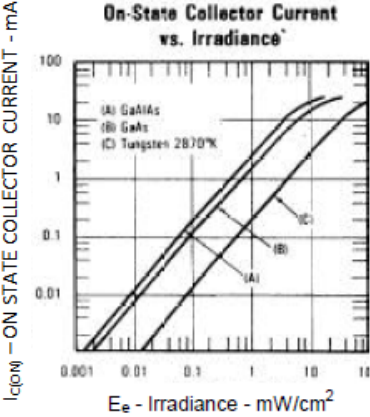
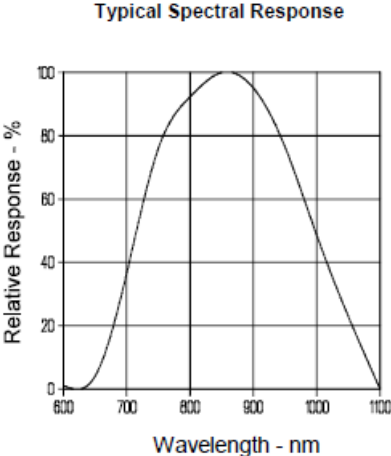
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Performance



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