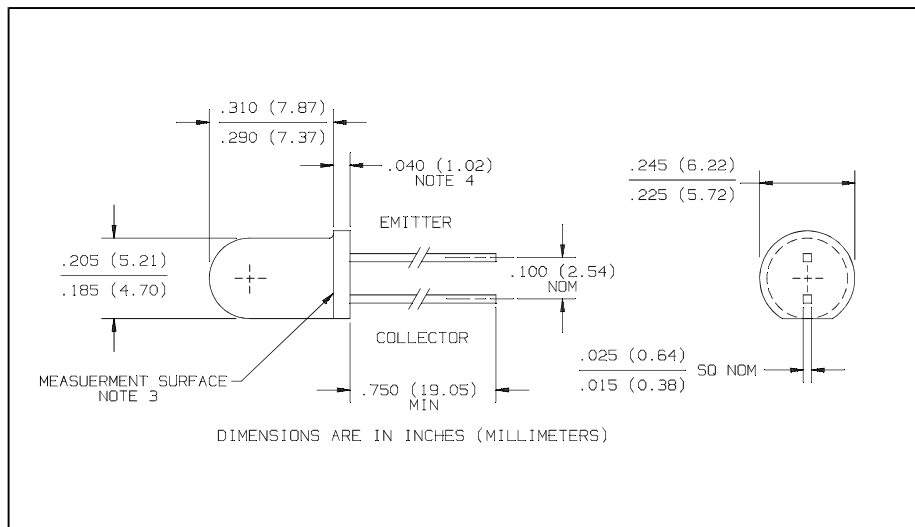


# NPN Plastic Silicon Phototransistors Type OP599 Series



## Features

- Variety of sensitivity ranges
- T-1 3/4 package style

## Description

The OP599 series phototransistor consists of an NPN silicon phototransistor mounted in a dark blue plastic injection molded shell package. The narrow receiving angle provides excellent on-axis coupling. The sensors are 100% production tested for close correlation with Optek GaAlAs emitters.

Optek's packaging process provides excellent optical and mechanical axis alignment. The shell also provides excellent optical lens surface, control of chip placement, and consistency of the outside package dimensions.

## Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

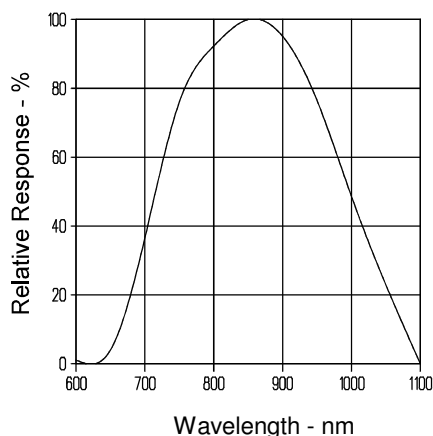
|  |   |
|--|---|
| Collector-Emitter Voltage  | 30 V  |
| Emitter-Collector Voltage  | 5.0 V                                       |
| Continuous Collector Current   | 50 mA                                       |
| Storage and Operating Temperature Range  | $-40^\circ\text{C}$ to $+100^\circ\text{C}$ |
| Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 sec. with soldering iron) | $260^\circ\text{C}^{(1)}$                   |
| Power Dissipation  | 100 mW <sup>(2)</sup>                       |

### Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. Max. 20 grams force may be applied to leads when soldering.
- (2) Derate linearly 1.33 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .
- (3)  $V_{CE} = 5\text{ V}$ . Light source is an unfiltered GaAlAs emitting diode operating at peak emission wavelength of 890 nm and  $E_{e(\text{APT})}$  of .25 mW/cm<sup>2</sup>.
- (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.

## Typical Performance Curves

### Typical Spectral Response



# Types OP599

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           | OP599D | 0.20 |      | mA    | See Note (3)   |
|               |                                      | OP599C | 0.40 |      | mA    | See Note (3)   |
|               |                                      | OP599B | 1.20 | 1.95 | mA    | See Note (3)   |
|               |                                      | OP599A | 2.35 | 3.85 | mA    | See Note (3)   |
| $I_{CEO}$     | Collector Dark Current               |        |      | 100  | nA    | $V_{CE} = 10.0\text{ V}$ , $E_e = 0$                             |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage  | 30     |      |      | V     | $I_C = 100\text{ }\mu\text{A}$                                   |
| $V_{(BR)ECO}$ | Emitter-Collector Breakdown Voltage  | 5.0    |      |      | V     | $I_E = 100\text{ }\mu\text{A}$                                   |
| $V_{CE(SAT)}$ | Collector-Emitter Saturation Voltage |        |      | 0.40 | V     | $I_C = 100\text{ }\mu\text{A}$<br>$E_e = 0.25\text{ mW/cm}^2(3)$ |

## Typical Performance Curves

