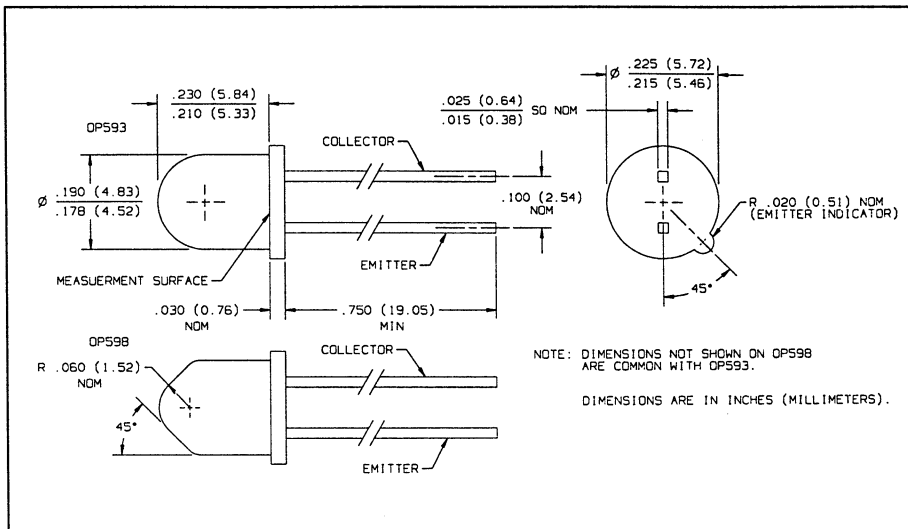
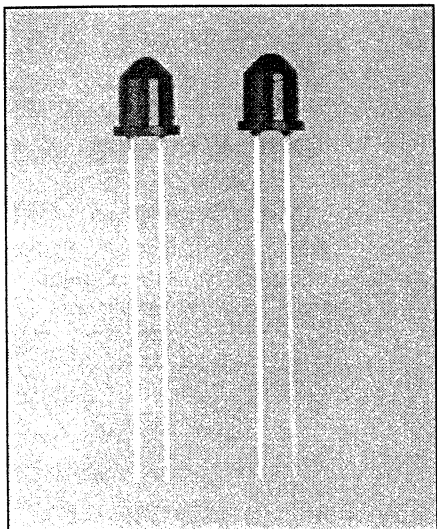


# NPN Plastic Silicon Phototransistors

## Types OP593, OP598 Series



## Features

- Wide receiving angle
- Variety of sensitivity ranges
- TO-18 equivalent package style

### Description

The OP593/598 series consist of NPN silicon phototransistors molded in dark blue epoxy packages. The wide receiving angle provides relatively even reception over a large area. These devices are 100% production tested using infrared light for close correlation with Optek's GaAs and GaAlAs emitters.

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

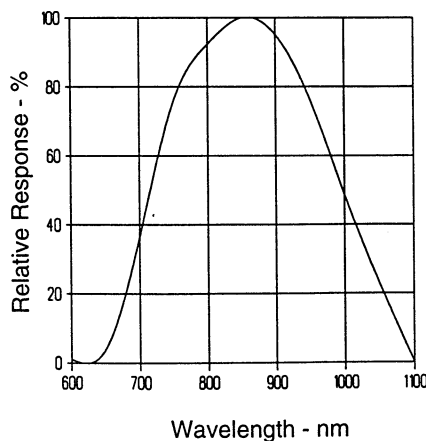
|                                                                                          |                       |
|------------------------------------------------------------------------------------------|-----------------------|
| Collector-Emitter Voltage                                                                | 30 V                  |
| Emitter-Collector Voltage                                                                | 5.0 V                 |
| Continuous Collector Current                                                             | 50 mA                 |
| Storage and Operating Temperature Range                                                  | -40° C to +100° C     |
| Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] | 260° C <sup>(1)</sup> |
| Power Dissipation                                                                        | 250 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 3.33 mW/°C above 25° C.
- (3)  $V_{CE} = 5$  V. Light source is an unfiltered GaAlAs emitting diode operating at peak emission wavelength of 890 nm and  $E_{E(APT)}$  of 1.7 mW/cm<sup>2</sup> average within a .250" dia. aperture.
- (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



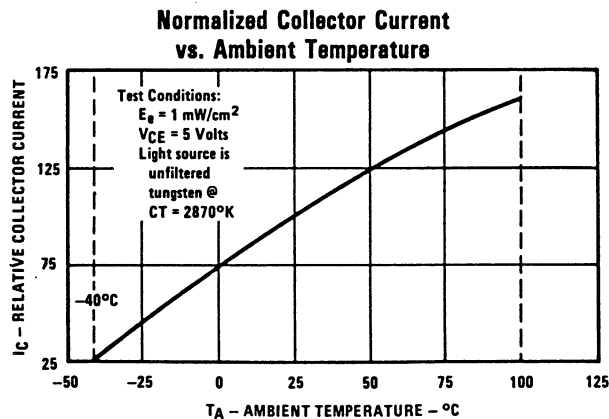
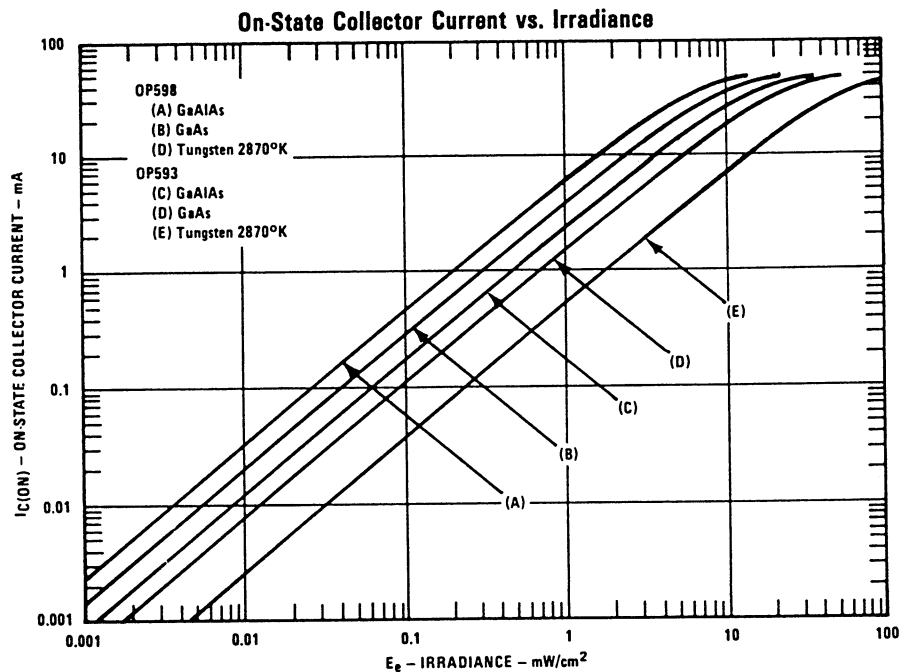
# Types OP593, OP598 Series

Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

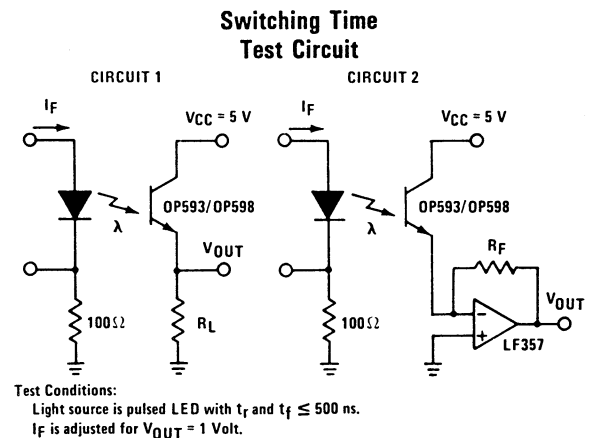
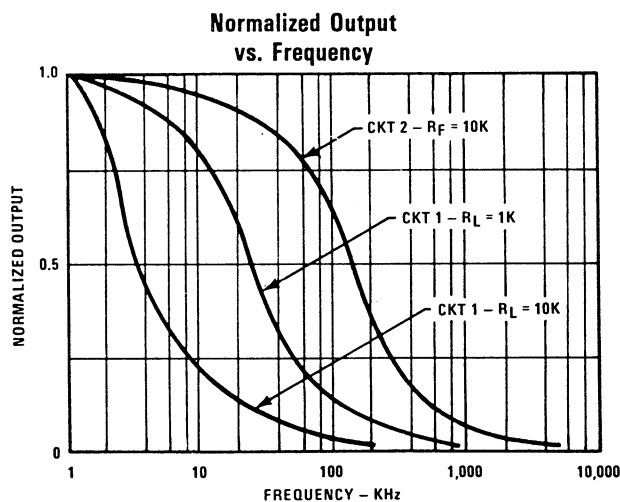
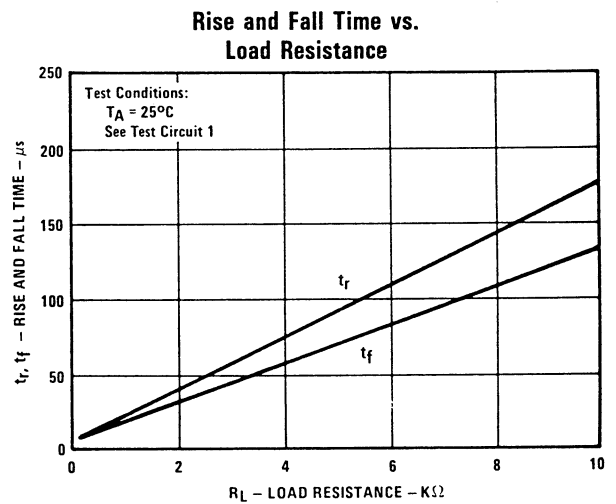
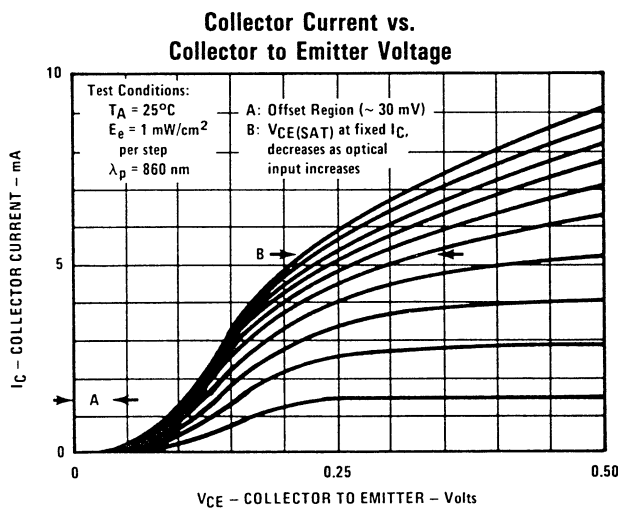
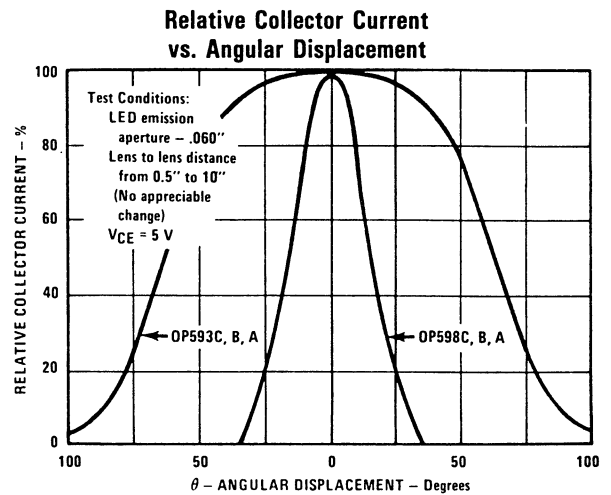
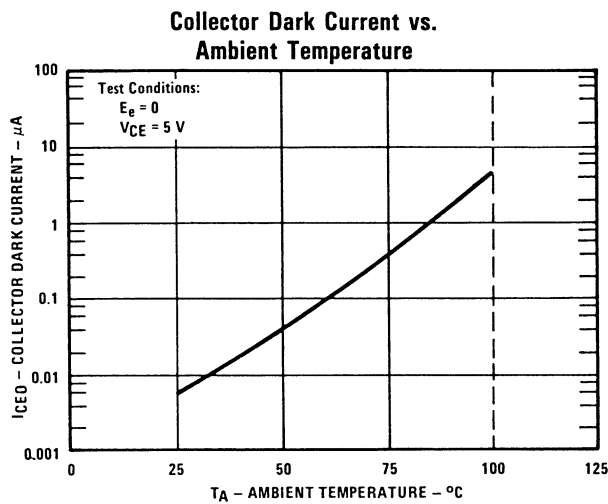
| SYMBOL        | PARAMETER                            | MIN    | TYP | MAX  | UNITS | TEST CONDITIONS                                    |
|---------------|--------------------------------------|--------|-----|------|-------|----------------------------------------------------|
| $I_{C(ON)}$   | On-State Collector Current           | OP593C | 1.0 |      | mA    | See Note (3)                                       |
|               |                                      | OP593B | 2.0 | 4.0  | mA    |                                                    |
|               |                                      | OP593A | 3.0 |      | mA    |                                                    |
|               |                                      | OP598C | 2.5 |      | mA    | See Note (3)                                       |
|               |                                      | OP598B | 5.0 | 10   | mA    |                                                    |
|               |                                      | OP598A | 7.5 |      | mA    |                                                    |
| $I_{CEO}$     | Collector Dark Current               |        |     | 100  | nA    | $V_{CE} = 10\text{ V}, E_e = 0$                    |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage  | 30     |     |      | V     | $I_C = 100\text{ }\mu\text{A}$                     |
| $V_{(BR)ECO}$ | Emitter-Collector Breakdown Voltage  | 5      |     |      | V     | $I_E = 100\text{ }\mu\text{A}$                     |
| $V_{CE(SAT)}$ | Collector-Emitter Saturation Voltage |        |     | 0.40 | V     | $I_C = 0.4\text{ mA}, E_e = 1.7\text{ mW/cm}^2(3)$ |

PHOTOSENSORS

## Typical Performance Curves

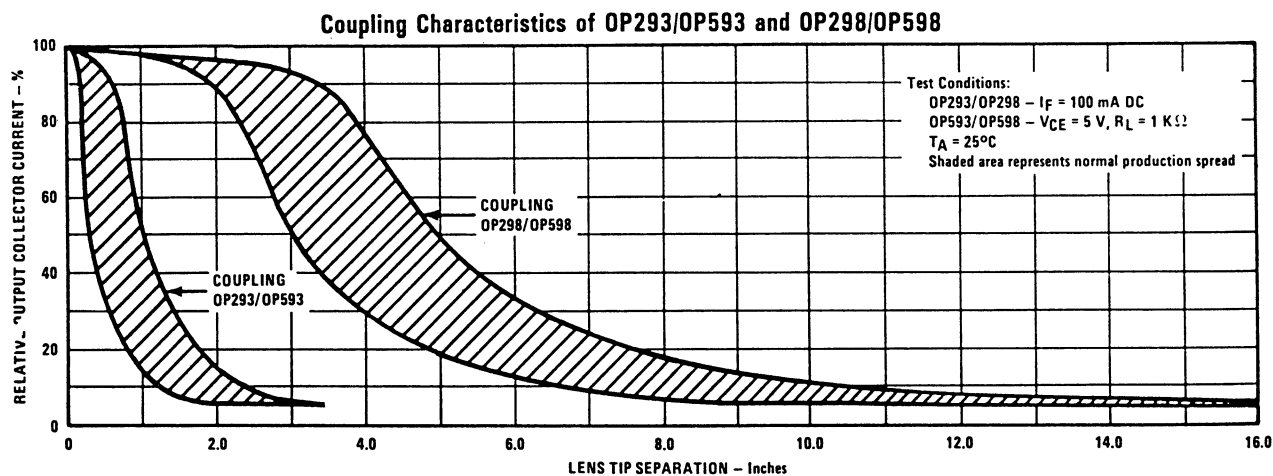
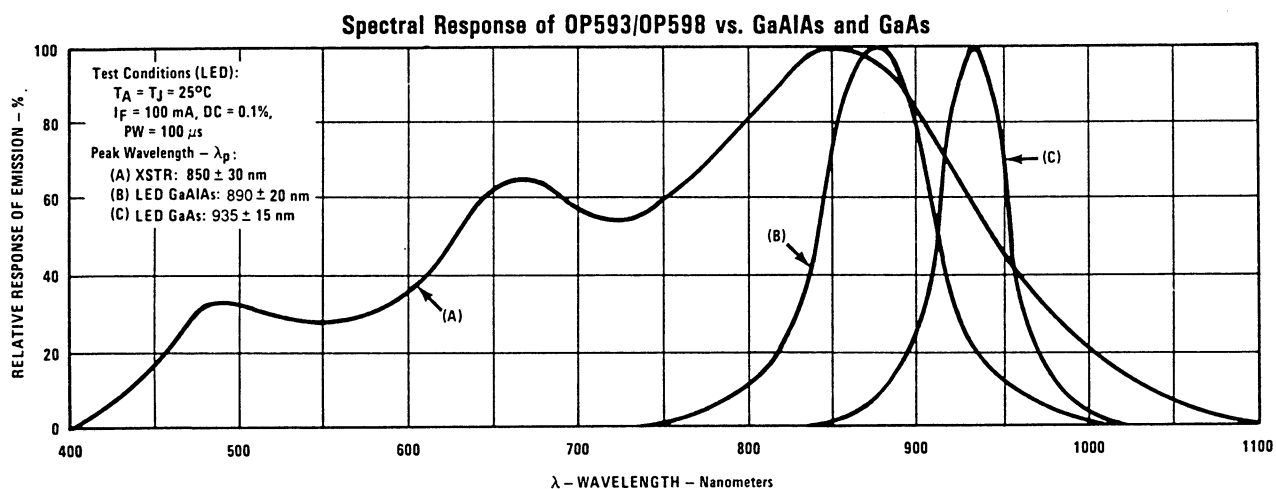
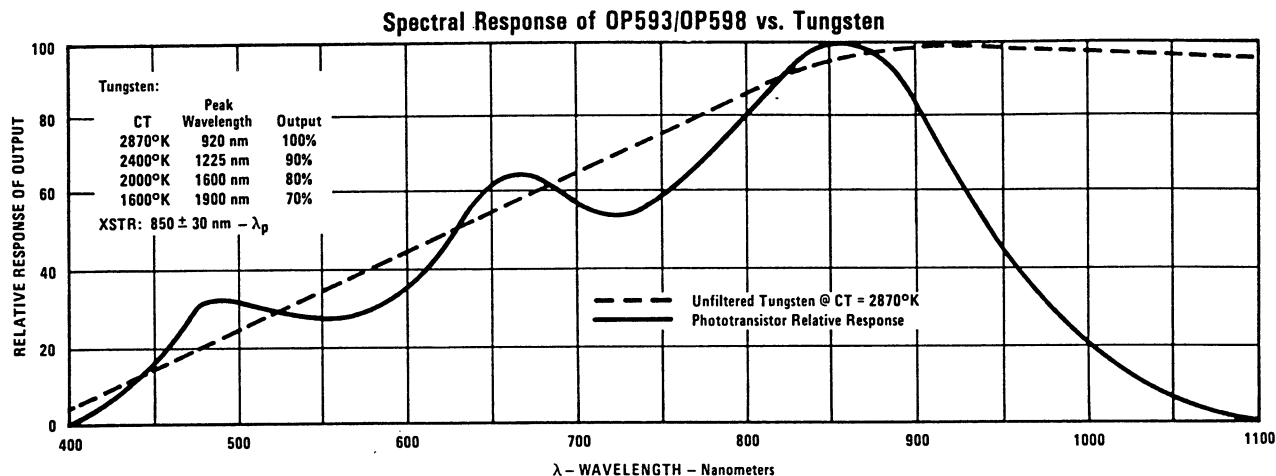


## Typical Performance Curves



# Types OP593, OP598 Series

## Typical Performance Curves



Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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