OP593, OP598, OP793, OP798 Series

Electronics

OP593 OP793 OP798

Features:

- Dark blue epoxy package
- Wide receiving angle
- · Variety of sensitivity ranges
- TO-18 equivalent package style

Description:

Each device in this series consists of an NPN silicon phototransistor molded in a dark blue epoxy packages. The wide receiving angle (130°) of the **OP593** and **OP793** series devices provides relatively even reception over a large area. The narrow receiving angle (25°) of the **OP598** and **OP798** series devices provides a relatively small reception area.

These devices are 100% production tested using infrared light for close correlation with OPTEK's GaAs and GaAIAs emitters.

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

Applications:

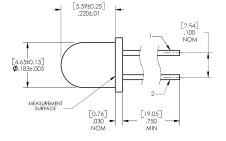
- · Non-contact reflective or slotted sensor
- Assembly line automation
- Machine automation
- Machine Safety
- End of travel sensor
- Door sensor
- · Safety Curtain

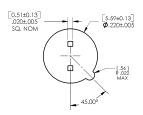
1
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2

Pin#	Sensor			
1	Collector			
2	Emitter			

Ordering Information Viewing Angle Lead Length Part Number Sensor OP593A **OP593B** 130° **OP593C** Transistor **OP598A** OP598B 25° OP5980 **OP793A** 0.75" OP793B 130° **OP793C** OP793D $R_{\text{BE}} \\$ Transistor **OP798A** OP798B 25° **OP798C** OP798D

OP593, OP793



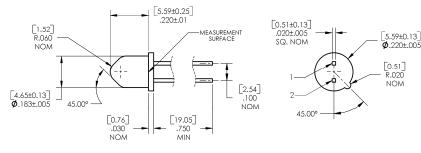




OP555 - CONTAINS POLYSULFONE To avoid stress cracking, we suggest using ND Industries' Vibra-Tite for thread-locking. Vibra-Tite evaporates fast without causing structural failure in OPTEK'S molded plastics.

Pohs

DIMENSIONS ARE IN: [MILLIMETERS] INCHES



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° C unless otherwise noted)			
Storage and Operating Temperature Range	-40° C to +100° 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° C ⁽¹⁾		
Power Dissipation	250 mW ⁽²⁾		

Electrical Characteristics (T _A = 25° C unless otherwise noted)									
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS			
I _{C(ON)}	On-State Collector Current	3.0 2.0 1.0 7.5 5.0 2.5 2.45 1.65 0.90 0.90 4.90 3.30 1.90 1.90	-	4 4 4 10 10 10 7.50 4.55 3.05 7.50 15.00 9.20 6.10 15.00	mA	V_{CE} = 5 V. Light source is an unfiltered GaAlAs LED with a peak emission wavelength of 890 nm and $E_{e(APT)}$ of 1.7 mW/cm ² average within a .250" diameter aperture.			
I _{CEO}	Collector-Dark Current	-	-	100	nA	$V_{CE} = 10 \text{ V}, E_{E} = 0$			
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	30	-	-	٧	Ι _C = 100 μΑ			
V _{(BR)ECO}	Emitter-Collector Breakdown Voltage	5	-	-	V	Ι _Ε = 100 μΑ			
V _{CE(SAT)}	Collector-Emitter Saturation Voltage	-	-	0.40	V	I _C = 0.4 mA, E _E = 1.7 mW/cm ²			

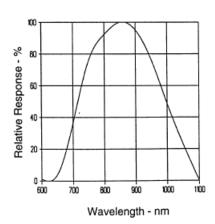


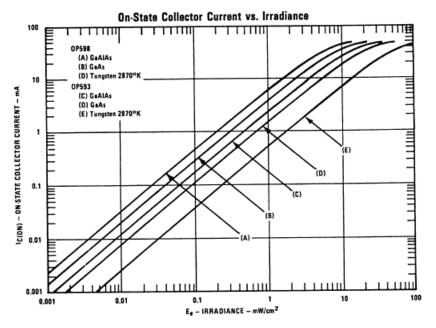
OP593, OP598, OP793, OP798 Series

Performance

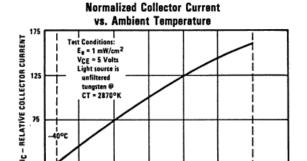
OP593, OP598

Typical Spectral Response





125



25

50

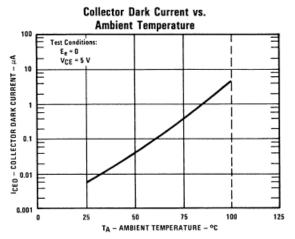
- AMBIENT TEMPERATURE - °C

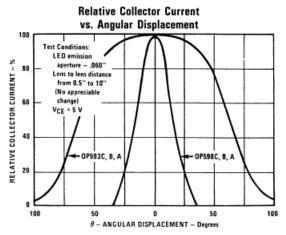


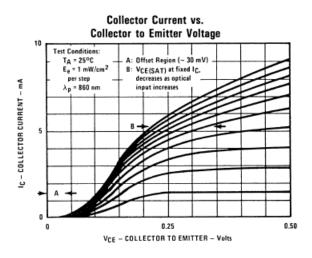
OP593, OP598, OP793, OP798 Series

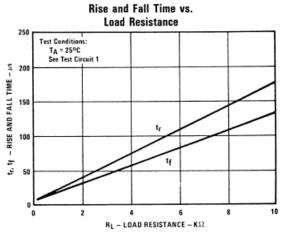
Performance

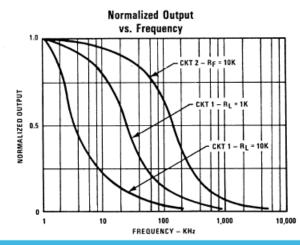
OP593, OP598

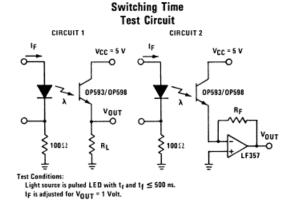








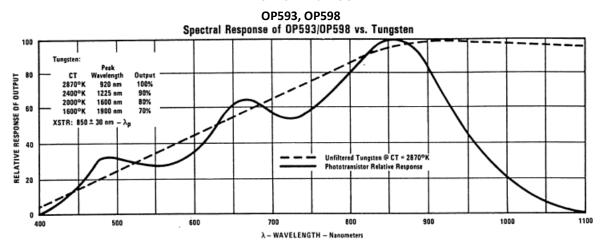


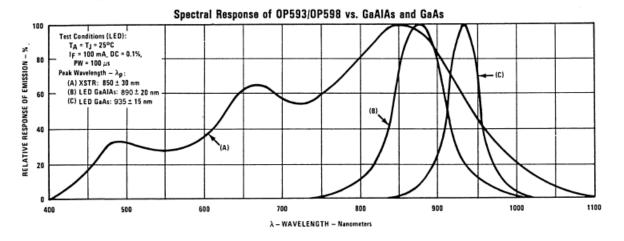


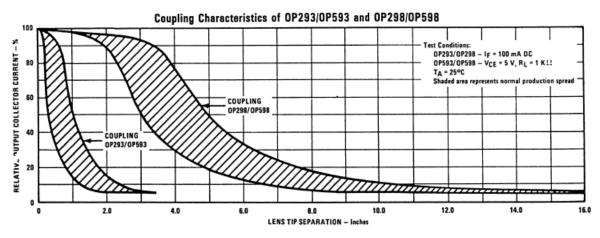


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Performance



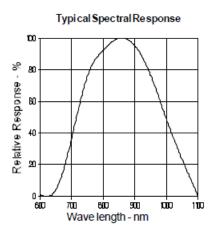




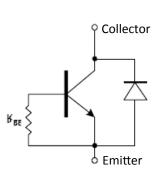


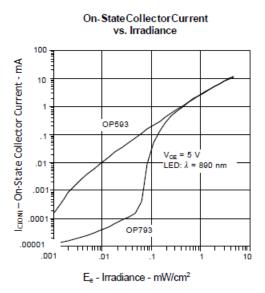
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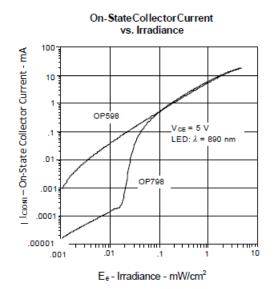
Performance OP793, OP798



Schematic





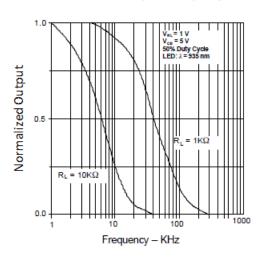




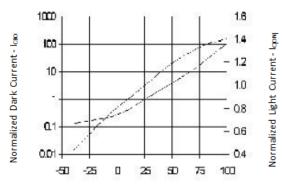
OP593, OP598, OP793, OP798 Series

Performance OP793, OP798

Normalized Output vs. Frequency



Nor malized Light and Dark Current vs.AmbientTemperature



Typi cal Rise and Fall Time vs. Load Resistance 120 tr, tr - Rise and Fall Time - µs 90 60-45 30 15 0 R_L - Load Resistance - $K\Omega$