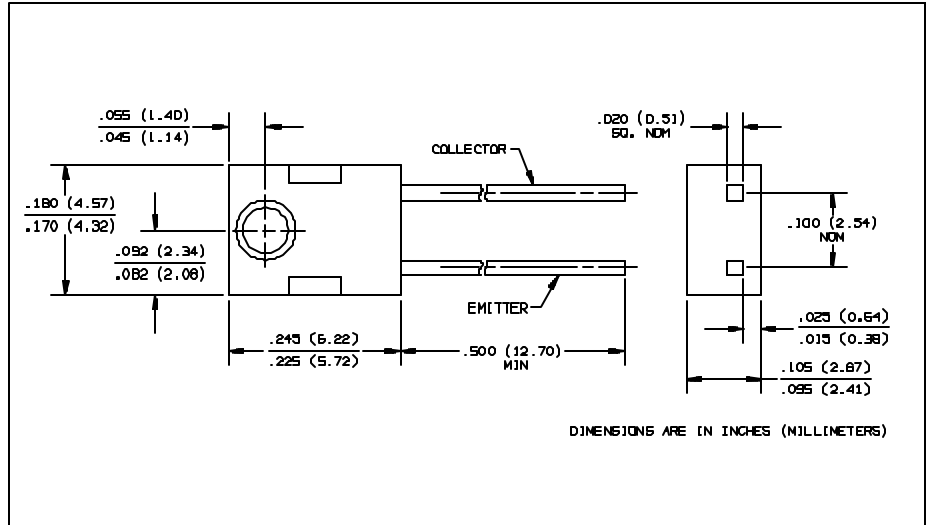
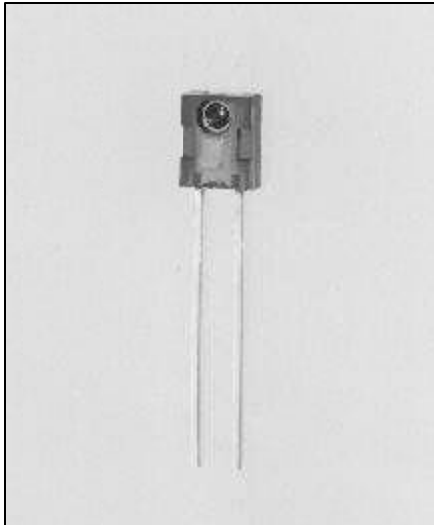


NPN Phototransistor with Base-Emitter Resistor Types OP755A, OP755B, OP755C, OP755D



Features

- Wide receiving angle
- Variety of sensitivity ranges
- Side-looking package for space limited applications
- Base-emitter resistor provides ambient light protection

Description

The OP755 device consists of a NPN silicon phototransistor molded in blue tinted epoxy packages. The wide receiving angle provides relatively even reception over a large area. The side-looking package is designed for easy PC board mounting of slotted optical switches or optical interrupt detectors. The series is mechanically and spectrally matched to the OP140 and OP240 series of infrared emitting diodes.

The phototransistor has an internal base-emitter resistor which provides protection from low level ambient lighting conditions. This feature is also useful when the media being detected is semi-transparent to infrared light in interruptive applications.

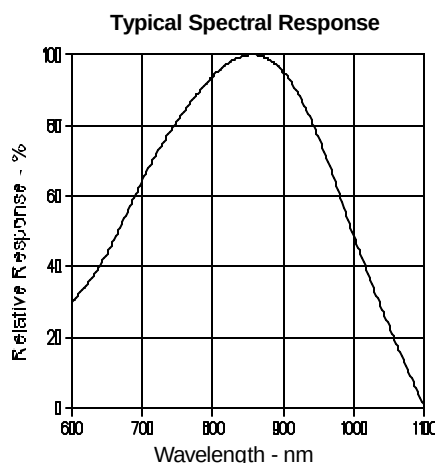
Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Collector-Emitter Voltage	30 V
Emitter Reverse Current	10 mA
Collector DC Current	30 mA
Storage and Operating Temperature Range	-40°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	200 mW ⁽²⁾

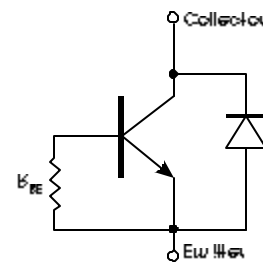
Notes:

- (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 2.0 mW/ $^\circ\text{C}$ above 25°C .
- (3) Light source is an unfiltered GaAs LED with a peak emission wavelength of 935 nm and a radiometric intensity level which varies less than 10% over the entire lens surface of the phototransistor being tested.
- (4) The knee point irradiance is defined as the irradiance required to increase $I_{C(ON)}$ to 50 μA .

Typical Performance Curves



Schematic



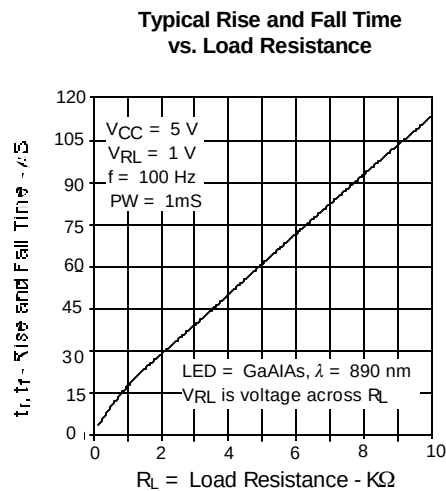
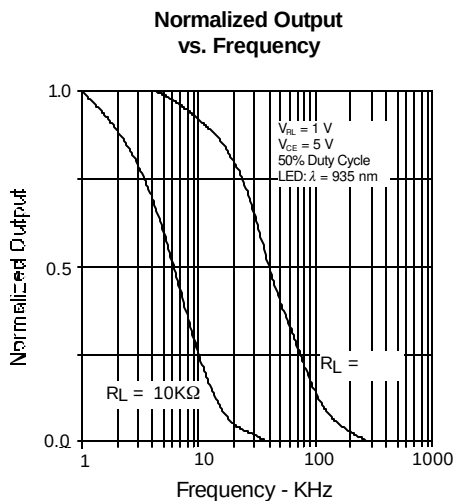
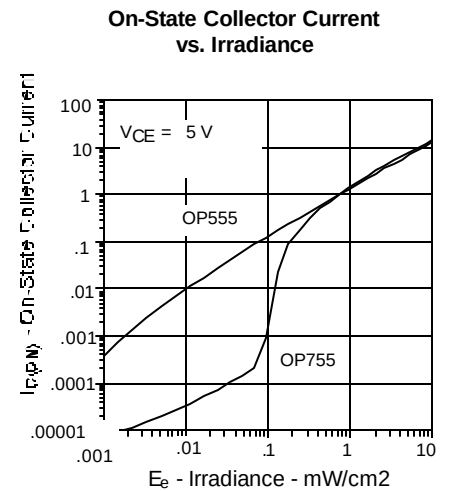
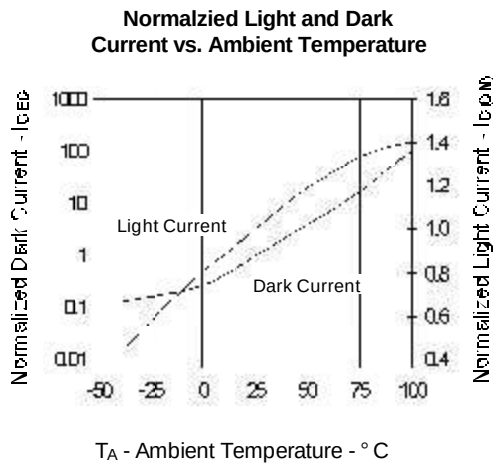
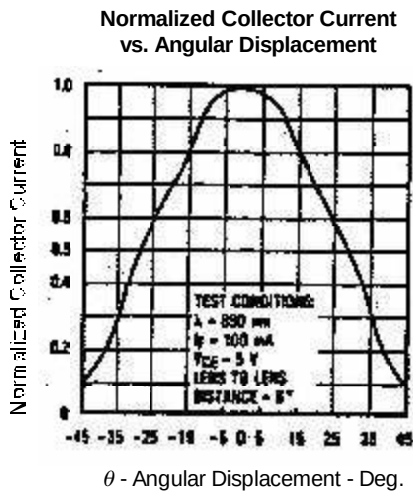
Types OP755A, OP755B, OP755C, OP755D

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

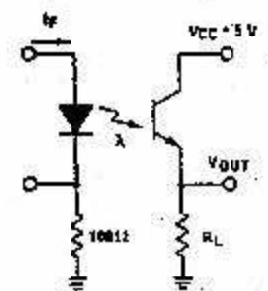
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_{C(ON)}$	On-State Collector Current OP755A OP755B OP755C OP755D	1.80 1.20 0.70 0.70		5.50 3.40 2.25 5.50	mA	$V_{CE} = 5\text{ V}$, $E_e = 1.0\text{ mW/cm}^2(3)$
E_{KP}	Knee Point Irradiance		.2		mW/cm^2	$V_{CE} = 5\text{ V}(4)$
I_{CEO}	Collector-Emitter Dark Current			100	nA	$V_{CE} = 10\text{ V}$, $E_e = 0$
I_{ECO}	Emitter-Reverse Current			100	μA	$V_{CE} = 0.4\text{ V}$
$V_{(BR)CEO}$	Collector-Emitter Breakdown	30			V	$I_C = 100\text{ }\mu\text{A}$
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.4	V	$I_C = 100\text{ }\mu\text{A}$, $E_e = 1\text{ mW/cm}^2(3)$

PHOTOSENSORS

Typical Performance Curves



Switching Time Test Circuit



Test Conditions:

Light source is pulsed LED with t_r and $t_f \leq 500\text{ ns}$.
 I_f is adjusted for $V_{OUT} = 1\text{ Volt}$.

Op tek reserves the right to make changes at any time in or der to im prove de sign and to sup ply the best prod uct pos si ble.

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