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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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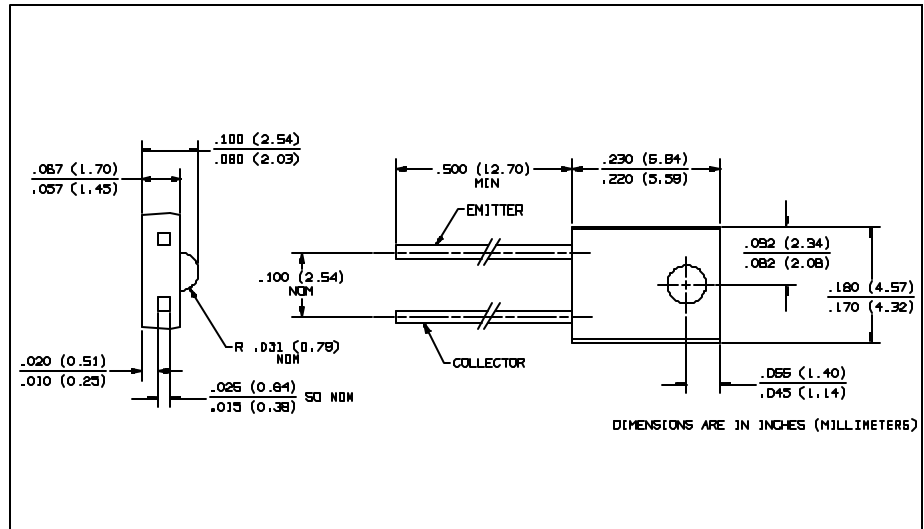
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# NPN Phototransistor with Collector-Emitter Capacitor

## Types OP770A, OP770B, OP770C, OP770D



### Features

- Suppresses high frequency noise
- Variety of sensitivity ranges
- Wide receiving angle
- Side looking package for space limited applications

### Description

The OP770 consists of an NPN phototransistor and 1000 pF capacitor molded in a clear epoxy package. The internal collector-emitter capacitor allows the device to be used in applications where external high frequency emissions could compromise signal integrity.

The device's wide receiving angle provides relatively even reception over a large area.

The OP770 is 100% production tested using an infrared light source for close correlation with Optek's GaAs and GaAlAs emitters.

Side-looking package is designed for easy PC board mounting of slotted optical switches or optical interrupt detectors.

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

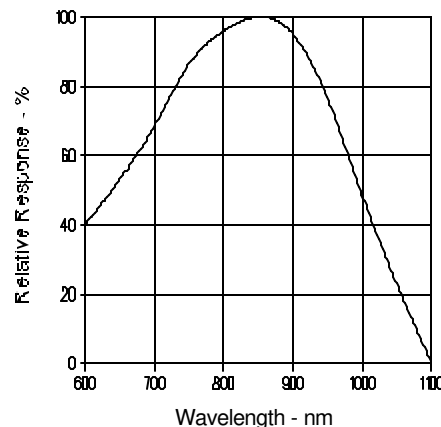
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5.0 V
Storage and Operating Temperature Range	$-40^\circ\text{C}$ to $+100^\circ\text{C}$
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron]	$260^\circ\text{C}^{(1)}$
Power Dissipation	$100\text{ mW}^{(2)}$

#### Notes:

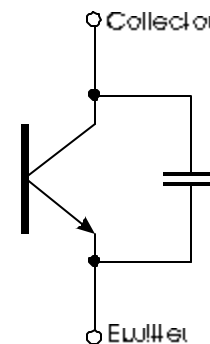
- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. Max. 20 grams force may be applied to leads when soldering.
- (2) Derate linearly  $1.33\text{ mW}/^\circ\text{C}$  above  $25^\circ\text{C}$ .
- (3) Light source is an unfiltered GaAs LED with a peak emission wavelength of 935 nm and a radiometric intensity level which varies less than 10% over the entire lense surface of the phototransistor being tested.
- (4) To calculate typical collector dark current in  $\mu\text{A}$ , use the formula  $I_{CED} = 10^{(0.040T_A - 3.4)}$  when  $T_A$  is ambient temperature in  $^\circ\text{C}$ .

### Typical Performance Curves

Typical Spectral Response



Schematic



# Types OP770A, OP770B, OP770C, OP770D

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	OP770D	0.85	7.00	mA	$V_{CE} = 5.0\text{ V}, E_e = 1.0\text{ mW/cm}^2(3)$
		OP770C	0.85	2.80		
		OP770B	1.50	4.20		
		OP770A	2.25	7.00		
$\Delta I_C/\Delta T$	Relative IC Changes with Temperature		100		%/ $^\circ\text{C}$	$V_{CE} = 5.0\text{ V}, E_e = 1.0\text{ mW/cm}^2, \lambda = 935\text{ nm}$
$I_{CEO}$	Collector Dark Current			100	nA	$V_{CE} = 10.0\text{ V}, E_e = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0			V	$I_E = 100\text{ }\mu\text{A}$
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.40	V	$I_C = 100\text{ }\mu\text{A}, E_e = 1.0\text{ mW/cm}^2(3)$
$C_{CE}$	Capacitance		1000		pF	$V_R = 0$

## Typical Performance Curves

