

NPN Phototransistor with Collector-Emitter Capacitor Types OP770A, OP770B, OP770C, OP770D





Features

- Supresses 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 GaAIAs emitters.

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

Ab solute Maximum Ratings ($T_A = 25^{\circ}$ C un less oth er wise noted)

Collector-EmitterVoltage	
Emitter-CollectorVoltage 5.0 V	
Storage and Op erating Temperature Range	
Lead Soldering Tem pera ture [1/16 inch (1.6 mm) from case for 5 sec . with sol der ing	
iron]	
PowerDissipation	
Notes:	

- (1) RMA flux is rec om mended. Du ra tion can be ex tended to 10 sec . max. when flow sol der ing. Max. 20 grams force may be applied to leads when soldering.
- (2) Derate linearly 1.33 mW/° 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 lense surface of the phototransistor being tested.
- (4) To calculate typical collector dark current in μ A, use the formula ICED = 10 ^{(0.040T}A^{-3.4)} when T_A is ambient temperature in °C.

Typical Perform ance Curves

Typical Spectral Response

Schematic





Types OP770A, OP770B, OP770C, OP770D

Electrical Characteristics($T_A = 25^{\circ}$ C un less oth er wise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TESTCONDITIONS
	On-State Collector Current OP770D	0.85		7.00		
	OP770C	0.85		2.80	mA	$V_{CE} = 5.0 \text{ V}, \text{ E}_{e} = 1.0 \text{ mW/cm}^{2(3)}$
IC(ON)	OP770B	1.50		4.20	mA	
	OP770A	2.25		7.00		
$\Delta I_{C} / \Delta T$	Relative IC Changes with Temperature		100		%/ ° C	$V_{CE} = 5.0 \text{ V}, \text{ E}_{e} = 1.0 \text{ mW/cm}^{2}, \lambda$ = 935 nm
I _{CEO}	Collector Dark Current			100	nA	$V_{CE} = 10.0 \text{ V}, \text{ E}_{e} = 0$
V _{(BR)ECO}	Emitter-Collector Breakdown Voltage	5.0			V	I _E = 100 μA
V _{CE(SAT)}	Collector-Emitter Saturation Voltage			0.40	V	I_{C} = 100 μ A, E _e = 1.0 mW/cm ²⁽³⁾
C _{CE}	Capacitance		1000		pF	V _R = 0

Typical Perform ance Curves

