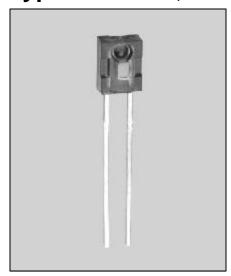
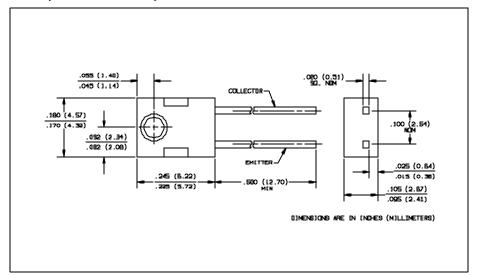


# NPN Phototransistor with Collector-Emitter Capacitor Types OP775A, OP775B, OP775C, OP775D





#### **Features**

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

### Description

The OP775 consists of an NPN phototransistor and 1000 pF capacitor molded in a blue tinted 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 OP775 is 100% production tested using an infrared light source for close correlation with Optek's GaAs and GaAlAs emitters.

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

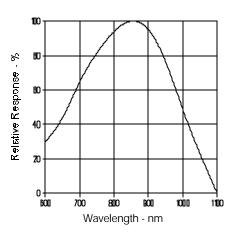
# **Ab so lute Maxi mum Ratings** ( $T_A = 25^{\circ}$ C un less oth er wise noted)

Collector-EmitterVoltage	30 V
Emitter-Collector Voltage	5.0 V
Storage and Temperature Range	-40° C to +100° C
Lead Sol dering Tempera ture [1/16 inch (1.6 mm) from case for 5 sec	
iron]	260° C <sup>(1)</sup>
Power Dissipation	100 mW <sup>(2)</sup>
NOTES:	

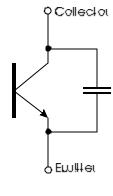
- (1) RMA flux is rec om mended. Du ra tion can be ex tended to 10 sec. max. when flow sol der ing. Max. 20 grams force may be applied to leads when soldering.
- (2) Derate linearly 1.33 mW/° C above 25° C.
- (3) Light source is an unfiltered GaAs LED with a peak emission wavelength of 935 nm and a radiometric intensity level which varies less than 10% over the entire lens surface of the phototransistor being tested.
- (4) To calculate typical collector dark current in  $\mu$ A, use the formula  $_{ICED} = 10^{(0.040T} A^{-3.4)}$  where  $_{TA}$  is ambient temperature in  $^{\circ}$  C.

#### Typi cal Perform ance Curves

#### **Typical Spectral Response**



#### **Schematic**



# Types OP775A, OP775B, OP775C, OP775D

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

SYMBOL	PARAMETER		MIN	TYP	MAX	UNITS	TESTCONDITIONS
I <sub>C(ON)</sub>		OP775D OP775C OP775B OP775A	0.70 0.70 1.20 1.80		5.50 2.25 3.40 5.50	mA	$V_{CE} = 5.0 \text{ V}, E_e = 1.0 \text{ mW/cm}^{2(3)}$
ΔΙ <sub>C</sub> /ΔΤ	Relative I <sub>C</sub> Changes with Temperatur	е		100			$V_{CE} = 5.0 \text{ V}, E_e = 1.0 \text{ mW/cm}^2,$ $\lambda = 935 \text{ nm}$
I <sub>CEO</sub>	Collector Dark Current				100	nA	$V_{CE} = 10.0 \text{ V}, E_e = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage		5.0			<b>V</b>	I <sub>E</sub> = 100 μA
V <sub>CE</sub> (SAT)	Collector-Emitter Saturation Voltage				0.40	>	$I_C = 100 \mu\text{A}, \; E_e = 1.0 \; \text{mW/cm}^{2(3)}$
CCE	Capacitance			1000		pF	V <sub>R</sub> = 0 V

## Typical Performance Curves

