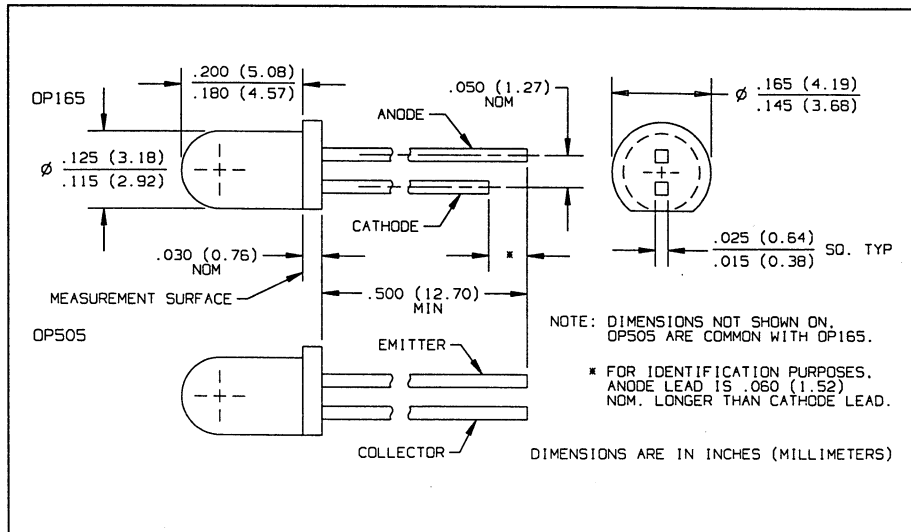
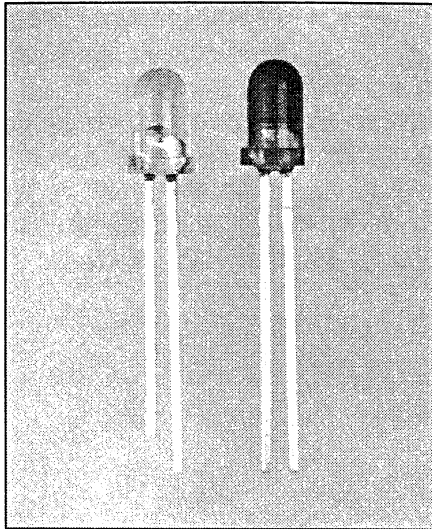


# LED and Photosensor Pair Types OPS665, OPS666, OPS667



## Features

- T-1 package style
- High current transfer ratio
- Low cost plastic package
- Three current range selections

## Description

The OPS665 through OPS667 each consist of a gallium arsenide infrared emitting diode (OP165) and an NPN silicon phototransistor (OP505) mounted in matched plastic T-1 packages. Matched pairs are desirable where the application is unique and the quantity required does not justify assembly tooling costs. The units are offered in three different sensitivity ranges to give the designer more flexibility. If separation between the LED and sensor is greater than two times the specified  $I_{C(ON)}$  distance, proper alignment becomes critical. It should be remembered that the sensor is sensitive to ambient light. Although sold as pairs, emitters are packaged separately from sensors for ease of handling.

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

Storage and Operating Temperature .....  $-40^\circ\text{C}$  to  $+100^\circ\text{C}$   
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] .....  $260^\circ\text{C}^{(1)}$

## Input Diode

Continuous Forward Current ..... 50 mA  
Peak Forward Current (1  $\mu\text{s}$  pulse width, 300 pps) ..... 3.0 A  
Reverse Voltage ..... 2.0 V  
Power Dissipation .....  $100\text{ mW}^{(2)}$

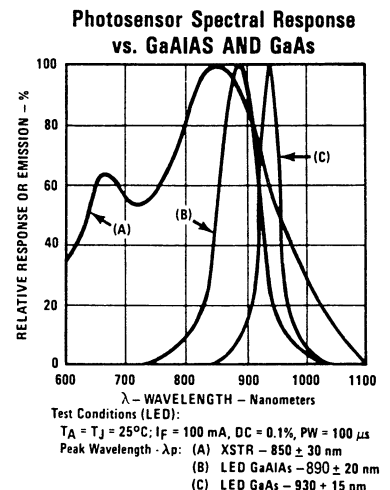
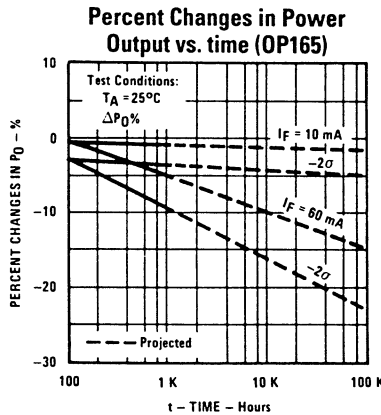
## Output Photosensor

Collector-Emitter Voltage ..... 30 V  
Emitter-Collector Voltage ..... 5.0 V  
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  $25^\circ\text{C}$ .

## Typical Performance Curves

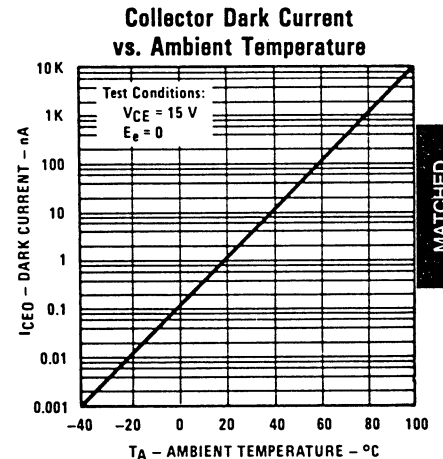
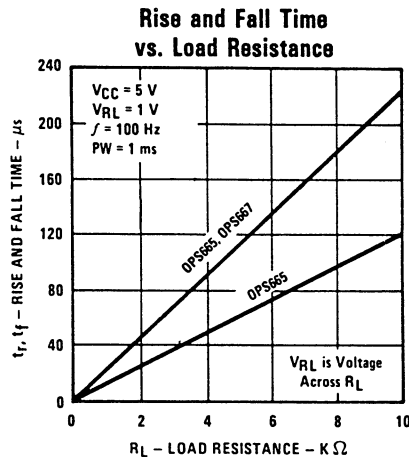
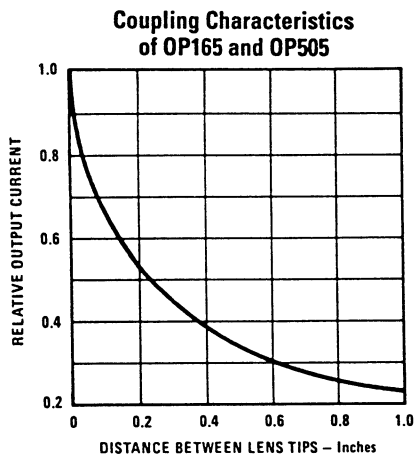


# Types OPS665, OPS666, OPS667

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

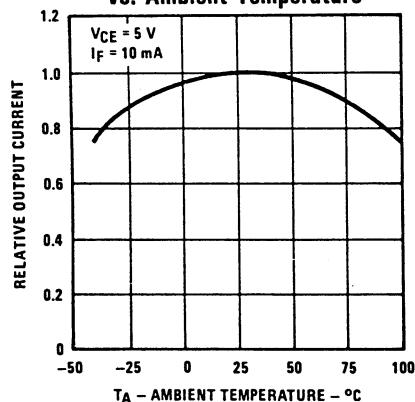
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b>						
$V_F$	Forward Voltage			1.60	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current			100	$\mu\text{A}$	$V_R = 2.0\text{ V}$
<b>Output Photosensor</b>						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30			V	$I_C = 100\ \mu\text{A}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0			V	$I_E = 100\ \mu\text{A}$
$I_{CEO}$	Collector Dark Current			100	nA	$V_{CE} = 15\text{ V}, E_e = 0$
$I_{C(ON)}$	On-State Collector Current	OPS665 OPS666 OPS667	0.5 1.0 5.0	10.0	mA mA mA	$V_{CE} = 5\text{ V}, I_F = 20\text{ mA}$ $d = 0.25''$ lens tip to lens tip

## Typical Performance Curves

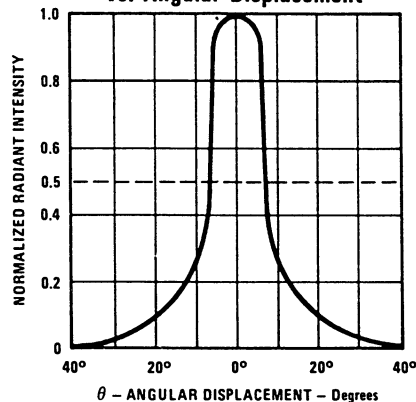


MATCHED PAIRS

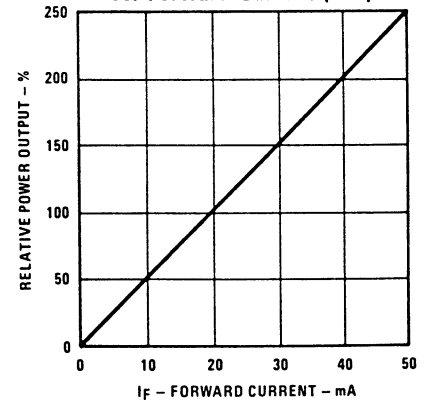
**Coupled-Relative Output Collector Current vs. Ambient Temperature**



**Emission (LED) and Response (Sensor) Normalized Radiant Intensity vs. Angular Displacement**



**Relative Power Output vs. Forward Current (LED)**



Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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