

# Reflective Object Sensor

## OPB702, OPB702D



### Features:

- Focused for maximum sensitivity
- Choice of phototransistor or photodarlington
- Low cost plastic housing

### Description:

The **OPB702** series consists of an infrared Light Emitting Diode (LED) and the choice of a NPN silicon phototransistor (**OPB702**) or a photodarlington (**OPB702D**).

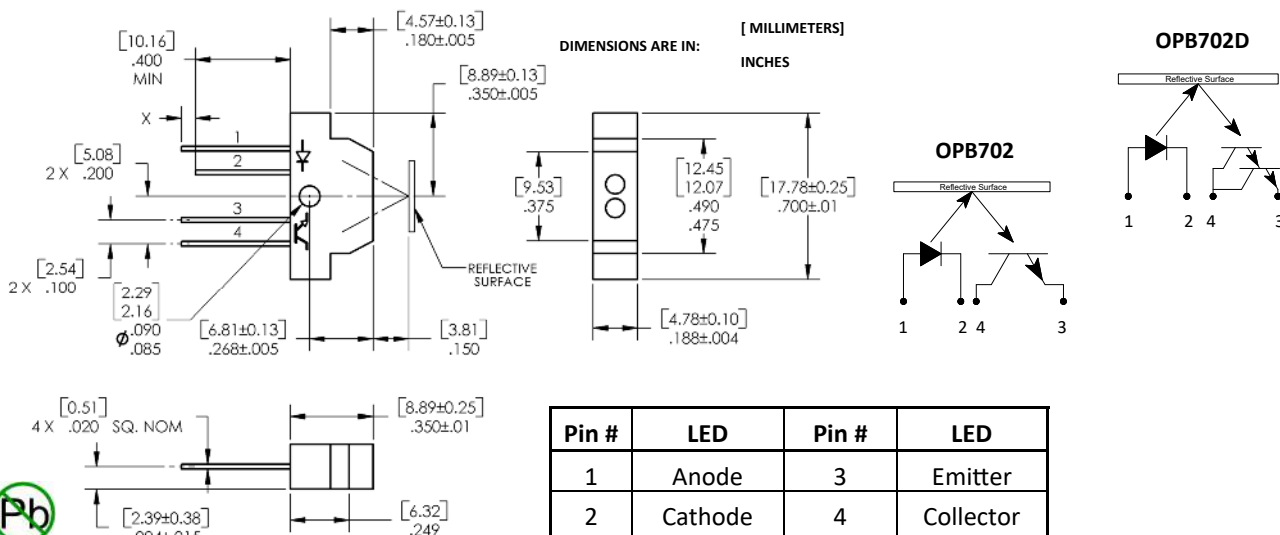
On each sensor, the LED and the phototransistor or photodarlington are mounted side-by-side on converging optical axes in a black plastic housing. The **OPB702** uses type OP505 sensor, the **OPB702D** uses an OP535 sensor.

Custom electrical, wire, cabling and connectors are available. Contact your local representative or OPTEK for more information.

### Applications:

- Non-contact reflective object sensor
- Assembly line automation
- Machine automation
- Machine safety
- End of travel sensor
- Door sensor

Ordering Information				
Part Number	LED Peak Wavelength	Sensor	Reflection Distance Inch (mm)	Lead Length / Spacing
OPB702	935 nm	Transistor	0.150" (3.81mm)	0.400" / 0.100"
OPB702D	890 nm	Darlington		



### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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## Electrical Specifications

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

Storage & Operating Temperature Range	-40° C to +85° C
Lead Soldering Temperature [1/16 inch (1.6mm) from the case for 5 sec. with soldering iron] <sup>(2)</sup>	260° C
<b>Input Diode</b>	
Peak Forward Current	50 mA
Reverse Voltage	2 V
Power Dissipation] <sup>(1)</sup>	100 mW
<b>Output Photosensor</b>	
Collector-Emitter Voltage OPB702 OPB702D	30 V 15 V
Emitter-Collector Voltage	5 V
Power Dissipation] <sup>(1)</sup>	100 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b> (see OP265 or OP165 for additional information)						
$V_F$	Forward Voltage (Infrared LED)	-	-	1.7	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2\text{ V}$
<b>Output Phototransistor</b> (see OP505 for Phototransistor, OP705 for Rbe-Phototransistor, OP535 for Photodarlington)						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage OPB702 OPB702D	30 15	- -	- -	V	$I_C = 100\ \mu\text{A}, I_F = 0, E_E = 0$ $I_C = 1\text{ mA}, I_F = 0, E_E = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage OPB702 OPB702D	5 5	- -	- -	V V	$I_E = 100\ \mu\text{A}, I_F = 0, E_E = 0$ $I_E = 100\ \mu\text{A}, I_F = 0, E_E = 0$
$I_{CEO}$	Collector Dark Current OPB702 OPB702D	- -	- -	100 250	nA nA	$V_{CE} = 10\text{ V}, I_F = 0, E_E = 0$ $V_{CE} = 10\text{ V}, I_F = 0, E_E = 0$
<b>Combined</b>						
$V_{CE(SAT)}^{(3)(4)}$	Collector-Emitter Saturation Voltage OPB702 OPB702D	- -	- -	0.4 1.1	V V	$I_F = 40\text{ mA}, I_C = 250\ \mu\text{A}, d = .15'' (3.81\text{ mm})$ $I_F = 40\text{ mA}, I_C = 400\ \mu\text{A}, d = .15'' (3.81\text{ mm})$
$I_{C(ON)}^{(3)(4)}$	On-State Collector Current OPB702 OPB702D	0.1 3.2	- -	1.0 65.0	mA	$I_F = 40\text{ mA}, V_{CE} = 5\text{ V}, d = .15'' (3.81\text{ mm})$

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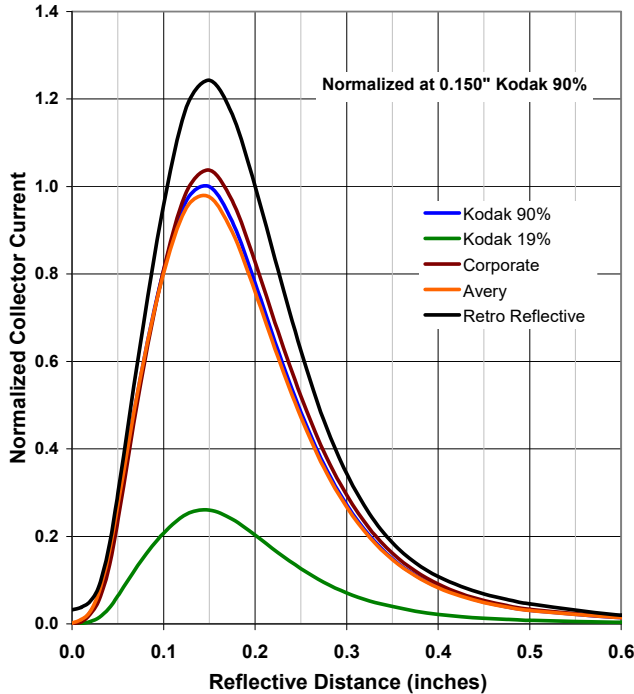
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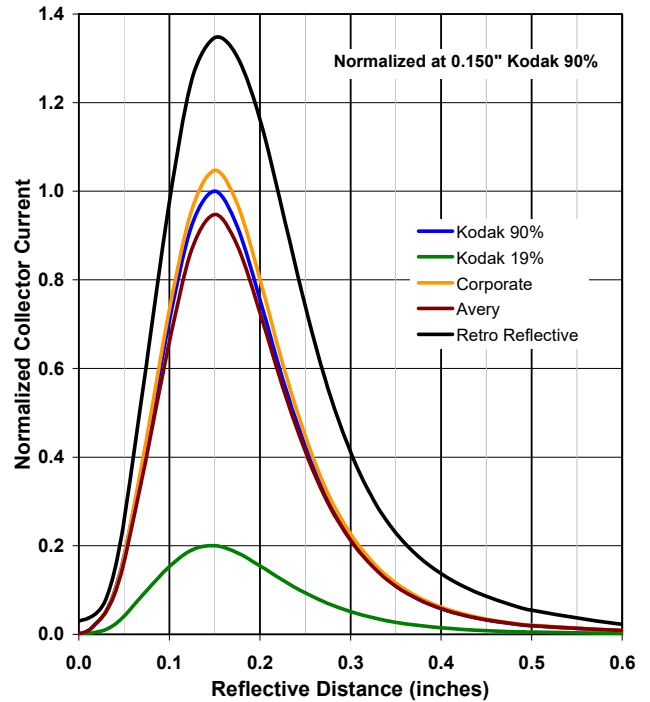


## Performance

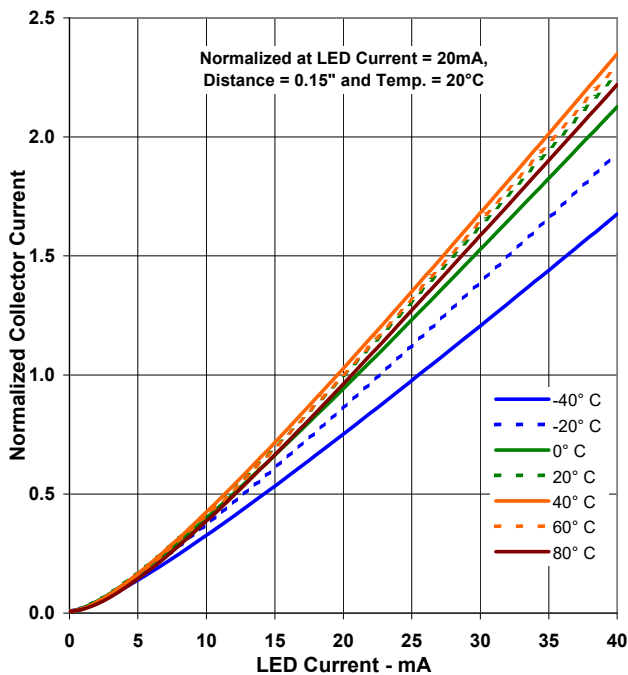
OPB702 - Collector Current vs. Distance



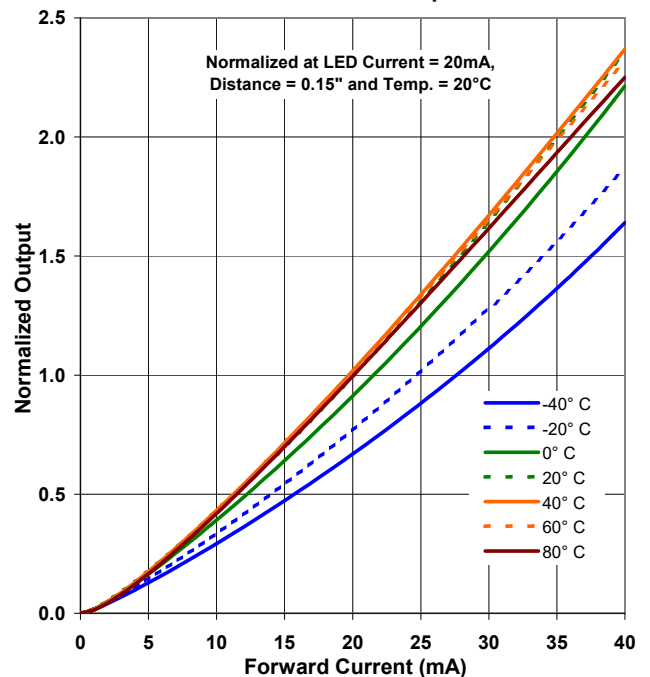
OPB702D - Collector Current vs Distance



OPB702 - Collector Current vs LED Current vs Temperature



OPB702D - Collector Current vs LED Current vs Temperature



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