

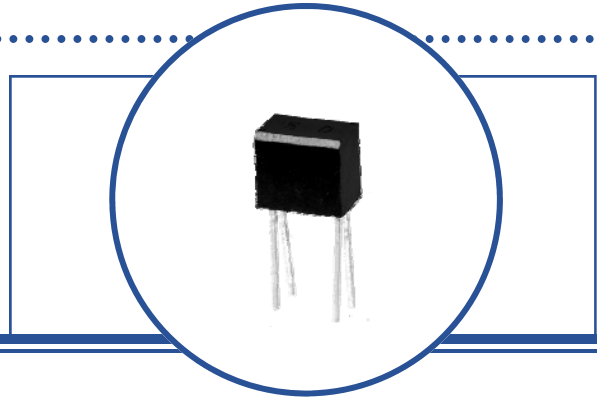
# Optically Coupled Isolator

OPI7002, OPI7002RCE, OPI7010, OPI710RCE  
 OPI7320, OPI7320RCE, OPI7340, OPI7340RCE



## Features:

- $\pm 6$  kV electrical isolation
- Inexpensive plastic housing
- Choice of phototransistor or photodarlington output
- UL registered File No. E8730\*



## Description:

Each **OPI7002** and **OPI7010** consists of an infrared emitting diode coupled to a NPN silicon phototransistor. The LED and sensor are encased in a black, low-cost plastic housing. Pin spacing is compatible with standard dual-in-line packages.

Each **OPI7320** and **OPI7340** consists of an infrared emitting diode coupled to a NPN silicon photodarlington. The LED and sensor are encased in a high dielectric plastic housing. Pin spacing is compatible with standard dual-in-line packages.

The RCE versions reverse the Phototransistor Emitter and Collector pin-out.

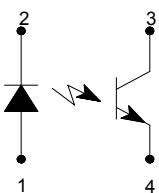
Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

## Applications:

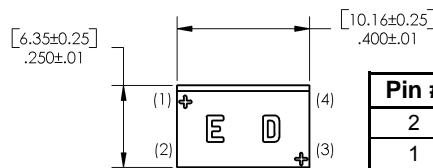
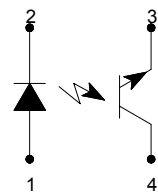
- Requiring high voltage isolation between input and output
- Electrical isolation in dirty environments
- Industrial equipment
- Medical equipment
- Office equipment

Ordering Information							
Part Number	LED Peak Wavelength	Sensor	Isolation Voltage (,000)	CTR Min	I <sub>F</sub> (mA) Typ / Max	V <sub>CE</sub> (Volts) Max	Lead Length / Spacing
OPI7002	890 nm	Transistor	6	20	10 / 50	30	0.30" / 0.30"
OPI7010				100			
OPI7320	890 nm or 935 nm	Darlington	6	200	5 / 50	15	0.30" / 0.30"
OPI7340				400			

OPI7002, OPI7010

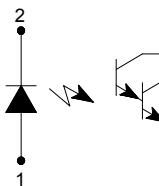


OPI7002RCE, OPI7010RCE

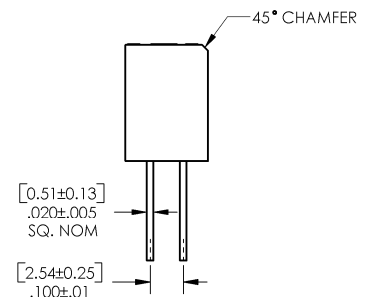
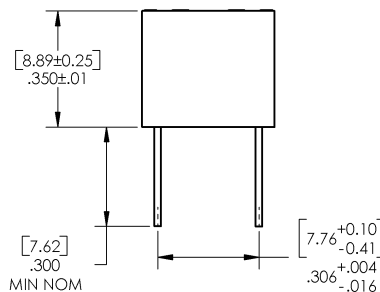
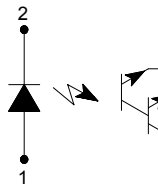


Pin #	LED	Pin #	Transistor/ RCE
2	Cathode	3	Collector / Emitter
1	Anode	4	Emitter / Collector

OPI7320, OPI7340



OPI7320RCE, OPI7340RCE



RoHS

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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**OPI7002, OPI7002RCE, OPI7010, OPI710RCE**  
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**Absolute Maximum Ratings** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Operating Temperature Range	-40° C to +85° C
Storage Temperature Range	-40° C to +85° C
Input-to-Output Isolation Voltage <sup>(1)(2)</sup>	±6 kVDC
Lead Soldering Temperature [1/16 inch (1.6 mm) from the case for 5 seconds with soldering iron] <sup>(3)</sup>	260° C

**Input Diode**

Forward DC Current	50 mA
Peak Forward current (1 $\mu\text{s}$ pulse width, 300 pps)	3 A
Reverse Voltage	2 V
Power Dissipation <sup>(3)</sup>	100 mW

**Output Phototransistor**

Collector-Emitter Voltage OPI7002, OPI7010, OPI7002RCE, OPI7010RCE	30 V
OPI7320, OPI7340, OPI7320RCE, OPI7340RCE	15 V
Emitter-Collector Voltage	5.0 V
Power Dissipation <sup>(3)</sup>	100 mW

Notes:

- (1) Measured with input leads and output leads shorted.
- (2) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (3) Derate linearly 1.66 mW/° C above 25° C.

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
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**Input Diode** (See OP140 or OP240 for additional information—for reference only)

$V_F$	Forward Voltage	-	1.2	1.70	V	$I_F = 10 \text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2.0 \text{ V}$

**Output Phototransistor (OPI7002, OPI7010)** (See OP550 for additional information—for reference only)

**Output Photodarlington (OPI7320, OPI7340)** (See OP560 for additional information—for reference only)

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage OPI7002/RCE, OPI7010/RCE OPI7320/RCE, OPI7340/RCE	30 15	- -	- -	V	$I_C = 100 \mu\text{A}, I_F = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	$I_E = 100 \mu\text{A}, I_F = 0$
$I_{CEO}$	Collector-Emitter Dark Current	-	-	100	nA	$V_{CE} = 10 \text{ V}, I_F = 0$

**Coupled**

$I_C / I_F$	DC Current Transfer Ratio OPI7002, OPI7002RCE OPI7010, OPI7010RCE OPI7320, OPI7320RCE OPI7340, OPI7340RCE	20 100 200 400	- - - -	- - - -	%	$I_F = 10 \text{ mA}, V_{CE} = 5 \text{ V}$ $I_F = 10 \text{ mA}, V_{CE} = 5 \text{ V}$ $I_F = 5 \text{ mA}, V_{CE} = 5 \text{ V}$ $I_F = 5 \text{ mA}, V_{CE} = 5 \text{ V}$
$V_{(SAT)}$	Collector-Emitter Saturation Voltage OPI7002/RCE, OPI7010/RCE OPI7320/RCE, OPI7340/RCE	- -	- -	0.4 1.0	V	$I_F = 10 \text{ mA}, I_C = 0.50 \text{ mA}$ $I_F = 5 \text{ mA}, I_C = 2 \text{ mA}$
$V_{ISO}$	Isolation Voltage <sup>(1)</sup>	6	-	-	kVDC	See note 1
$T_{(ON)}$	Turn-On Time OPI7002/RCE, OPI7010/RCE OPI7320/RCE, OPI7340/RCE	- -	4 150	- -	$\mu\text{s}$	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}, R_L = 100 \Omega$
$T_{(OFF)}$	Turn-Off Time OPI7002/RCE, OPI7010/RCE OPI7320/RCE, OPI7340/RCE	- -	3 125	- -		
$C_{IO}$	Capacitance Input-to-Output <sup>(1)</sup>	-	0.2	-	pF	$V_{IO} = 0, F = 1 \text{ MHz}$

Notes:

(1) Measured with input leads and output leads shorted.

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