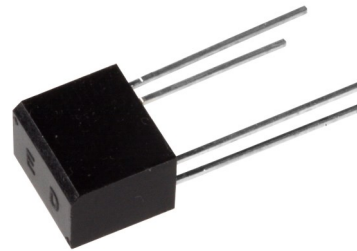


# Optically Coupled Isolator

OPI7002, OPI7002RCE, OPI7010, OPI7010RCE  
 OPI7320RCE, OPI7340RCE



## Features:

- ± 6 kV dc electrical isolation
- Inexpensive plastic housing
- Choice of phototransistor or photodarlington output
- UL registered File No. E58730

## 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 **OPI7320RCE** and **OPI7340RCE** 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.

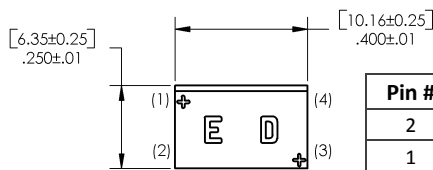
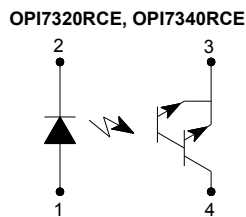
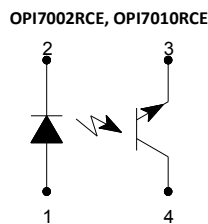
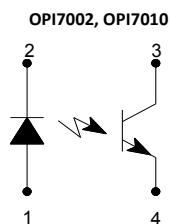
The RCE versions reverse the Phototransistor Emitter and Collector pin-out.

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

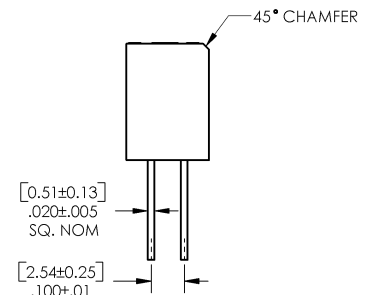
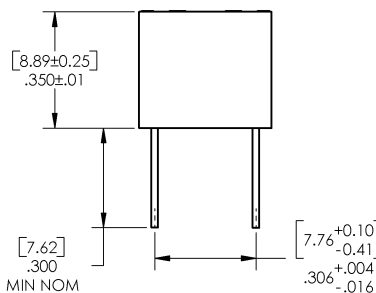
## Applications:

- 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			
OPI7320RCE	890 nm or 935 nm	Darlington	6	200	5 / 50	15	0.30" / 0.30"
OPI7340RCE				400			



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



DIMENSIONS ARE IN: [MILLIMETERS] INCHES

## General Note

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 1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200  
 www.ttelectronics.com | www.optekinc.com

# Optically Coupled Isolator

OPI7002, OPI7002RCE, OPI7010, OPI7010RCE  
OPI7320RCE, OPI7340RCE



<b>Absolute Maximum Ratings</b> ( $T_A = 25^\circ\text{C}$ 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)(4)</sup>	±6 kVDC
Lead Soldering Temperature [1/16 inch (1.6 mm) from the case for 5 seconds with soldering iron <sup>(2)</sup>	260° C
<b>Input Diode</b>	
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
<b>Output Phototransistor</b>	
Collector-Emitter Voltage OPI7002, OPI7010, OPI7002RCE, OPI7010RCE OPI7320RCE, OPI7340RCE	30 V 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.
- (4) UL recognition is for 6kV dc for one minute

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# Optically Coupled Isolator

OPI7002, OPI7002RCE, OPI7010, OPI7010RCE

OPI7320RCE, OPI7340RCE



Electrical Characteristics (T <sub>A</sub> = 25° C unless otherwise noted)						
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b> (See OP140 or OP240 for additional information—for reference only)						
V <sub>F</sub>	Forward Voltage	-	1.2	1.70	V	I <sub>F</sub> = 10 mA
I <sub>R</sub>	Reverse Current	-	-	100	μA	V <sub>R</sub> = 2.0 V
<b>Output Phototransistor (OPI7002, OPI7010)</b> (See OP550 for additional information—for reference only)						
<b>Output Photodarlington (OPI7320, OPI7340)</b> (See OP560 for additional information—for reference only)						
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage OPI7002/RCE, OPI7010/RCE OPI7320RCE, OPI7340RCE	30 15	- -	- -	V	I <sub>C</sub> = 100 μA, I <sub>F</sub> = 0
V <sub>(BR)ECO</sub>	Emitter-Collector Breakdown Voltage	5	-	-	V	I <sub>E</sub> = 100 μA, I <sub>F</sub> = 0
I <sub>CEO</sub>	Collector-Emitter Dark Current	-	-	100	nA	V <sub>CE</sub> = 10 V, I <sub>F</sub> = 0
<b>Coupled</b>						
I <sub>C</sub> /I <sub>F</sub>	DC Current Transfer Ratio OPI7002, OPI7002RCE OPI7010, OPI7010RCE OPI7320RCE OPI7340RCE	20 100 200 400	- - - -	- - - -	%	I <sub>F</sub> = 10 mA, V <sub>CE</sub> = 5 V I <sub>F</sub> = 10 mA, V <sub>CE</sub> = 5 V I <sub>F</sub> = 5 mA, V <sub>CE</sub> = 5 V I <sub>F</sub> = 5 mA, V <sub>CE</sub> = 5 V
V <sub>(SAT)</sub>	Collector-Emitter Saturation Voltage OPI7002/RCE, OPI7010/RCE OPI7320RCE, OPI7340RCE	- -	- -	0.4 1.0	V	I <sub>F</sub> = 10 mA, I <sub>C</sub> = 0.50 mA I <sub>F</sub> = 5 mA, I <sub>C</sub> = 2 mA
V <sub>ISO</sub>	Isolation Voltage <sup>(1)</sup>	6	-	-	kVDC	See note 1
T <sub>(ON)</sub>	Turn-On Time OPI7002/RCE, OPI7010/RCE OPI7320RCE, OPI7340RCE	- -	4 150	- -	μs	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 10 mA, R <sub>L</sub> = 100 Ω
T <sub>(OFF)</sub>	Turn-Off Time OPI7002/RCE, OPI7010/RCE OPI7320RCE, OPI7340RCE	- -	3 125	- -		
C <sub>IO</sub>	Capacitance Input-to-Output <sup>(1)</sup>	-	0.2	-	pF	V <sub>IO</sub> = 0, F = 1 MHz

**Notes:**

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

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