

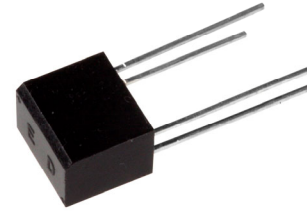


**THE DATASHEET OF  
OPI7002**



# Optically Coupled Isolator

OPI7002, OPI7002RCE, OPI7010, OPI7010RCE  
 OPI7320RCE, OPI7340RCE



## Features:

- $\pm 6$  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.

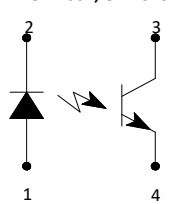
Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

## Applications:

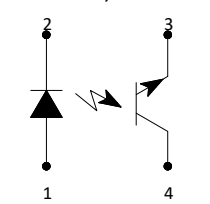
- Requiring high voltage isolation between input and output
- Electrical isolation in dirty environments
- Industrial equipment
- Medical equipment
- Office equipment

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			

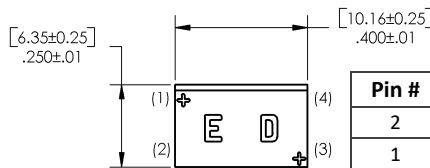
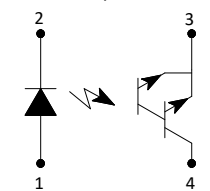
OPI7002, OPI7010



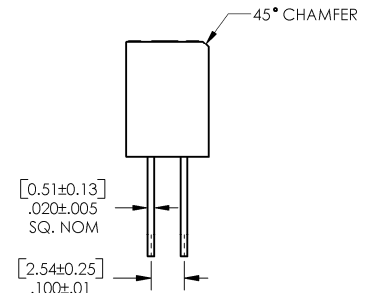
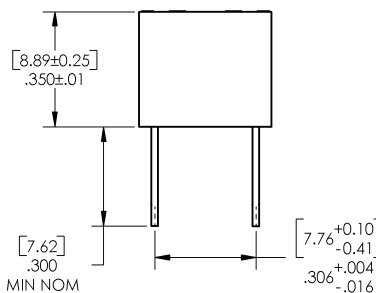
OPI7002RCE, OPI7010RCE



OPI7320RCE, OPI7340RCE



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



RoHS

DIMENSIONS ARE IN: [MILLIMETERS] INCHES

## 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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OPI7320RCE, OPI7340RCE



## Electrical Specifications

### 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)(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

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OPI7320RCE, OPI7340RCE



## Electrical Specifications

**Electrical Characteristics** ( $T_A = 25^\circ\text{C}$  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)						
$V_F$	Forward Voltage	-	1.2	1.70	V	$I_F = 10\text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2.0\text{ V}$
<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)						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage OPI7002/RCE, OPI7010/RCE OPI7320RCE, OPI7340RCE	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	$V_{CE} = 10\text{ V}, I_F = 0$
<b>Coupled</b>						
$I_C/I_F$	DC Current Transfer Ratio OPI7002, OPI7002RCE OPI7010, OPI7010RCE OPI7320RCE 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 OPI7320RCE, OPI7340RCE	- -	- -	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 OPI7320RCE, OPI7340RCE	- -	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 OPI7320RCE, OPI7340RCE	- -	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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