Optically Coupled Isolator

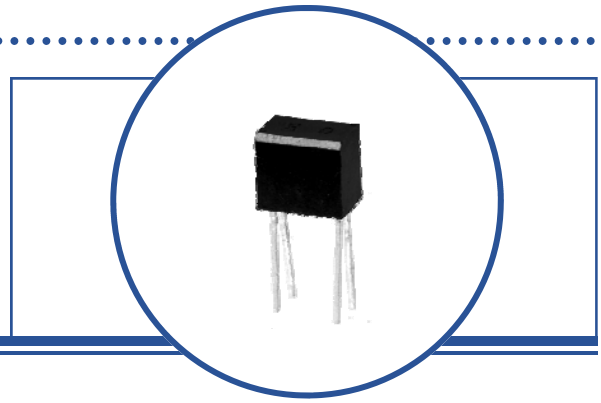
OPI7002, OPI7002RCE, OPI7010, OPI710RCE

OPI7320, OPI7320RCE, OPI7340, OPI7340RCE

TT electronics
OPTEK Technology

Features:

- ± 6 kV electrical isolation
- Inexpensive plastic housing
- Choice of phototransistor or photodarlington output



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 reverses 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.

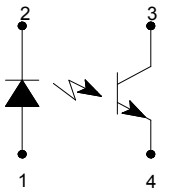
Applications:

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

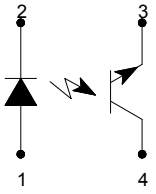
Ordering Information

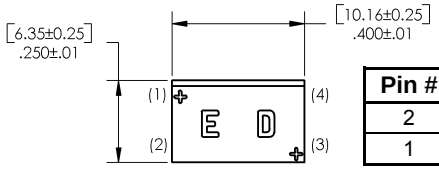
Part Number	LED Peak Wavelength	Sensor	Isolation Voltage (,000)	CTR Min	I_F (mA) Typ / Max	V_{CE} (Volts) Max	Lead Length / Spacing
OPI7002	890 nm	Transistor	6	20	10 / 50	30	0.30" / 0.30"
OPI7010				100			
OPI7320	890 nm or 935 nm	Darlington	6	200	5 / 50	15	0.30" / 0.30"
OPI7340				400			

OPI7002, OPI7010



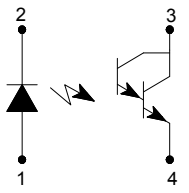
OPI7002RCE, OPI7010RCE



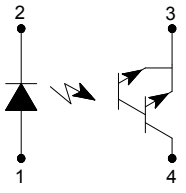


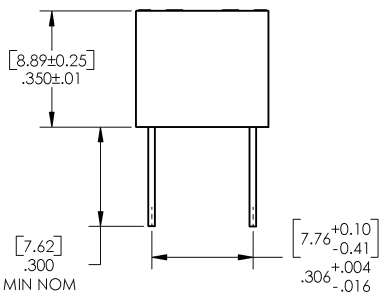
Pin #	LED	Pin #	Transistor/ RCE
2	Cathode	3	Collector / Emitter
1	Anode	4	Emitter / Collector

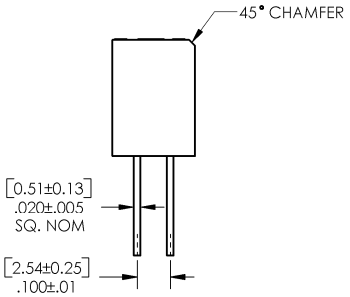
OPI7320, OPI7340



OPI7320RCE, OPI7340RCE







RoHS

DIMENSIONS ARE IN: [MILLIMETERS] INCHES

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

OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

Absolute Maximum Ratings (T_A = 25° 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(1)	±6 kVDC
Lead Soldering Temperature [1/16 inch (1.6 mm) from the case for 5 seconds with soldering iron(2)	260° C

Input Diode

Forward DC Current	50 mA
Peak Forward current (1 µs pulse width, 300 pps)	3 A
Reverse Voltage	2 V
Power Dissipation(3)	100 mW

Output Phototransistor

Collector-Emitter Voltage OPI7002, OPI7010, OPI7002RCE, OPI7010RCE	30 V
Emitter-Collector Voltage	5.0 V
Power Dissipation(3)	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° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode (See OP140 or OP240 for additional information—for reference only)						
V_F	Forward Voltage	-	1.2	1.70	V	I_F = 10 mA
I_R	Reverse Current	-	-	100	µA	V_R = 2.0 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 µA, I_F = 0
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	I_E = 100 µA, I_F = 0
I_{CEO}	Collector-Emitter Dark Current	-	-	100	nA	V_{CE} = 10 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 mA, V_{CE} = 5 V I_F = 10 mA, V_{CE} = 5 V I_F = 5 mA, V_{CE} = 5 V I_F = 5 mA, V_{CE} = 5 V
$V_{(SAT)}$	Collector-Emitter Saturation Voltage OPI7002/RCE, OPI7010/RCE OPI7320/RCE, OPI7340/RCE	 - -	 - -	 0.4 1.0	V	 I_F = 10 mA, I_C = 0.50 mA I_F = 5 mA, I_C = 2 mA
V_{ISO}	Isolation Voltage[1]	6	-	-	kVDC	See note 1
$T_{(ON)}$	Turn-On Time OPI7002/RCE, OPI7010/RCE OPI7320/RCE, OPI7340/RCE	 - -	 4 150	 - -	µs	V_{CE} = 10 V, I_C = 10 mA, R_L = 100 Ω
$T_{(OFF)}$	Turn-Off Time OPI7002/RCE, OPI7010/RCE OPI7320/RCE, OPI7340/RCE	 - -	 3 125	 - -		
C_{IO}	Capacitance Input-to-Output[1]	-	0.2	-	pF	V_{IO} = 0, F = 1 MH_z

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