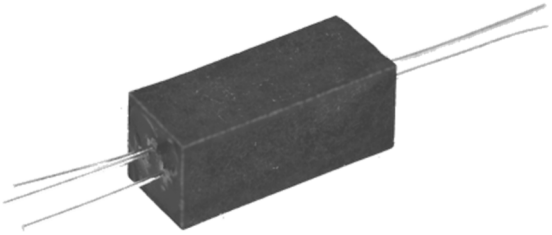
Optically Coupled Isolator

OPI120-032



Features:

- 15 kV dc electrical isolation
- Phototransistor output
- Hermetically sealed LED and phototransistor
- Base contact for conventional transistor biasing
- Wide operating temperature range

Description:

Each Optoisolator in this data sheet contains an infrared Light Emitting Diode (LED) and a NPN silicon Phototransistor. The **OPI120-032** has an 890 nm Light Emitting Diode (LED) and NPN phototransistor sensor. The devices are sealed in a precast opaque housing with a optically transmissive path between the LED and the silicon phototransistor.

This series is designed for transmission of information between one power supply voltage to another where the potentials during surge conditions are not greater than the guaranteed isolation voltage.

Applications:

- 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**	**Length**
OPI120-032	890 nm	Transistor	15	20	10 / 50	25	0.40" / 0.050"	1.26” [32 mm]

RoHS

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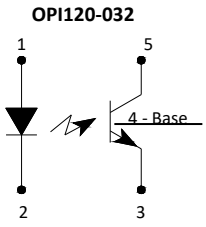
Electrical Specifications

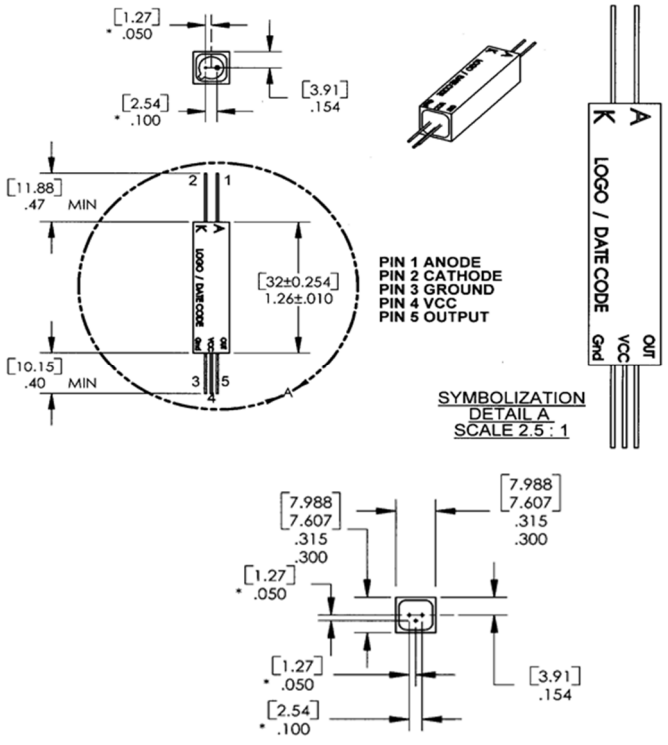
Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Storage Temperature	-55° C to +125° C
Operating Temperature	-55° C to +100° C
Input-to-Output Isolation Voltage[1]	± 15 kVDC
Lead Soldering Temperature (1/16" (1.6 mm) from case for 5 seconds with soldering iron)[2]	260° C
Input Diode	
Forward DC Current[3]	150 mA
Reverse DC Voltage	3 V
Power Dissipation[4]	200 mW
Output Phototransistor	
Collector-Emitter Voltage	25 V
Emitter-Collector Voltage	5 V
Collector-Base Voltage	25 V
Power Dissipation[5]	250 mW

Notes:
(1) Measured with input and output leads shorted in air with a maximum relative humidity of 50 %. UL recognition is for 15kV dc for one minute.
(2) RMA flux is recommended. The duration can be extended to 10 seconds maximum when flow soldering.
(3) Derate linearly 2.0 mA/° C above 25° C.
(4) Derate linearly 2.67 mW/° C above 25° C.
(5) Derate linearly 3.33 mW/° C above 25° C.



Pin #	LED	Pin #	Transistor
1	Anode	3	Emitter
2	Cathode	4	Base
		5	Collector



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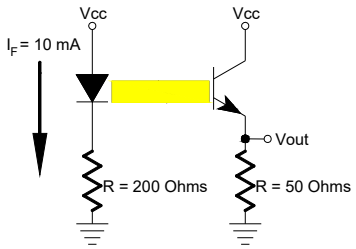
Electrical Characteristics (-40° C to +85° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	-	-	1.5	V	I_F = 30 mA
I_R	Reverse Current	-	-	100	µA	V_R = 3 V
Output Phototransistor (See OP236 for additional information - for reference only)						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	25	-	-	V	I_C = 1 mA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	I_E = 100 µA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	25	-	-	V	I_C = 1 mA
I_{CEO}	Collector-Emitter Dark Current	-	-	100	nA	V_{CE} = 10 V
Coupled (See OP804 and OP805 for additional information - for reference only)						
I_C/I_F	DC Current Transfer Ratio	20	70	-	%	I_F = 10 mA, V_{CE} = 5 V
$V_{CE(SAT)}$	Collector Saturation Voltage	-	-	0.5	V	I_F = 30 mA, I_C = 1 mA
$I_{C(ON)}$	On Collector Current	2.0	-	50	mA	I_F = 10 mA, V_{CE} = 5 V
$I_{CB(ON)}$	On Collector Base Current	15	-	-	µA	I_F = 30 mA, V_{CB} = 5 V
V_{ISO}	Isolation Voltage[(1)]	15	-	-	kV	See note 1
t_r, t_f	Output Rise Time, Output Fall Time	-	2	-	µs	See Test Circuit

Notes:
(1) Measured with input and output leads shorted in air with a maximum relative humidity of 50 %.



Test Circuit