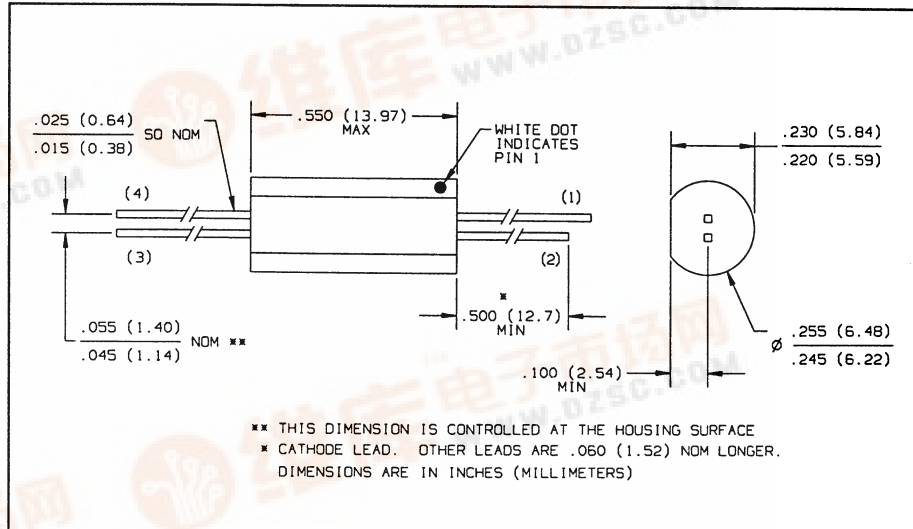
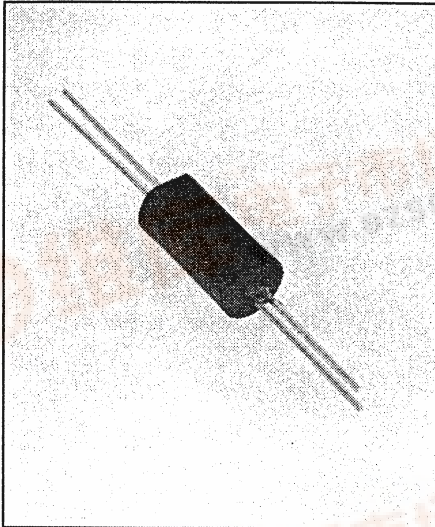


Optically Coupled Isolators

Types OPI1264, OPI1264A, OPI1264B, OPI1264C



Features

- 10kV electrical rating
- High current transfer ratio
- Low cost plastic module
- UL recognized File NO. E58730⁽⁶⁾

Description

The OPI1264 series are optically coupled isolators, each consisting of an infrared emitting diode coupled to an NPN silicon phototransistor and sealed in a precast opaque housing. The isolators are designed for applications requiring high voltage isolation between input and output.

Replaces

K8900 series

Absolute Maximum Ratings ($T_A = 25^\circ \text{C}$ unless otherwise noted)

Input-to-Output Isolation Voltage	$\pm 10 \text{ kVDC}^{(1)(6)}$
Storage Temperature Range	-40°C to $+100^\circ \text{C}$
Operating Temperature Range	-40°C to $+85^\circ \text{C}$
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron]	$260^\circ \text{C}^{(2)}$

Input Diode

Forward DC Current	40 mA ⁽³⁾
Reverse DC Voltage	2.0 V
Power Dissipation	50 mW ⁽⁴⁾

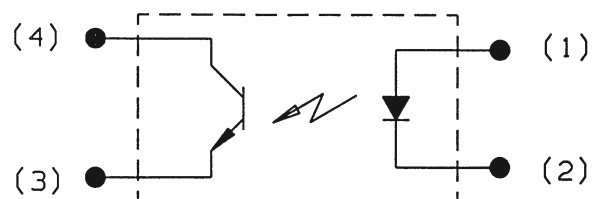
Output Photosensor

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5.0 V
Power Dissipation	100 mW ⁽⁵⁾

Notes:

- (1) Measured with input and output leads shorted. Typical input/output capacitance is 0.06pf.
- (2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (3) Derate linearly 0.67 mA/ $^\circ \text{C}$ above 25°C .
- (4) Derate linearly 0.83 mW/ $^\circ \text{C}$ above 25°C .
- (5) Derate linearly 1.66 mW/ $^\circ \text{C}$ above 25°C .
- (6) UL recognition is for 3500 VAC, 1 minute only.

Schematic



OPI1264

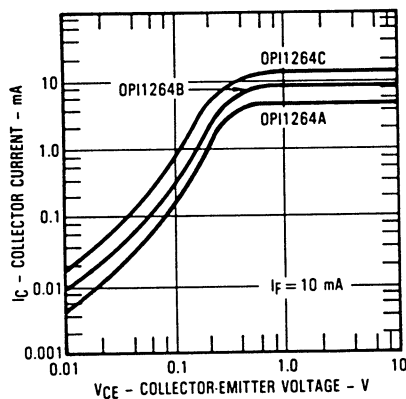
Types OPI1264, OPI1264A, OPI1264B, OPI1264C

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

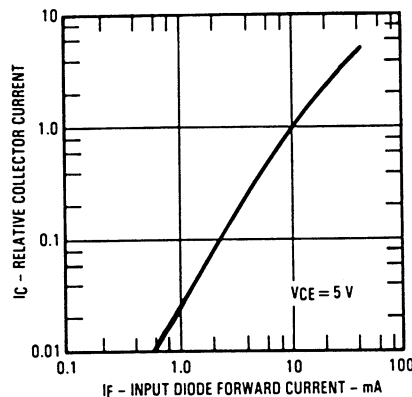
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage			1.60	V	$I_F = 20\text{ mA}$
I_R	Reverse Current			100	μA	$V_R = 2.0\text{ V}$
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30			V	$I_C = 100\text{ }\mu\text{A}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5			V	$I_E = 100\text{ }\mu\text{A}$
I_{CEO}	Collector-Emitter Dark Current			100	nA	$V_{CE} = 15\text{ V}$, $E_e = 0$
Coupled						
I_C/I_F	DC Current Transfer Ratio	OPI1264 OPI1264A OPI1264B OPI1264C	12.5 25 50 100	125	%	$I_F = 10.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$
V_{ISO}	Isolation Voltage	10			kVDC	(See Note 1)
$V_{CE(SAT)}$	Collector-Saturation Voltage			0.40	V	$I_F = 10.0\text{ mA}$, $I_C = 1.6\text{ mA}$
I_{CEO}	Collector-Emitter Dark Current			200	nA	$I_F = 0$, $V_{CE} = 20\text{ V}$

Typical Performance Curves

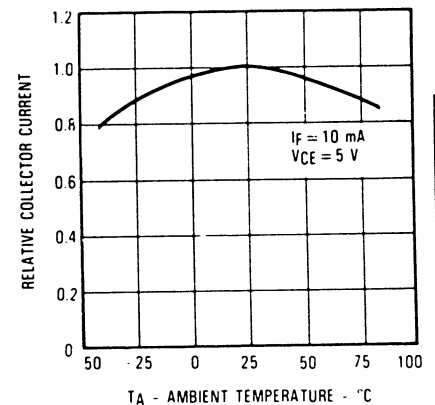
Collector Current vs
Collector-Emitter Voltage



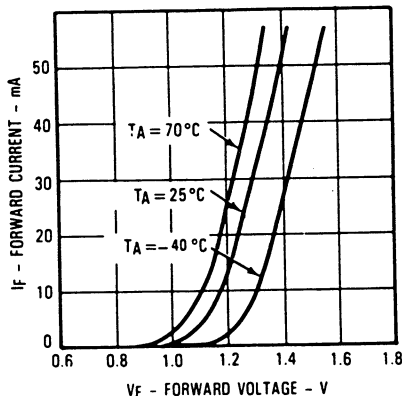
Relative Collector Current vs
Diode Forward Current



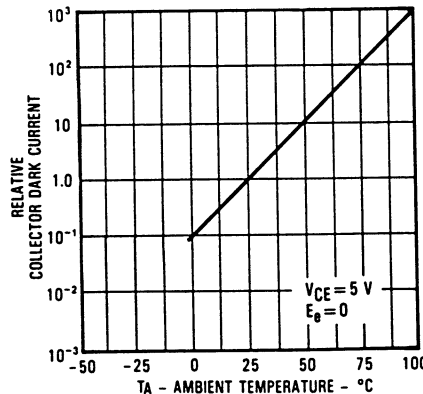
Relative Collector Current vs
Ambient Temperature



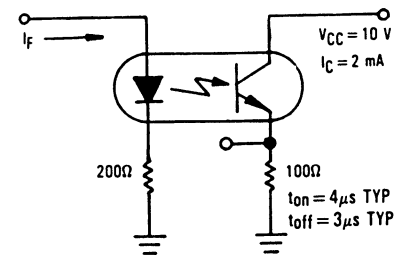
Diode Forward Current
vs Diode Forward Voltage



Collector Dark Current
vs Ambient Temperature



Switching Time
Test Circuit



The input waveform is supplied by a generator with the following characteristics: $Z_{OUT} = 50\text{ }\Omega$, $t_r \leq 15\text{ ns}$, duty cycle $\approx 1\%$, pulse width $\approx 100\text{ }\mu\text{s}$.

OPTICALLY
COUPLED
ISOLATORS