International
IOR Rectifier

Data Sheet No. PD10041 revJ

Series PVI5013RPbF

Photovoltaic Isolator
Solid-State
Opto-Isolated MOSFET Gate Driver
Dual-Channel, 5V, 1.0μA

General Description

The PVI5013R Photovoltaic Isolator is a dual-channel, opto-isolated driver capable of directly driving gates of power MOSFETs or IGBTs. It utilizes a monolithic integrated circuit photovoltaic generator of novel construction as its output. The output is controlled by radiation from a GaAlAs light emitting diode (LED) which is optically isolated from the photovoltaic generator.

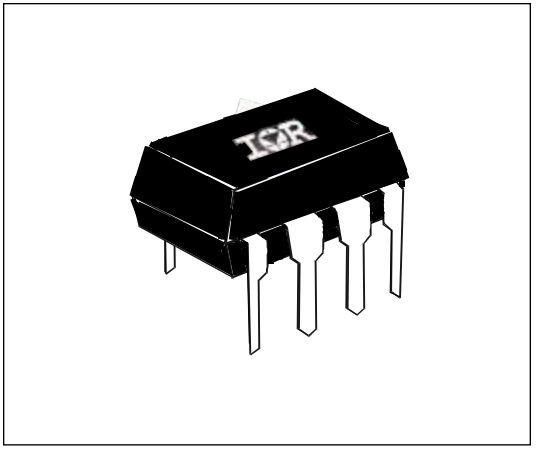
The PVI5013R is ideally suited for applications requiring high-current and/or high voltage switching with optical isolation between the low-level driving circuitry and high-energy or high- voltage load circuits. It can be used for directly driving gates of power MOSFETs. The dual- channel configuration allows its outputs to drive independent discrete power MOSFETs, or be connected in parallel or in series to provide higher-current drive for power MOSFETs or higher-voltage drive for IGBTs. PVI5013R employs a fast turn-off circuitry.

PVI5013R Photovoltaic Isolators are packaged in an 8-pin, molded DIP package with either thru-hole or surface-mount (gull-wing) terminals. It is available in standard plastic shipping tubes or on tape-and-reel.

Please refer to Part Identification information opposite.

Features

- Monolithic construction
- 3,750 V_{RMS} I/O Isolation
- 1,200 V_{DC} output-to-output isolation
- Dual-Channel application flexibility
- Solid-State reliability
- UL recognized and BABT Certified



Applications

- Telecommunications
- Load Distribution
- Industrial Controls
- Instrumentation and Measurement

Part Identification

PVI5013RPbF	thru-hole
PVI5013RSPbF	surface-mount
PVI5013RS-TPbF	surface-mount, Tape and Reel

Electrical Specifications (-40°C ≤ T_A ≤ +85°C unless otherwise specified)

INPUT CHARACTERISTICS	Limits	Units
Minimum Input Current (see figure 1)	5.0	mA
Input Current Range (see figure 1)	3.0 to 25	mA
Maximum Continuous Input Current @ TA=+25°C	40	mA
LED Forward Voltage Drop @ 5mA, TA=+25°C (see figure 3)	1.4	V
Maximum Reverse Voltage	6.0	V
Maximum Reverse Current @ -6VDC, TA=+25°C	10	µA

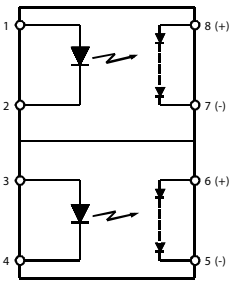
OUTPUT CHARACTERISTICS	Limits	Units
Minimum Forward Voltage	8.0	VDC
Maximum Reverse Current	10	µADC

COUPLED CHARACTERISTICS	Limits	Units
Minimum Output Voltage @ ILED = 5mA, RL = 10MΩ @ TA=0°C to +70°C (see figures 1 and 2)	3	V
Maximum Output Voltage @ ILED = 5mA, RL = 10MΩ @ TA=0°C to +70°C (see figures 1 and 2)	8	V
Maximum Voltage Differential Between Outputs @ ILED = 5mA, RL = 10MΩ	1.0	V
Typical Output Short-Circuit Current @ ILED = 5mA, @ TA=+25°C (see figures 1 and 2)	1.0	µA
Maximum Turn-On Time @ ILED = 5mA, CLOAD = 200pF (see figure 4)	5	ms
Max. Turn-Off Time @ ILED = 5mA, CLOAD = 200pF (see figure 4)	0.25	ms
Off-State Clamping Resistance: minimum	100	Ω
maximum	3300	Ω

GENERAL CHARACTERISTICS		Limits	Units
Minimum Dielectric Strength, Input-Output		3750	V_{RMS}
Minimum Dielectric Strength, Output-to-Output		1200	VDC
Minimum Insulation Resistance, Input-to-Output @T_A=+25°C, 50%RH, 100V_{DC}		10^{12}	Ω
Maximum Capacitance, Input-Output		5.0	qpF
Maximum Pin Soldering Temperature (10 seconds maximum)		+260	°C
Ambient Temperature Range:	Operating	-40 to +85	°C
	Storage	-40 to +100	°C

International Rectifier does not recommend the use of this product in aerospace, avionics, military or life support applications. Users of this International Rectifier product in such applications assume all risks of such use and indemnify International Rectifier against all damages resulting from such use.

Connection Diagram



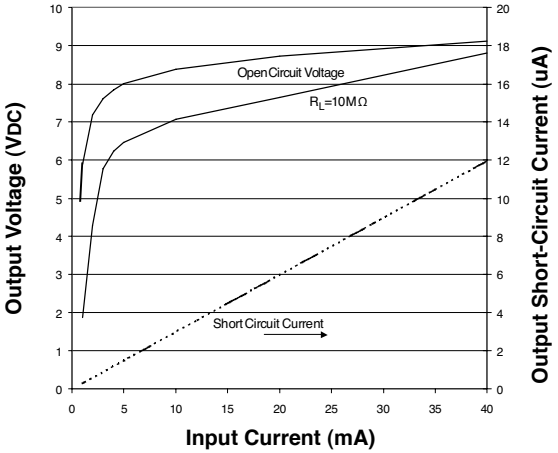


Figure 1. Typical Output Characteristics

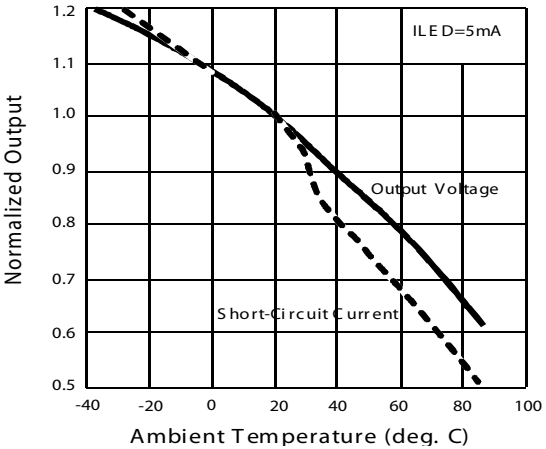


Figure 2. Typical Variation of Output

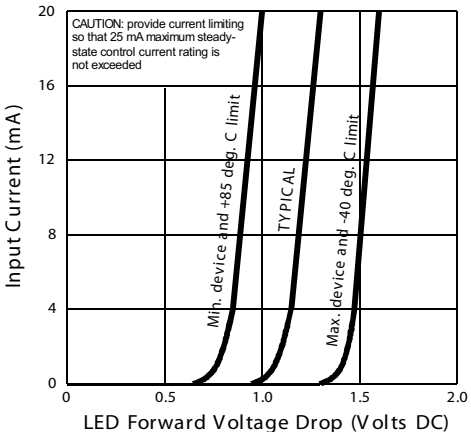


Figure 3. Input Characteristics (Current Controlled)

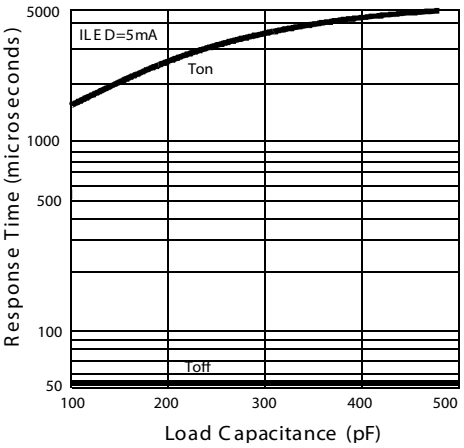
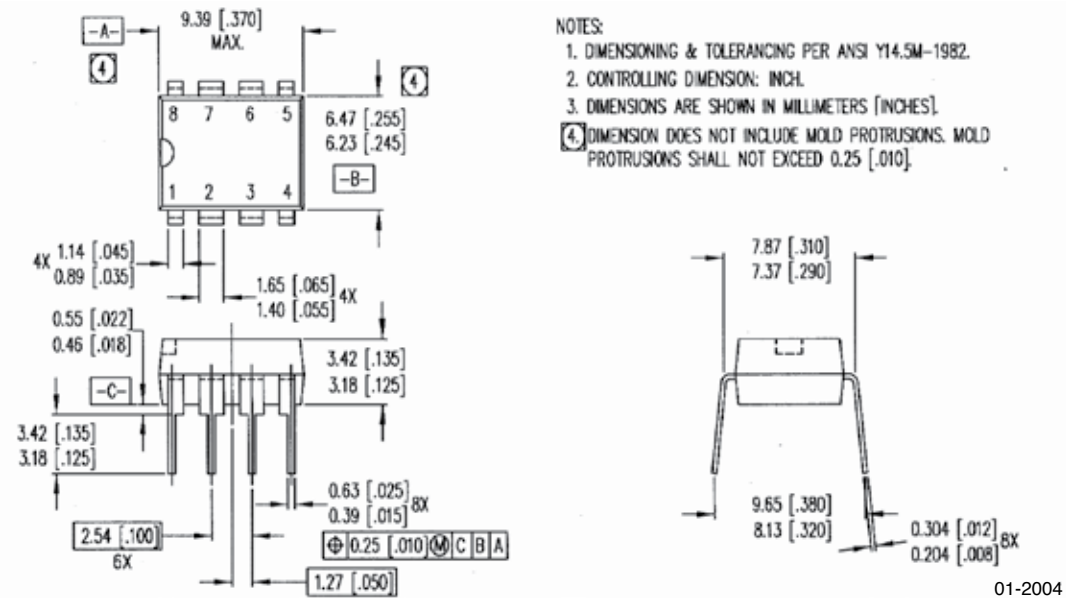
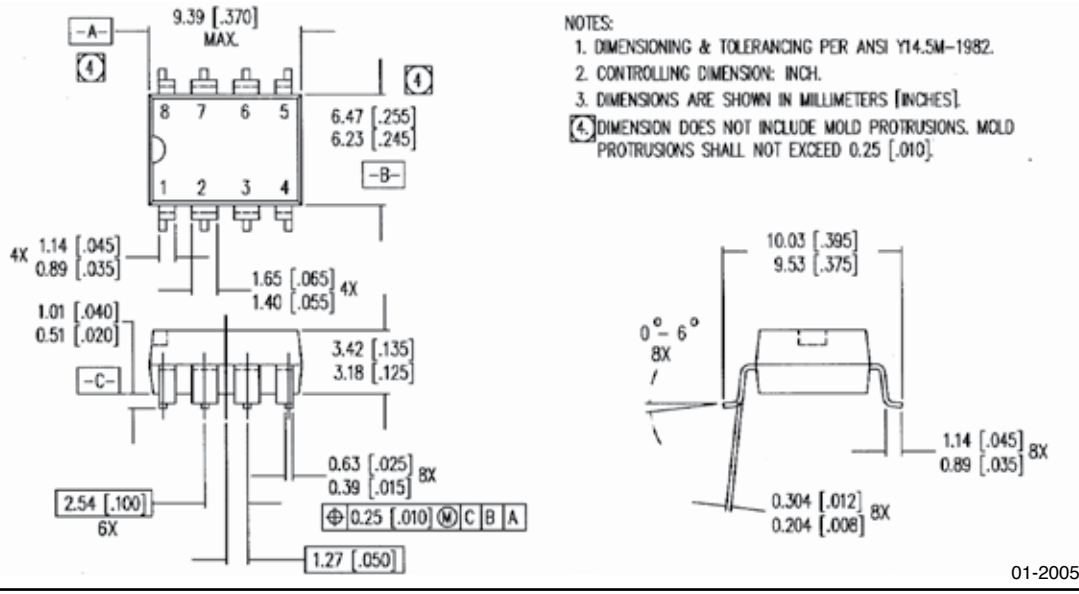


Figure 4. Typical Response Time

Case Outlines





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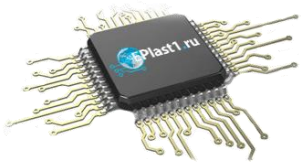
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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