International **TOR** Rectifier

Data Sheet No. PD 10039C

PVDZ172N

Microelectronic Power IC HEXFET® Power MOSFET Photovoltaic Relay Single Pole, Normally Open 0-60V DC, 1.5A

General Description

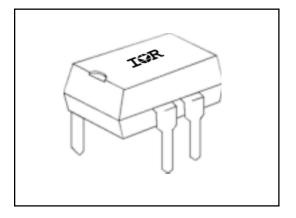
The PVDZ172N Photovoltaic Relay is a single-pole, normally open solid state relay that can replace electromechanical relays used for general purpose switching of DC loads. It utilizes International Rectifier's HEX-FET power MOSFET as the output switch, driven by an integrated circuit photovoltaic generator of novel construction. The output switch is controlled by radiation from a GaAIAs light emitting diode (LED) which is optically isolated from the photovoltaic generator.

These units overcome the limitations of both electromechanical and reed relays by offering the solid-state advantages of high sensitivity, miniaturization, no contact bounce, long operational life, insensitivity to external magnetic fields, shock and vibration, and high reliability inherent with solid state technology. They are ideally suited for switching high currents or low level signals without distortion or injection of electrical noise. These relays are packaged in 8-pin, molded DIP pack-

ages and available with through-hole and surface-mount (gull-wing) leads, in plastic shipping tubes.

Features

- 250mΩ On-Resistance
- Bounce-Free Operation
- 1.5 Amp capacity
- 4,000 V_{RMS} I/O Isolation
- Solid-State Reliability
- UL recognized
- ESD Tolerance: 4000V Human Body Model 500V Machine Model



Applications

- Portable Electronics
- Programmable Logic Controllers
- Computers and Peripheral Devices
- Audio Equipment
- Power Supplies and Power Distribution
- Instrumentation

Part Identification

PVDZ172N	throug
PVDZ172NS	surfac

through-hole surface-mount (gull-wing)

(HEXFET is the registered trademark for International Rectifier Power MOSFETs)

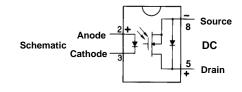
Electrical Specifications (-40°C \leq T_A \leq =+85°C unless otherwise specified)

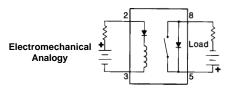
INPUT CHARACTERISTICS	Limits	Units
Minimum Control Current (see figures 1 and 2)	10	mA
Maximum Control Current for Off-State Resistance @ $T_{A^{=}+25^{\circ}C}$	0.4	mA
Control Current Range (Caution: Current limit input LED, see figure 6)	5.0 to 25	mA
Maximum Reverse Voltage	7.0	V

OUTPUT CHARACTERISTICS		Units
Operating Voltage Range	0 to 60	V(DC)
Maximum Load Current 40°C (see figures 1 and 2)	1.5	A(DC)
Maximum Pulsed Load Current @Ta=+25°C (100 ms @ 10% duty cycle)	4.0	A(DC)
Maximum Turn-On Time @TA=+25°C (see figure 7)	2.0	ms
For 500mA, 50V _{DC} Load, 10mA Control		
Maximum Turn-Off Time @T _A =+25°C (see figure 7)	0.5	ms
For 500mA, 50V _{DC} Load, 10mA Control		
Maximum On State Resistance @T _A =+25°C(pulsed) (see figure 4)	250	mΩ
1.0A load, 10mA Control		
Minimum Off State Resistance @T _A =+25°C @ 48 V _{DC} (see figure 5)	108	Ohms
Minimum Off-State dv/dt	1000	V/µs
Output Capacitance (see figure 9)	150	pF @ 50 VDC

GENERAL CHARACTERISTICS		Limits	Units
Dielectric Strength, Input-Output		4000	V _(RMS)
Insulation Resistance, Input-Output, 90 V_D	С	10 ¹² @T _A =+25°C - 50% RH	Ω
Capacitance, Input-Output		1.0	pF
Lead Temperature (1.6mm below seating plane) for 10 seconds		+260	°C
Ambient Temperature Range:	Operating	-40 to +85	°C
	Storage	-40 to +100	°C

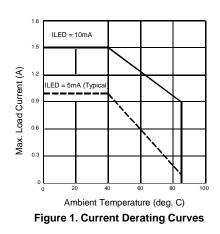
Wiring Diagrams





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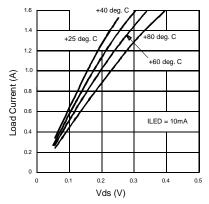


Figure 3. Typical On-Characteristics

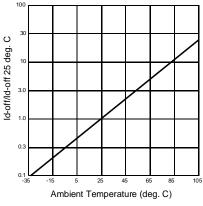
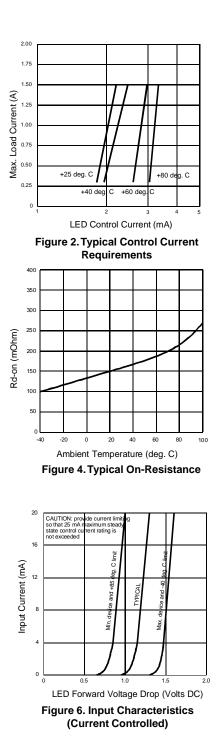
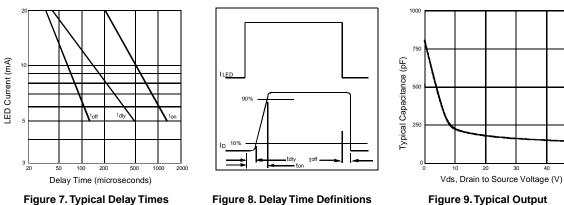


Figure 5. Typical Normalized Off-State Leakage



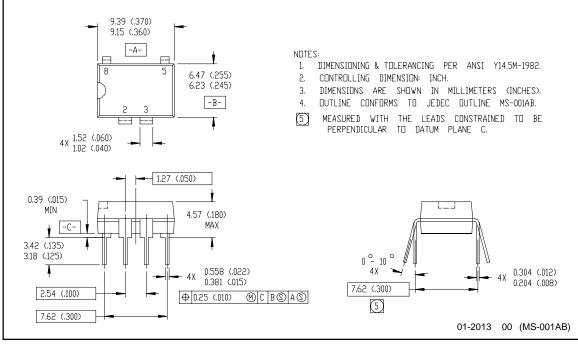
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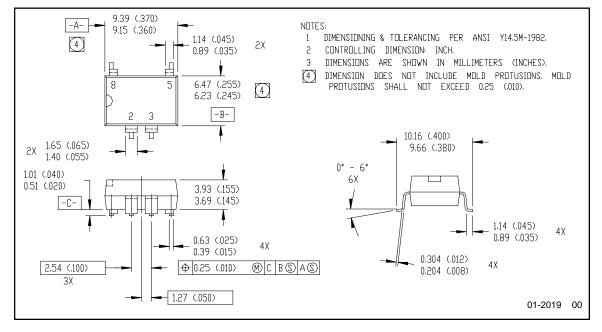
Capacitance

Case Outlines



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Case Outlines



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