International **TOR** Rectifier

Data Sheet No. PD10061 revF

Series PVT212PbF

Microelectronic Power IC

HEXFET® Power MOSFET Photovoltaic Relay Single Pole, Normally Open, 0-150V, 550mA AC / 825mA DC

General Description

The PVT212 Series Photovoltaic Relay is a single-pole, normally open solid-state relay that can replace electromechanical relays in many applications. It utilizes International Rectifier's proprietary HEXFET 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 GaAlAs light emitting diode (LED) which is optically isolated from the photovoltaic generator.

These SSRs are specifically designed for industrial control and peripheral telecom applications. Series PVT212 Relays are packaged in a 6-lead molded DIP package with either thru-hole or surface mount ('gull-wing') terminals. It iss available in standard plastic shipping tubes or on tape-and-reel. Please refer to part identification information

Features

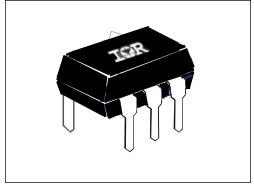
- HEXFET Power MOSFET output
- Bounce-free operation
- 4,000 VRMS I/O isolation
- Very low on-resistance (RDD-ON)
- Linear AC/DC operation
- Solid-State Reliability
- UL recognized
- ESD Tolerance: 4000V Human Body Model 500V Machine Model

Applications

- Control of AC (up to 90 VAC) industrial loads
- Control of DC industrial loads up to +/-120 VDC
- Telecom line switching

Part Identification

PVT212PbF PVT212SPbF PVT212S-TPbF thru-hole surface-mount surface-mount, Tape and Reel



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

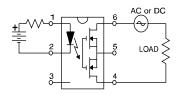
Electrical Specifications (TA = +25°C unless otherwise specified)

| INPUT CHARACTERISTICS | | Limits | Units |
|---|-----------|----------------------|------------------------------|
| Minimum Control Current (see figure 1) | | 5.0 | mA |
| Maximum Control Current for Off-State Resistance | | 0.4 | mA |
| Control Current Range (Caution: current limit input LED, see figure 5) | | 5.0 to 25 | mA |
| Maximum Reverse Voltage | | 6.0 | V |
| OUTPUT CHARACTERISTICS | | Limits | Units |
| Operating Voltage Range | | 0 to ±150 | V peak |
| Maximum Load Current @ Ta=+40°C 5mA Control (see A Connection B Connection C Connection | igure 1) | 550 600 825 | mA mA mA |
| Maximum On-State Resistance @TA=+25°C 100mA Pulsed Load, 5mA Control (see figures 2 & 3) A Connection B Connection C Connection | | 0.75 0.40 0.25 | $\Omega \\ \Omega \\ \Omega$ |
| Max. pulsed Load Current @TA=+25°C, 10mA Control (10mS @ 10% duty cycle) | | 1200 | mA |
| Maximum Off-State Leakage @TA=+25°C, ±150V | | 1.0 | μA |
| Maximum Turn-On Time @Ta=+25°C (see figures 6 & 7) For 50mA, 100 Vpc load, 10mA Control (5mS pulse width @ 50% duty cycle) | | 3.0 | ms |
| Maximum Turn-Off Time @Ta=+25°C (see figures 6 & 7) For 50mA, 100 Vpc load, 10mA Control (5mS pulse width @ 50% duty cycle) Maximum Output Capacitance @ 50Vpc, f=1MHz (Cout, see figure 8) | | 0.5 | ms pF |
| GENERAL CHARACTERISTICS | | Limits | Units |
| Minimum Dielectric Strength, Input-Output | | 4000 | Vrms |
| Minimum Insulation Resistance, Input-Output | | 10 ¹² | Ω |
| Maximum Capacitance, Input-Output Vd=0V, f=1MHz | | 1.0 | pF |
| Maximum Pin Soldering Temperature (10 seconds maximum) | | +260 | |
| Ambient Temperature Range: | Operating | -40 to +85 | °C |
| | Storage | -40 to +100 | |

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.

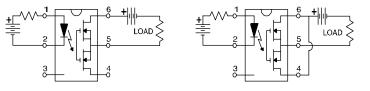
Connection Diagrams

"A" Connection

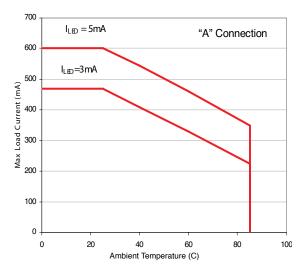


"B" Connection

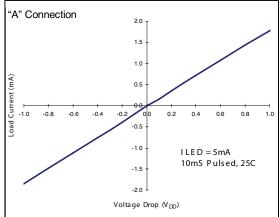
"C" Connection



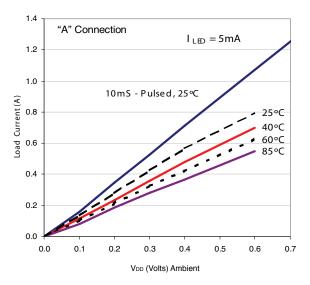
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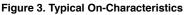












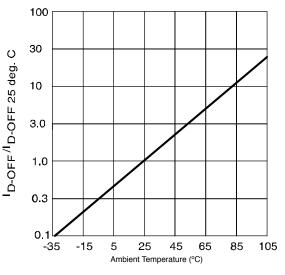


Figure 4. Typical Normalized Off-State Leakage

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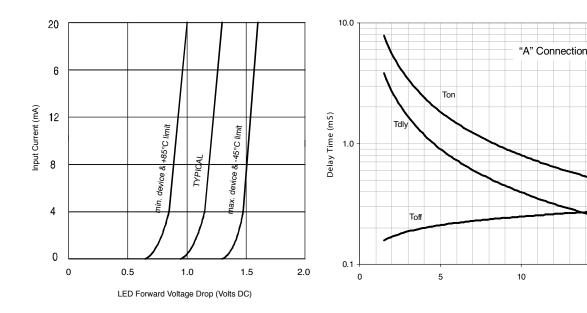




Figure 6. Typical Delay Times (5mS Pulse Width, 100V/50mA Load)

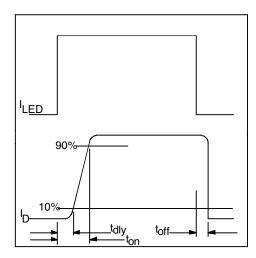


Figure 7. Delay Time Definitions

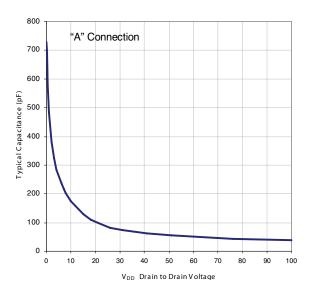
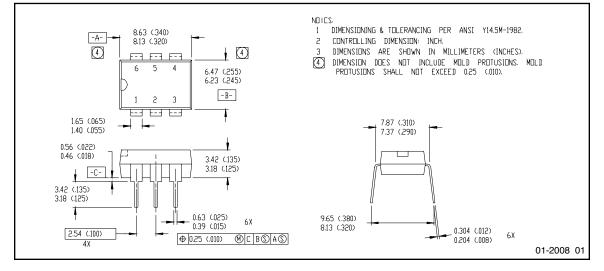
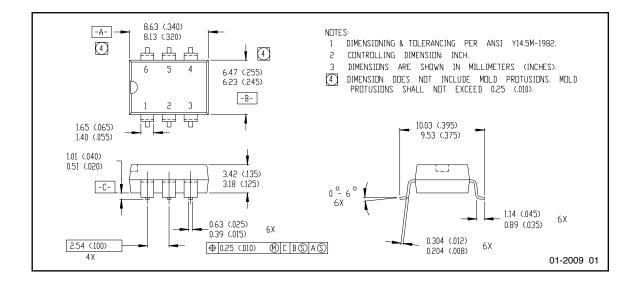


Figure 8. Typical Output Capacitance

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Case Outlines





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