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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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Microelectronic Power IC

HEXFET® Power MOSFET Photovoltaic Relay
 Single-Pole, Normally-Open, 0-60V, 1.0A AC / 2.0A DC

General Description

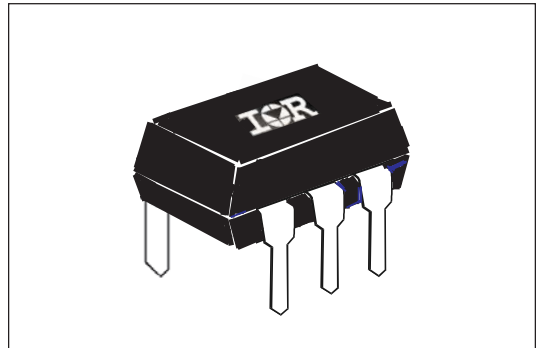
The PVG613 Series Photovoltaic Relay is a single-pole, normally open solid-state relay that can replace electromechanical relays in many applications. It utilizes International Rectifier's proprietary HEXFET power MOSFET as the output switch, driven by an integrated circuit photovoltaic generator of 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 units exceed the performance capabilities of electromechanical relays in operating life, sensitivity, stable on-resistance, low off-state leakage, miniaturization, insensitivity to magnetic fields and ruggedness. The compact PVG613 is particularly suited for isolated switching of high currents from 12 to 48 Volt AC or DC power sources.

Series PVG613 Relays are packaged in a 6-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

- Bounce-free operation
- High load current capacity
- Extremely low off-state leakage
- Linear AC/DC operation
- 4,000 V_{RMS} I/O Isolation
- Solid-State reliability
- UL recognized
- ESD Tolerance:
 4000V Human Body Model
 500V Machine Model



Applications

- Industrial Control
- Computers and Peripheral Devices
- Audio Equipment
- Power Supplies and Power Distribution
- Factory Automation

Part Identification

| | |
|--------------|------------------------------|
| PVG613PbF | thru-hole |
| PVG613SPbF | surface-mount |
| PVG613S-TPbF | surface-mount, tape and reel |

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

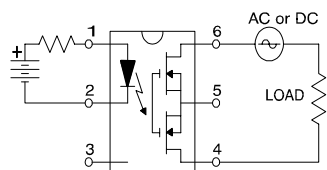
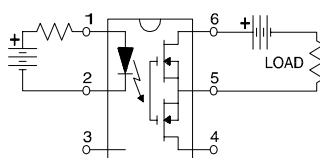
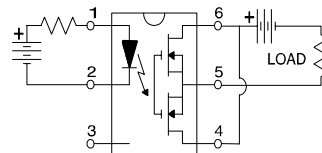
Electrical Specifications ($-40^{\circ}\text{C} \leq T_A \leq +85^{\circ}\text{C}$ unless otherwise specified)

| INPUT CHARACTERISTICS | Limits | Units |
|--|---------------|--------------|
| Minimum Control Current (see figure 1) | 5.0 | mA |
| Maximum Control Current for Off-State Resistance @ $T_A = +25^{\circ}\text{C}$ | 0.4 | mA |
| Control Current Range (Caution: current limit input LED, see figure 6) | 5.0 to 25 | mA |
| Maximum Reverse Voltage | 6.0 | V |

| OUTPUT CHARACTERISTICS | Limits | Units |
|---|---------------|------------------------------|
| Operating Voltage Range | 0 to ± 60 | $V_{(\text{DC or AC peak})}$ |
| Maximum Load Current @ $T_A = +40^{\circ}\text{C}$, 10mA Control (see figure 1) | | |
| A Connection | 1.0 | A (AC or DC) |
| B Connection | 1.5 | A (DC) |
| C Connection | 2.0 | A (DC) |
| Maximum Pulsed Load Current @ $T_A = +25^{\circ}\text{C}$ (100 ms @ 10% Duty Cycle) | | |
| A Connection | 2.4 | A (AC or DC) |
| Maximum On-State Resistance @ $T_A = +25^{\circ}\text{C}$ | | |
| For 1A pulsed load, 10mA Control (see figure 4) | | |
| A Connection | 500 | $\text{m}\Omega$ |
| B Connection | 250 | $\text{m}\Omega$ |
| C Connection | 150 | $\text{m}\Omega$ |
| Maximum Off-State Leakage @ $T_A = +25^{\circ}\text{C}$, $\pm 48\text{V}$ (see figure 5) | 10 | nA |
| Maximum Turn-On Time @ $T_A = +25^{\circ}\text{C}$ (see figure 7) | | |
| For 500mA, 50 V_{DC} load, 10mA Control | 2.0 | ms |
| Maximum Turn-Off Time @ $T_A = +25^{\circ}\text{C}$ (see figure 7) | | |
| For 500mA, 50 V_{DC} load, 10mA Control | 0.5 | ms |
| Maximum Output Capacitance @ 50 V_{DC} (see figure 2) | 130 | pF |

| GENERAL CHARACTERISTICS | Limits | Units |
|---|---------------|--------------------|
| Minimum Dielectric Strength, Input-Output | 4000 | V_{RMS} |
| Minimum Insulation Resistance, Input-Output, @ $T_A = +25^{\circ}\text{C}$, 50%RH, 100 V_{DC} | 10^{12} | Ω |
| Maximum Capacitance, Input-Output | 1.0 | pF |
| Maximum Pin Soldering Temperature (10 seconds maximum) | +260 | |
| Ambient Temperature Range: | | $^{\circ}\text{C}$ |
| Operating | -40 to +85 | |
| 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


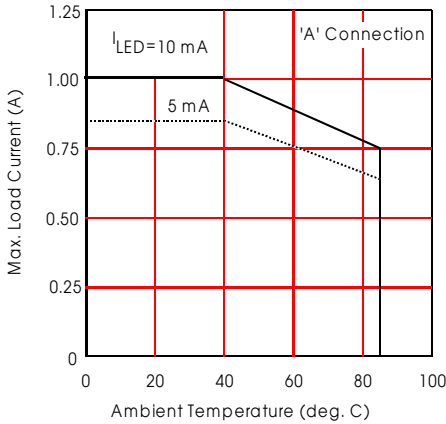


Figure 1. Current Derating Curves*

* Derating of 'B' and 'C' connection at +85°C will be 70% of that specified at +40°C and is linear from +40°C to +85°C.

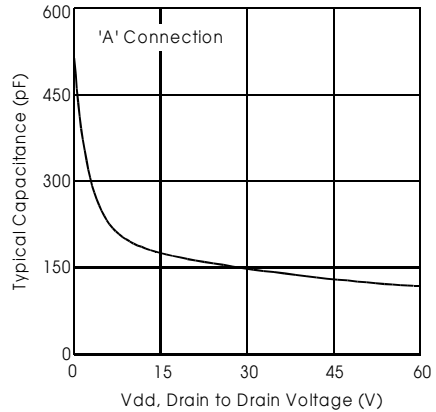


Figure 2. Typical Output Capacitance

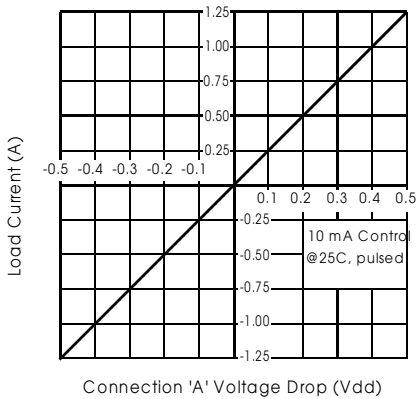


Figure 3. Linearity Characteristics

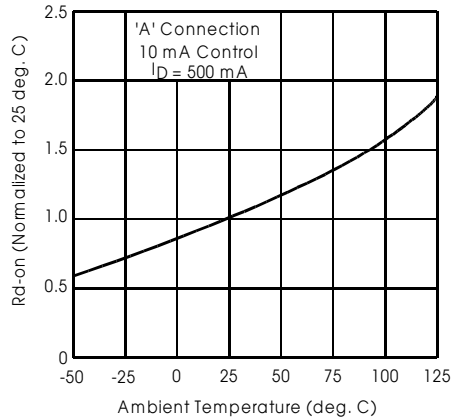


Figure 4. Typical Normalized On-Resistance

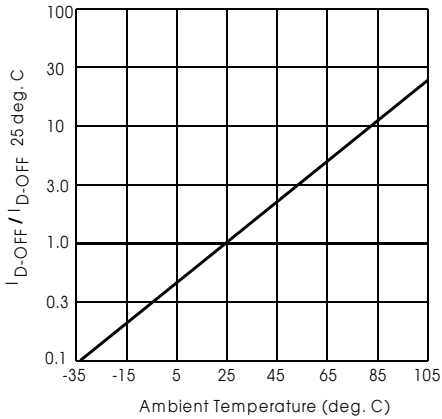


Figure 5. Typical Normalized Off-State Leakage

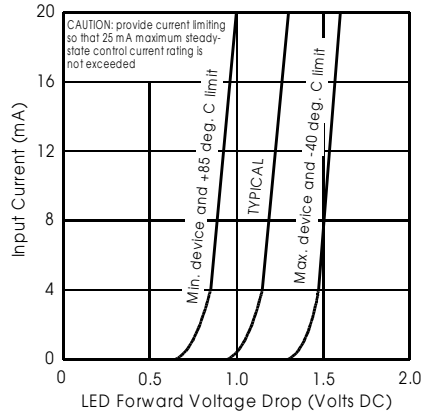


Figure 6. Input Characteristics (Current Controlled)

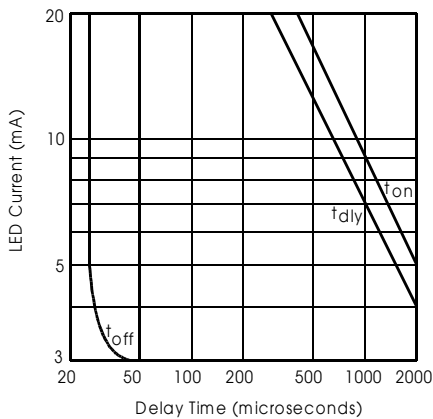


Figure 7. Typical Delay Times

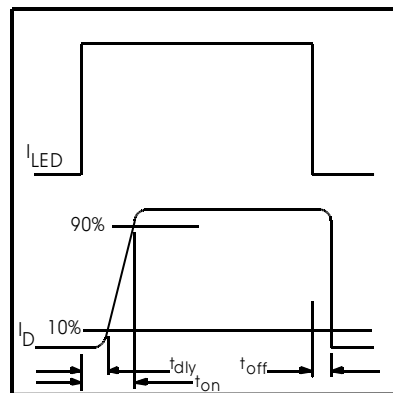
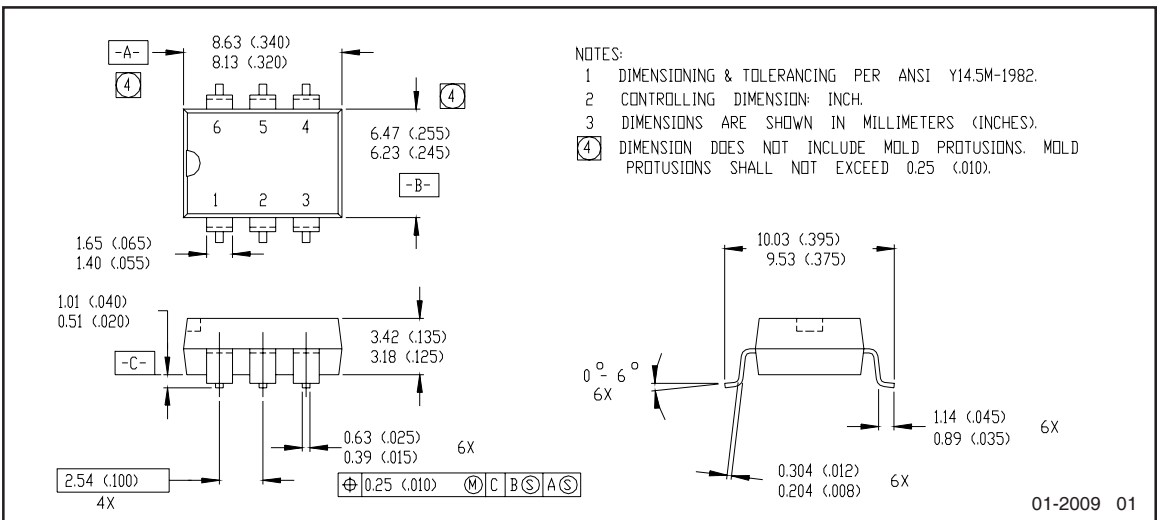
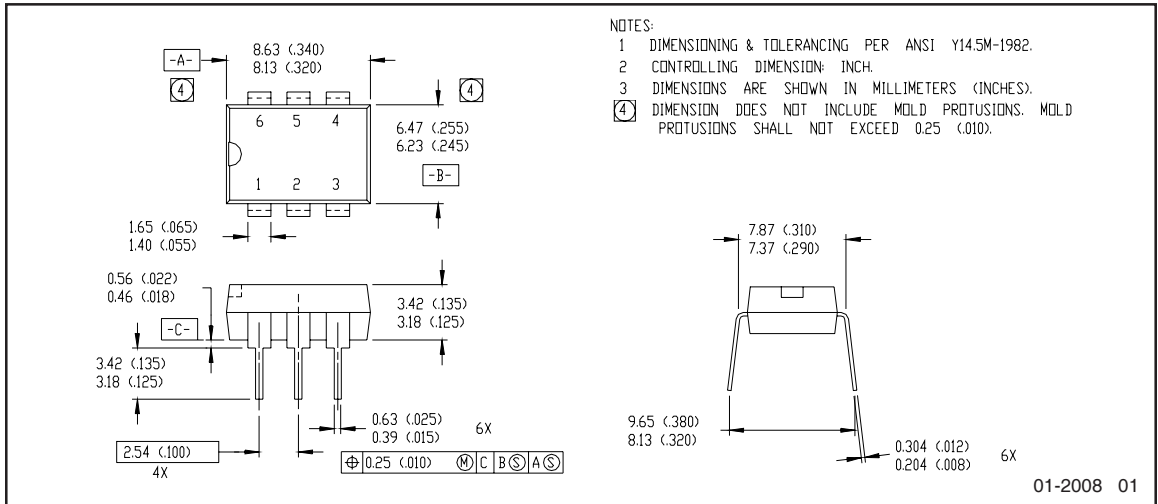


Figure 8. Delay Time Definitions

Case Outlines



Note: For the most current drawing please refer to IR website at: <http://www.irf.com/package/>

Qualification information[†]

| | | |
|----------------------------|--|--|
| Qualification level | Industrial (per JEDEC JESD471 ^{††} guidelines) | |
| Moisture Sensitivity Level | PVG613PbF | N/A |
| | PVG613SPbF | MSL4 |
| | PVG613S-TPbF | (per JEDEC J-STD-020E & JEDEC J-STD-033C ^{††}) |
| RoHS compliant | Yes | |

[†] Qualification standards can be found at International Rectifier’s web site: <http://www.irf.com/product-info/reliability>

^{††} Applicable version of JEDEC standard at the time of product release

Revision History

| Date | Comments |
|----------|--|
| 5/4/2015 | <ul style="list-style-type: none"> • Added Qualification Information Table on page 6 • Updated data sheet with new IR corporate template |