

Microelectronic Power IC

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

General Description

The PVG612 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, stability of on-resistance, miniaturization, insensitivity to magnetic fields and ruggedness. The compact PVG612 is particularly suited for isolated switching of high currents from 12 to 48 Volt AC or DC power sources.

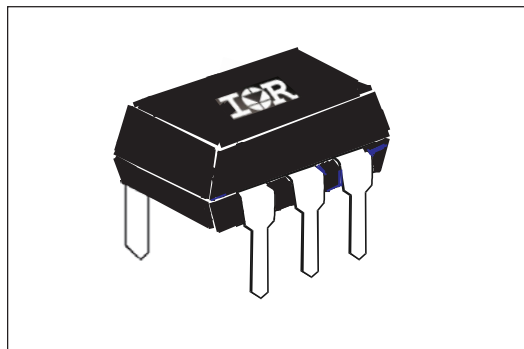
Series PVG612 Relays are packaged in a 6-pin, molded DIP package with either thru-hole or surface mount (gull-wing) terminals. It is available in standard plastic shipping tubes or on tape-and-reel. Please refer to Part Identification information opposite.

Applications

- Programmable Logic Controllers
- Computers and Peripheral Devices
- Audio Equipment
- Power Supplies and Power Distribution
- Control of Displays and Indicators
- Industrial Automation

Features

- Bounce-free operation
- High load current capacity
- High off-state resistance
- 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



Part Identification

| | |
|--------------|------------------------------|
| PVG612PbF | thru-hole |
| PVG612SPbF | surface-mount |
| PVG612S-TPbF | surface-mount, tape and reel |

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

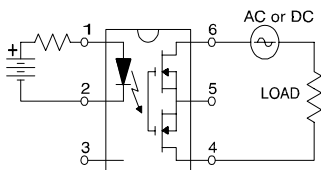
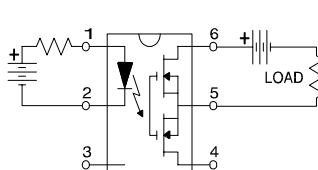
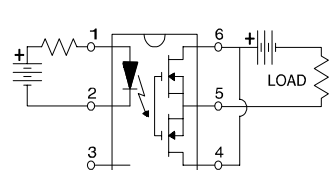
Electrical Specifications ($-40^{\circ}\text{C} \leq T_A \leq +85^{\circ}\text{C}$ unless otherwise specified)

| 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 | $V_{(DC \text{ or } AC \text{ peak})}$ |
| Maximum Load Current @ $T_A = +40^{\circ}\text{C}$, 10mA Control (see figure 1) | A Connection | 1.0 |
| | B Connection | 1.5 |
| | C Connection | 2.0 |
| Maximum Pulsed Load Current @ $T_A = +25^{\circ}\text{C}$ (100 ms @ 10% Duty Cycle) | A Connection | 2.4 |
| | | |
| Maximum On-State Resistance @ $T_A = +25^{\circ}\text{C}$ For 1A pulsed load, 10mA Control (see figure 4) | A Connection | 500 |
| | B Connection | 250 |
| | C Connection | 150 |
| | | $\text{m}\Omega$ |
| Minimum Off-State Resistance @ $T_A = +25^{\circ}\text{C}$, $\pm 48\text{V}$ (see figure 5) | 10^8 | Ω |
| 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 | $^{\circ}\text{C}$ |
| Ambient Temperature Range: | Operating | |
| | 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


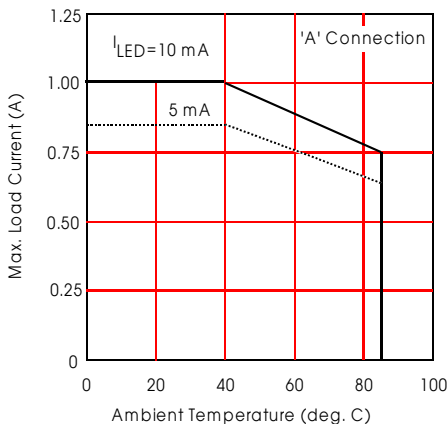


Figure 1. Current Derating Curves*

* 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.

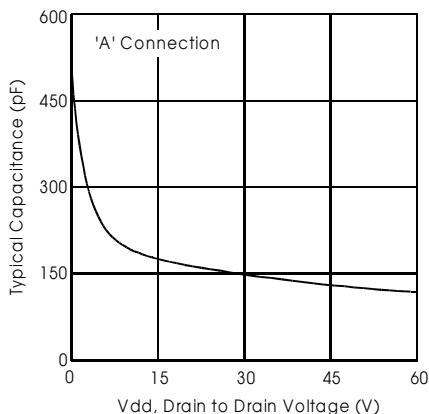


Figure 2. Typical Output Capacitance

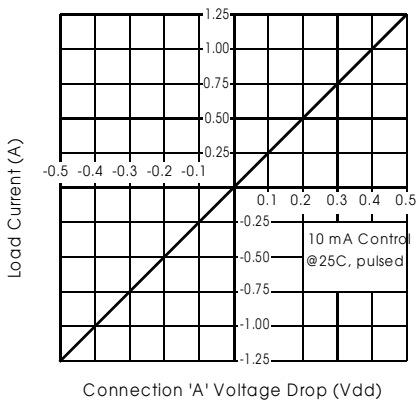


Figure 3. Linearity Characteristics

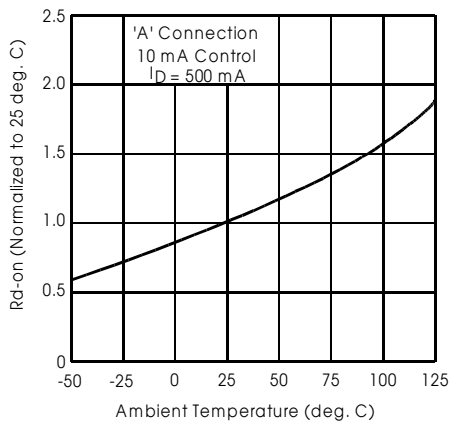


Figure 4. Typical Normalized On-Resistance

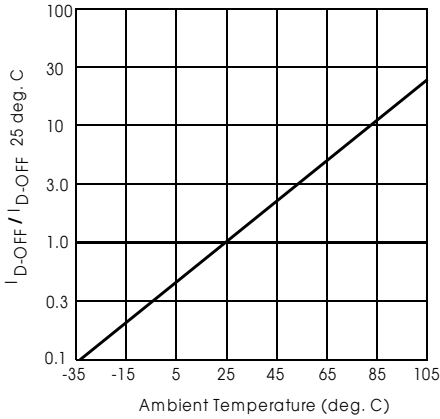


Figure 5. Typical Normalized Off-State Leakage

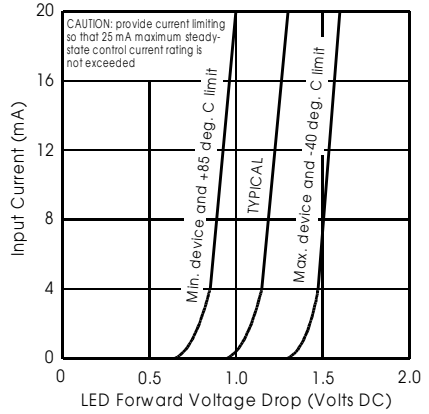


Figure 6. Input Characteristics (Current Controlled)

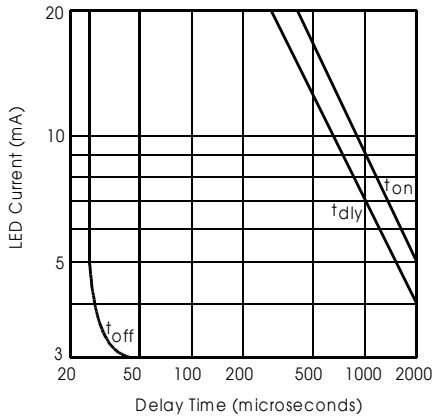


Figure 7. Typical Delay Times

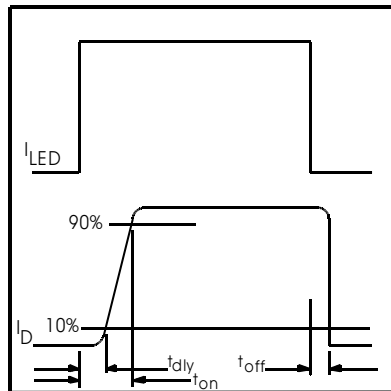
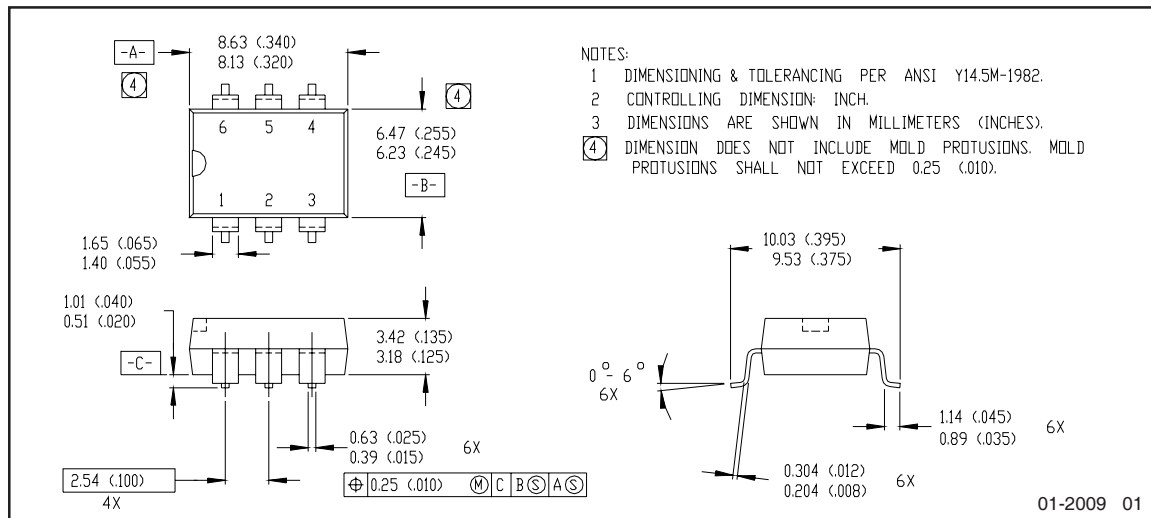
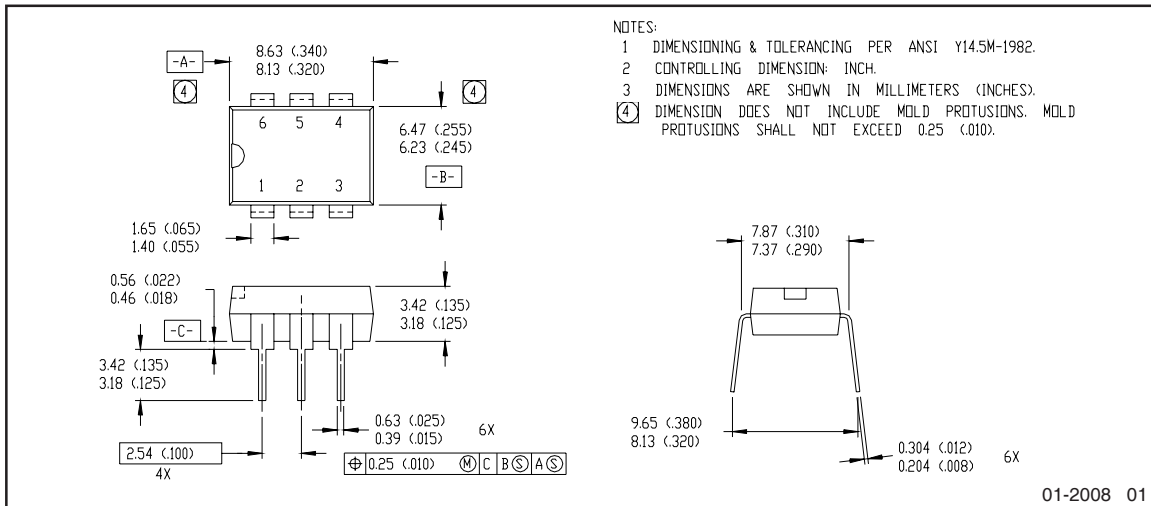


Figure 8. Delay Time Definitions

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 | PVG612PbF | N/A |
| | PVG612SPbF | MSL4 |
| | PVG612S-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 |

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Infineon:](#)

[PVG612PBF](#) [PVG612S-TPBF](#) [PVG612SPBF](#)

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)
Email: org@lifeelectronics.ru