International
IOR Rectifier

Data Sheet No. PD10061

Series PVT212

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

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Applications

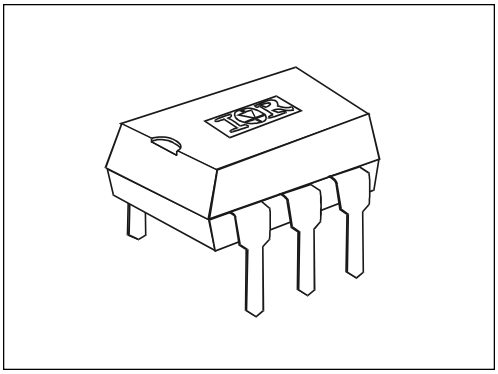
- Control of AC (up to 90 VAC) industrial loads
- Control of DC industrial loads up to +/-120 VDC
- Telecom line switching

Part Identification

PVT212	thru-hole
PVT212S	surface-mount
PVT212S-T	surface-mount, Tape and Reel

Features

- HEXFET Power MOSFET output
- Bounce-free operation
- 4,000 V_{RMS} I/O isolation
- Very low on-resistance (R_{DD-ON})
- Linear AC/DC operation
- Solid-State Reliability
- UL recognition pending
- ESD Tolerance:
  - 4000V Human Body Model
  - 500V Machine Model



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

Electrical Specifications (T_A = +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 (1mA max)	7.0	V

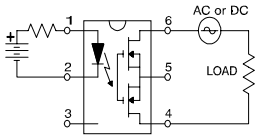
OUTPUT CHARACTERISTICS	Limits	Units
Operating Voltage Range	0 to ±150	V peak
Maximum Load Current @ T_A=+40°C 5mA Control (see figure 1)		
A Connection	550	mA
B Connection	600	mA
C Connection	825	mA
Maximum On-State Resistance @T_A=+25°C		
100mA Pulsed Load, 5mA Control (see figures 2 & 3)		
A Connection	0.75	Ω
B Connection	0.40	Ω
C Connection	0.25	Ω
Max. pulsed Load Current @T_A=+25°C, 10mA Control (10mS @ 10% duty cycle)	1200	mA
Maximum Off-State Leakage @T_A=+25°C, ±150V	1.0	µA
Maximum Turn-On Time @T_A=+25°C (see figures 6 & 7)		
For 50mA, 100 V_{DC} load, 10mA Control (5mS pulse width @ 50% duty cycle)	3.0	ms
Maximum Turn-Off Time @T_A=+25°C (see figures 6 & 7)		
For 50mA, 100 V_{DC} load, 10mA Control (5mS pulse width @ 50% duty cycle)	0.5	ms
Maximum Output Capacitance @ 50V_{DC}, f=1MHz (Cout, see figure 8)	100	pF

GENERAL CHARACTERISTICS		Limits	Units
Minimum Dielectric Strength, Input-Output		4000	V_{RMS}
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	°C
Ambient Temperature Range:	Operating	-40 to +85	
	Storage	-40 to +100	

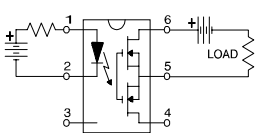
International Rectifier does not recommend the use of this product in aerospace, avionics, military or life support applications. Users of this International Rectifier product in such applications assume all risks of such use and indemnify International Rectifier against all damages resulting from such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

Connection Diagrams

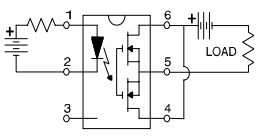
"A" Connection



"B" Connection



"C" Connection



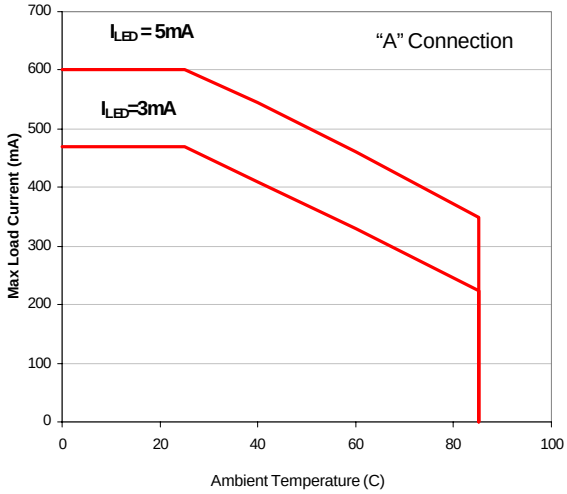


Figure 1. Typical Current Derating Curves

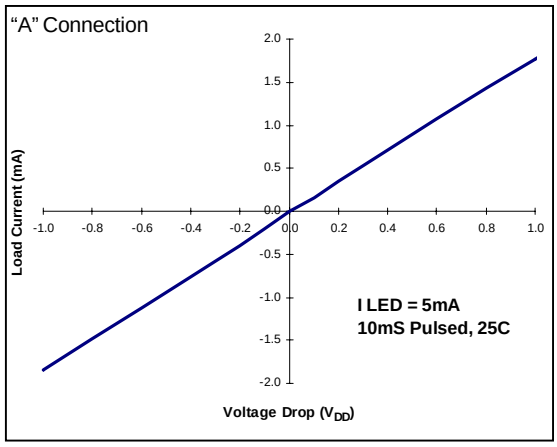


Figure 2. Typical On Characteristics

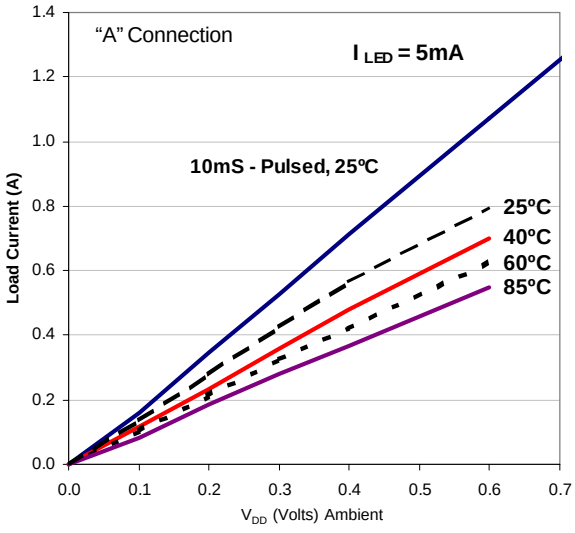


Figure 3. Typical On-Characteristics

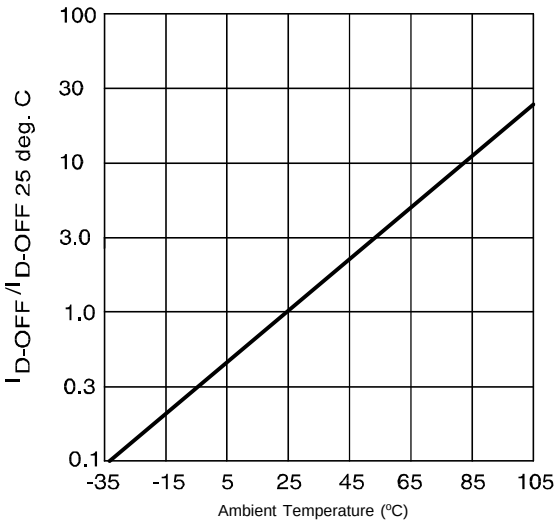


Figure 4. Typical Normalized Off-State Leakage

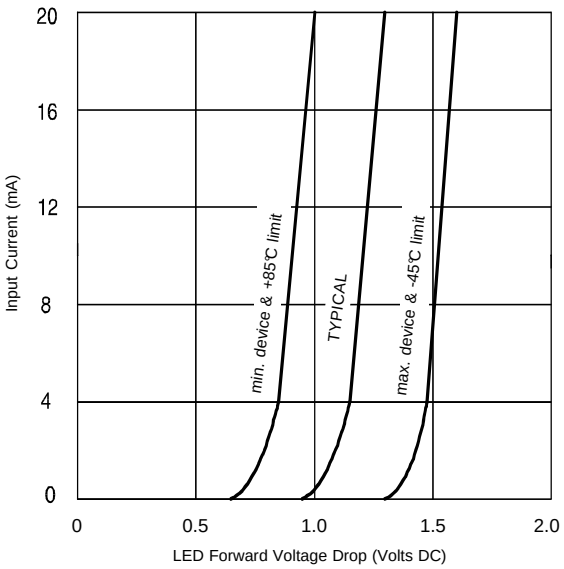


Figure 5. Input Characteristics (Current Controlled)

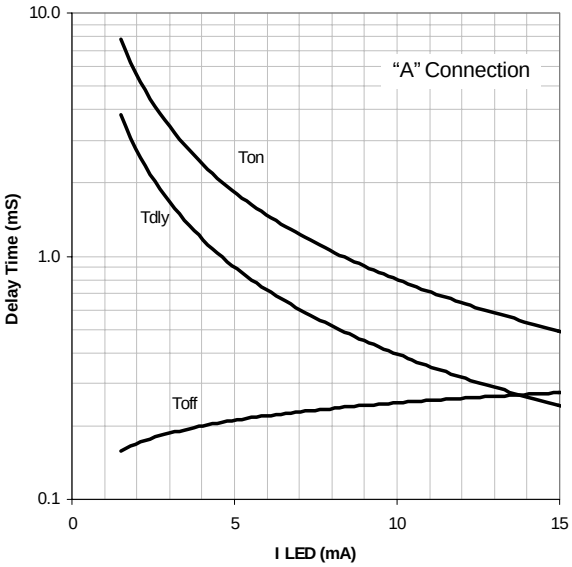


Figure 6. Typical Delay Times
(5mS Pulse Width, 100V/50mA Load)

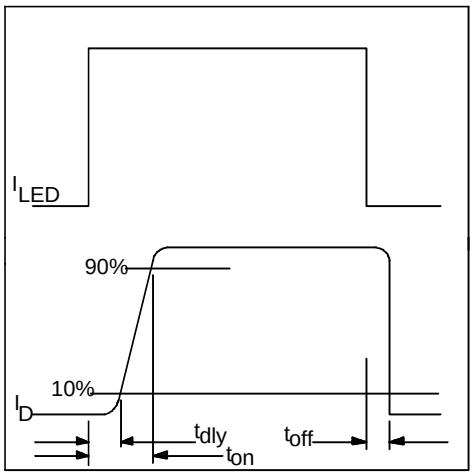


Figure 7. Delay Time Definitions

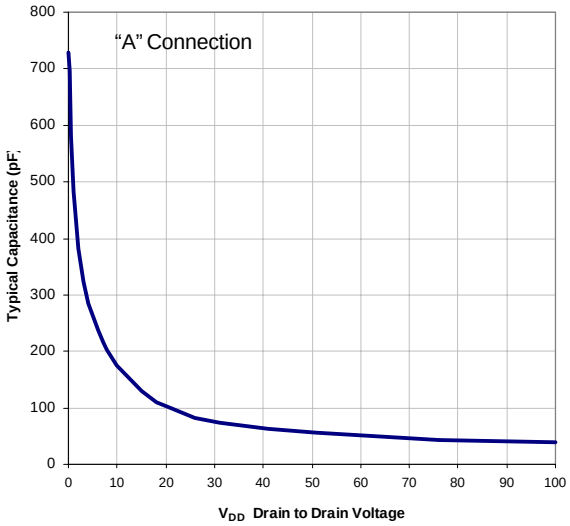
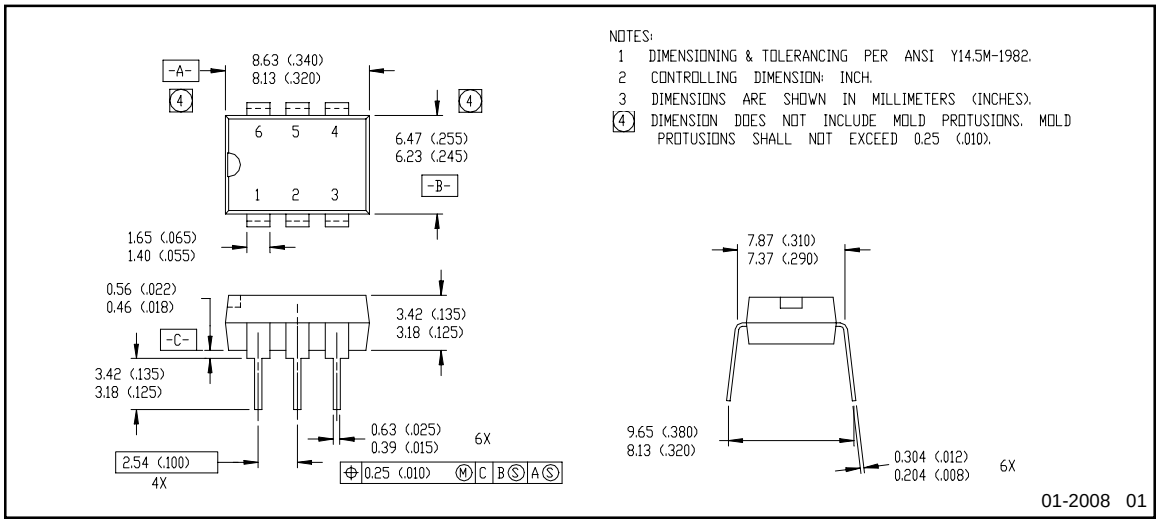
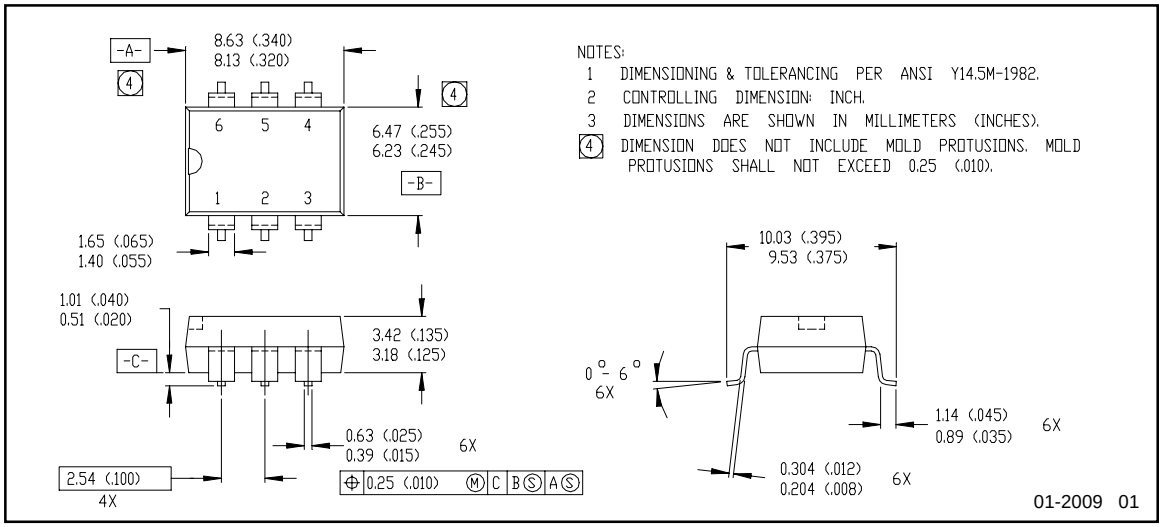


Figure 8. Typical Output Capacitance

Case Outlines





IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245 Tel: (310) 252-7105