Data Sheet No. 1.042

International
IOR Rectifier

HEXFET® POWER MOSFET PHOTOVOLTAIC RELAY

Series PVT322
Microelectronic
Power IC Relay
Dual Pole, Normally Open
0-250V, 170mA AC/DC

General Description

The PVT322 Series Photovoltaic Relay is a dual-pole, normally open solid-state relay that can replace electromechanical relays in many applications. It utilizes International Rectifier's 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.

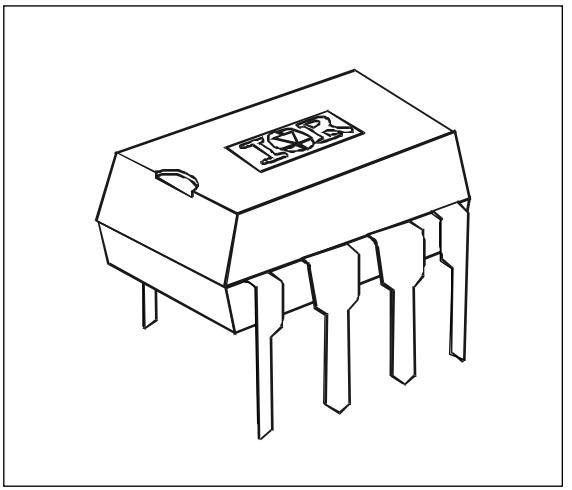
Series PVT322 Relays are packaged in an 8-pin, molded DIP package with either through-hole or surface mount (gull-wing) terminals. It is available in standard plastic shipping tubes or on tape-and-reel. Please refer to Part Identification information opposite.

Applications

- On/Off Hook switch
- Tip and Ring Line switching
- General switching

PVT322 Features

- HEXFET Power MOSFET output
- Bounce-free operation
- 4,000 V_{RMS} I/O isolation
- Linear AC/DC operation
- Solid-State reliability
- UL recognition pending



Part Identification

PVT322	thru-hole
PVT322S	SMT
PVT322S-T	SMT, T&R

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

Series PVT322

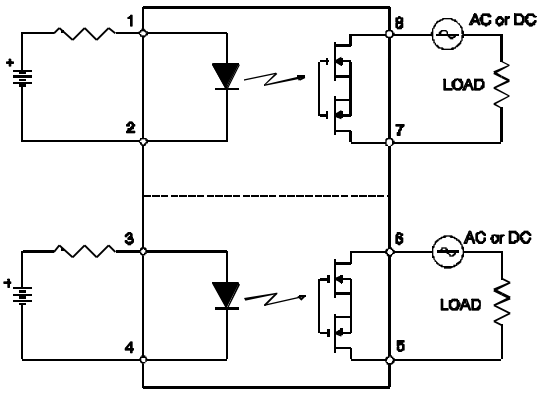
Electrical Specifications (-40°C ≤ T_A ≤ +85°C unless otherwise specified)

INPUT CHARACTERISTICS	Limits	Units
Minimum Control Current (See figure1)	2.0	mA
Maximum Control Current for Off-State Resistance @TA=+25°C	0.4	mA
Control Current Range (Caution: current limit input LED, see figure 5)	2.0 to 25	mA
Maximum Reverse Voltage	7.0	V

OUTPUT CHARACTERISTICS	Limits	Units
Operating Voltage Range	0 to ±250	$V_{(DC\ or\ AC\ peak)}$
Maximum Load Current @ T_A=+40°C 5mA Control (See figure 1) (single and dual channel operation)	170	mA
Maximum Peak Load Current (10ms maximum duration) (single and dual channel operation)	500	mA
Maximum On-State Resistance @T_A=+25°C For 50mA Pulsed load, 5mA Control (see figure 3)	10	Ω
Maximum Off-State Leakage @T_A=+25°C, ±250V (see figure 4)	1.0	µA
Maximum Turn-On Time @T_A=+25°C (see figure 6) For 50mA, 100 V_{DC} load, 5mA Control	3.0	ms
Maximum Turn-Off Time @T_A=+25°C (see figure 6) For 50mA, 100 V_{DC} load, 5mA Control	0.5	ms
Maximum Output Capacitance @ 50V_{DC}	50	pF

GENERAL CHARACTERISTICS		Limits	Units
Minimum Dielectric Strength, Input-Output		4000	V_{RMS}
Minimum Dielectric Strength, Pole-to-Pole		1000	V_{DC}
Minimum Insulation Resistance, Input-Output, @T_A=+25°C, 50%RH, 100V_{DC}		10^{12}	Ω
Maximum Capacitance, Input-Output		1.0	pF
Maximum Pin Soldering Temperature (10 seconds maximum)		+260	°C
Ambient Temperature Range:	Operating	-40 to +85	
	Storage	-40 to +100	

Connection Diagram



To Order
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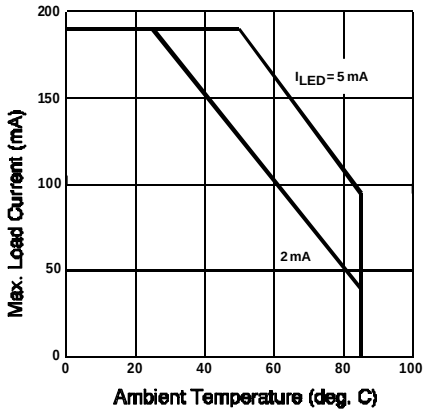


Figure 1. Typical Current Derating Curve

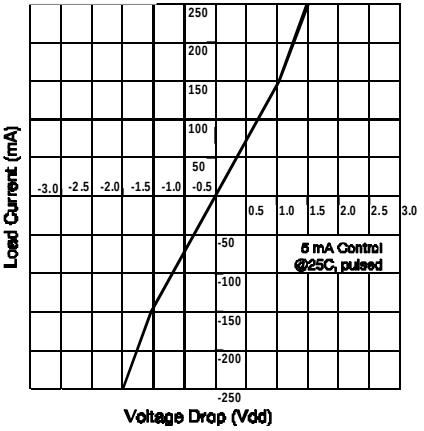


Figure 2. Linearity Characteristics

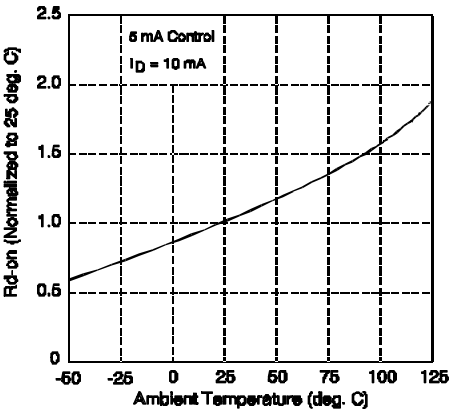


Figure 3. Typical Normalized On-Resistance

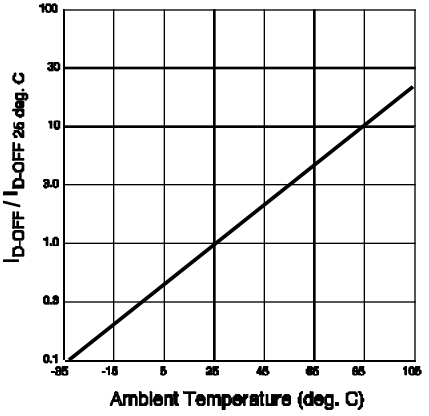


Figure 4. Typical Normalized Off-State Leakage

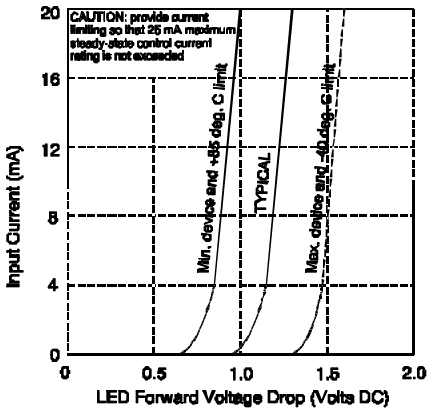


Figure 5. Input Characteristics (Current Controlled)

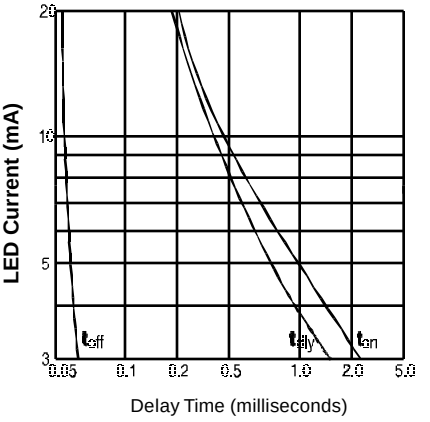


Figure 6. Typical Delay Times

Series PVT322

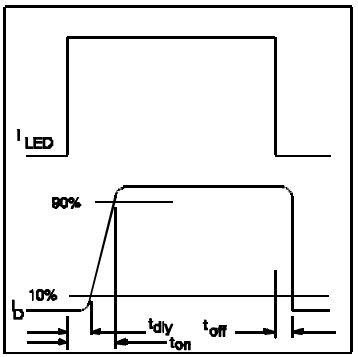


Figure 7. Delay Time Definitions

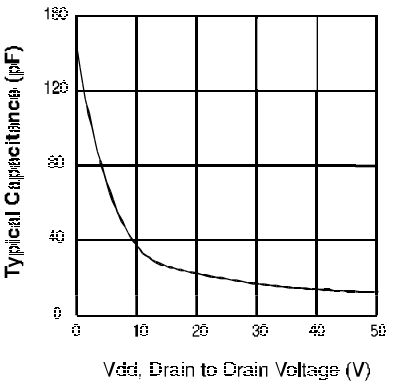
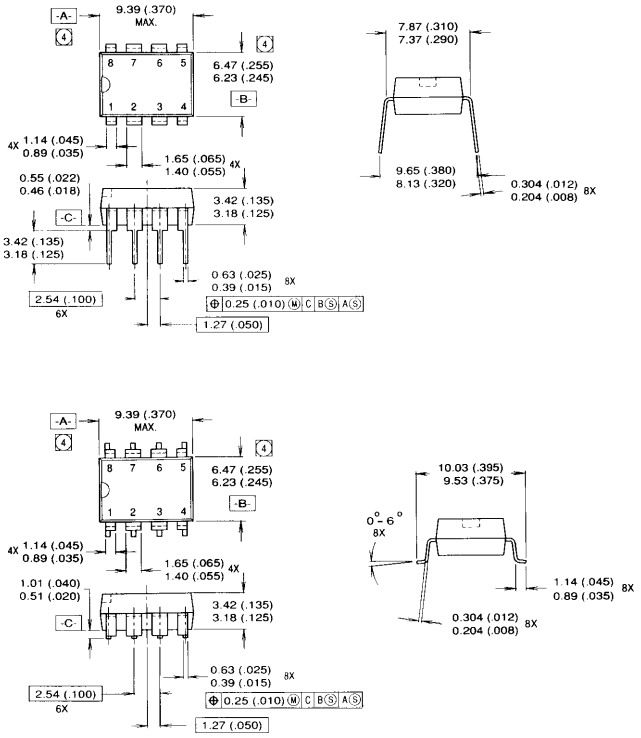


Figure 8. Typical Output Capacitance

Mechanical Specifications

Dimensions in millimeters (inches)



1. Dimensioning and tolerancing per ANSI Y14.5M-1982
2. Controlling dimension: INCH
4. Dimension does not include mold protrusions. Mold protrusions shall not exceed 0.25 (.010).

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