

## HEXFET® POWER MOSFET PHOTOVOLTAIC RELAY

### Series PVT422

Microelectronic  
Power IC Relay  
Dual Pole, Normally Open  
0-400V, 120mA AC/DC

### General Description

The PVT422 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.

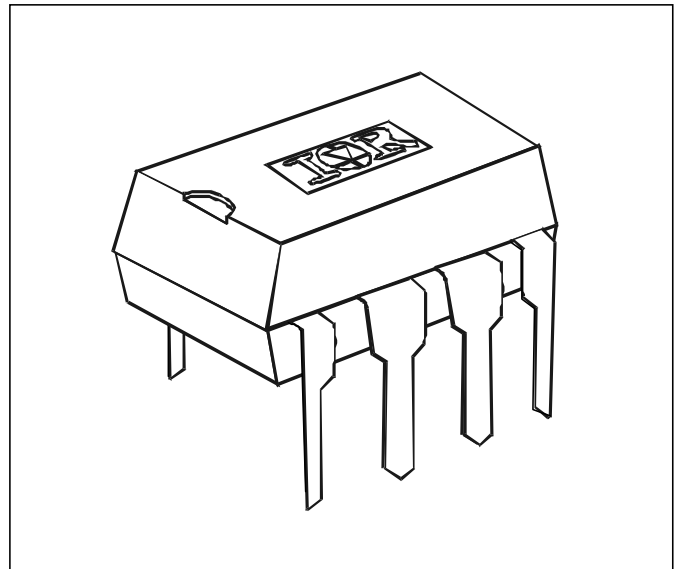
Series PVT422 Relays are packaged in an 8-pin, molded DIP package with either thru-hole or "gull-wing" surface mount terminals. It is available in standard plastic shipping tubes or on tape-and-reel. Refer to Part Identification information.

### Applications

- On/Off Hook switch ■
- Dial-Out relay ■
- Ring injection relay ■
- General switching ■

### PVT422 Features

- HEXFET Power MOSFET output ■
- Bounce-free operation ■
- 4,000 V<sub>RMS</sub> I/O isolation ■
- Linear AC/DC operation ■
- Solid-State reliability ■
- UL recognition and CSA certification pending ■



### Part Identification

PVT422	thru-hole
PVT422S	SMT
PVT422S-T	SMT, T&R

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

## Series PVT422

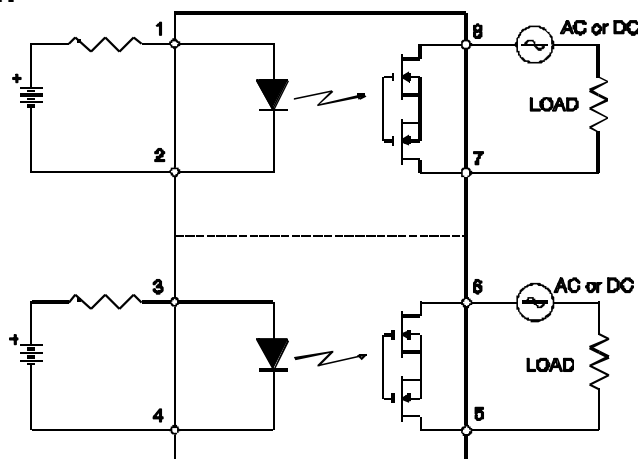
**Electrical Specifications** ( $-40^{\circ}\text{C} \leq T_A \leq +85^{\circ}\text{C}$  unless otherwise specified)

INPUT CHARACTERISTICS	Limits	Units
Min. Control Current (See Fig.1)	2.0	mA
Max. Control Current for Off-State Resistance @ $T_A=+25^{\circ}\text{C}$	0.4	mA
Control Current Range (Caution: current limit input LED, see Fig.5)	2.0 to 25	mA
Max. Reverse Voltage	7.0	V

OUTPUT CHARACTERISTICS	Limits	Units
Operating Voltage Range	0 to $\pm 400$	$V_{\text{DC}}$ or AC peak
Max. Load Current @ $T_A=+40^{\circ}\text{C}$ 5mA Control (See Fig.1) (single and dual channel operation)	120	mA
Max. Peak Load Current (10ms max. duration) (single and dual channel operation)	350	mA
Max. On-State Resistance @ $T_A=+25^{\circ}\text{C}$ For 50mA Pulsed Load, 5mA Control (See Fig.3)	35	$\Omega$
Max. Off-State Leakage @ $T_A=+25^{\circ}\text{C}$ , $\pm 320\text{V}$ (See Fig.4)	1.0	$\mu\text{A}$
Max. Turn-On Time @ $T_A=+25^{\circ}\text{C}$ (See Fig. 6) For 50mA, 100 $V_{\text{DC}}$ Load, 5mA Control	2.0	ms
Max. Turn-Off Time @ $T_A=+25^{\circ}\text{C}$ (See Fig. 6) For 50mA, 100 $V_{\text{DC}}$ Load, 5mA Control	2.0	ms
Max. Output Capacitance @ 50 $V_{\text{DC}}$	12	pF

GENERAL CHARACTERISTICS	Limits	Units
Min. Dielectric Strength, Input-Output	4000	$V_{\text{RMS}}$
Min. Dielectric Strength, Pole-to-Pole	1000	$V_{\text{DC}}$
Min. Insulation Resistance, Input-Output @ $T_A=+25^{\circ}\text{C}$ , 50%RH, 100 $V_{\text{DC}}$	$10^{12}$	$\Omega$
Max. Capacitance, Input-Output	1.0	pF
Max. Pin Soldering Temperature (10 seconds max.)	+260	$^{\circ}\text{C}$
Ambient Temperature Range: Operating Storage	-40 to +85 -40 to +100	

### Connection Diagram



Series PVT422

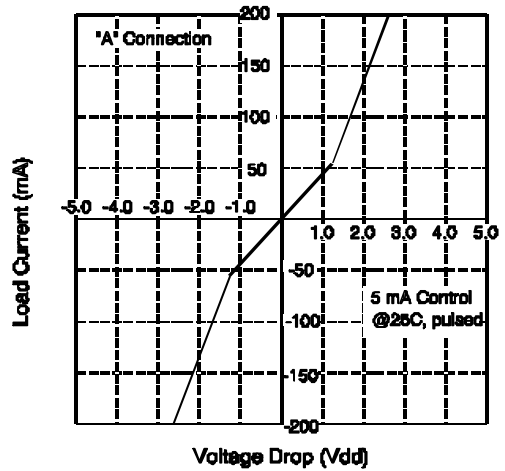


Figure 2. Linearity Characteristics

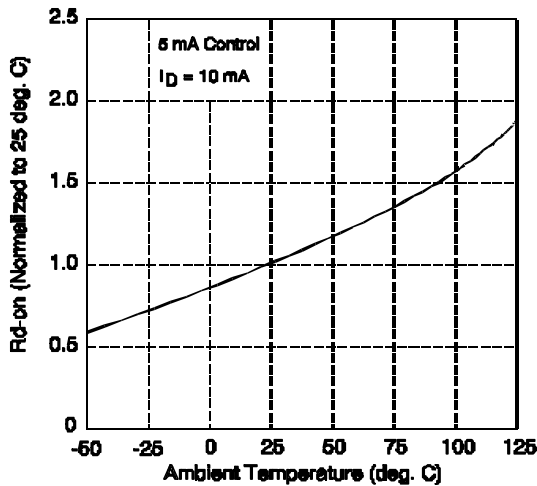


Figure 3. Typical Normalized On-Resistance

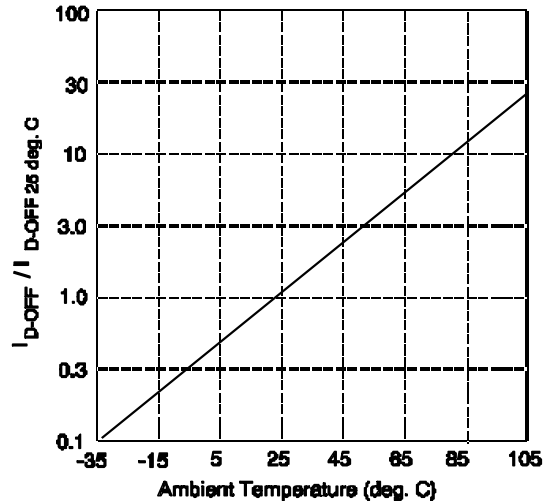


Figure 4. Typical Normalized Off-State Leakage

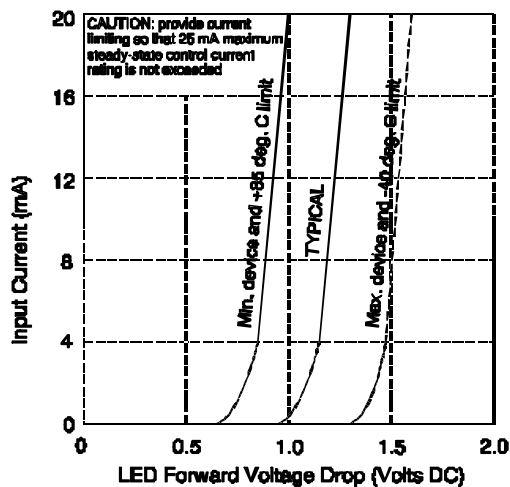


Figure 5. Input Characteristics (Current Controlled)

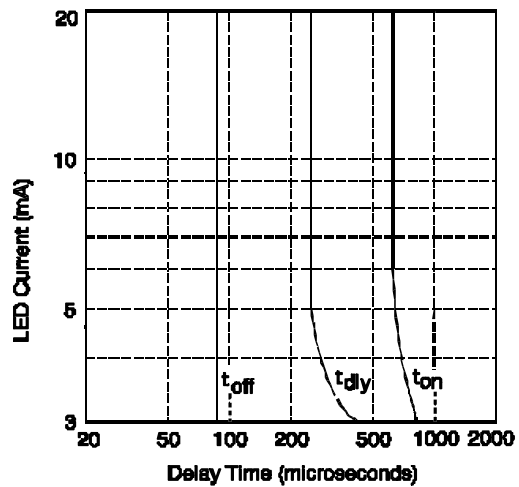
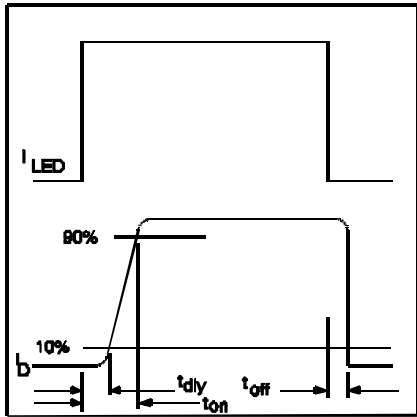
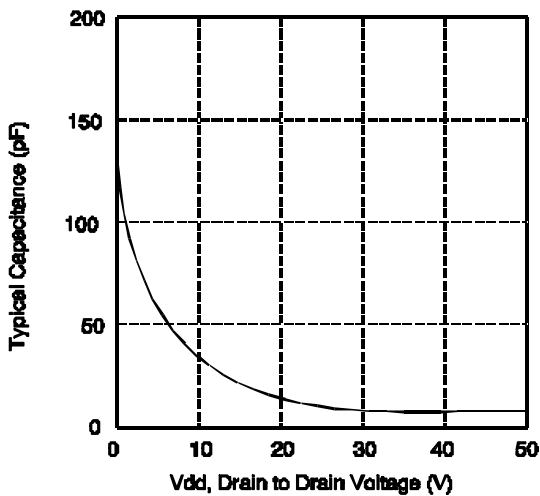
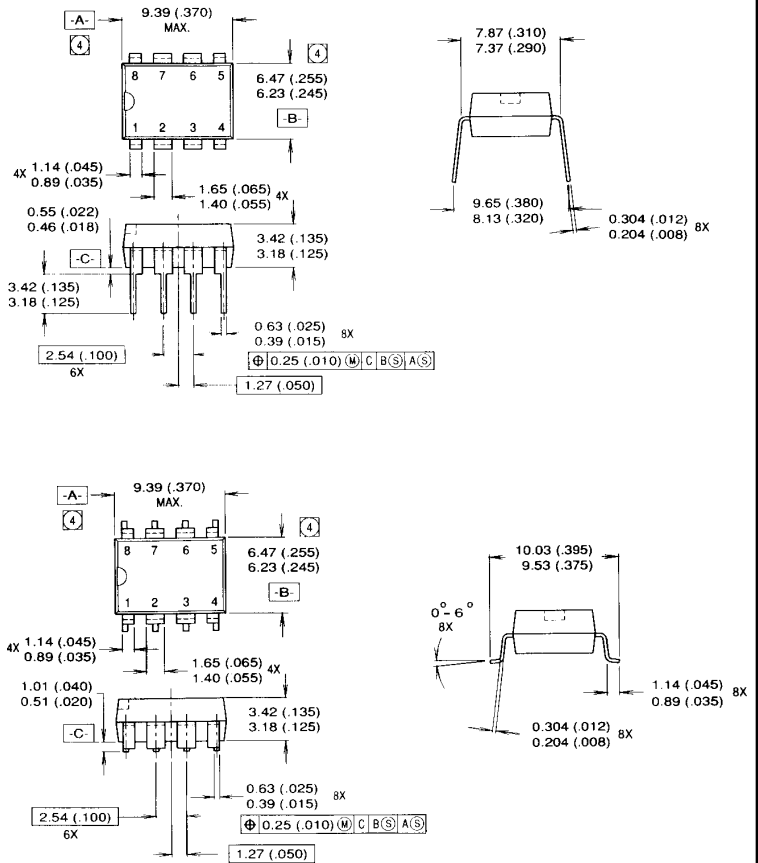


Figure 6. Typical Delay Times

**Series PVT422**

**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).