International
IOR Rectifier

Data Sheet No. PD 10037-D

Series PVT422

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

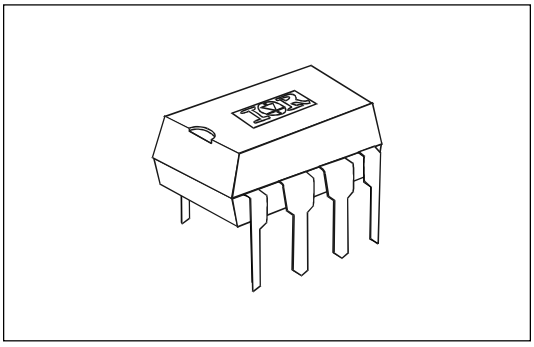
General Description

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 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

- HEXFET Power MOSFET output
- Bounce-free operation
- 4,000 V_{RMS} I/O isolation
- Linear AC/DC operation
- Solid-State Reliability
- UL recognized and BABT certified



Applications

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

Part Identification

PVT422	thru-hole
PVT422S	surface-mount
PVT422S-T	surface-mount, Tape and Reel

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

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

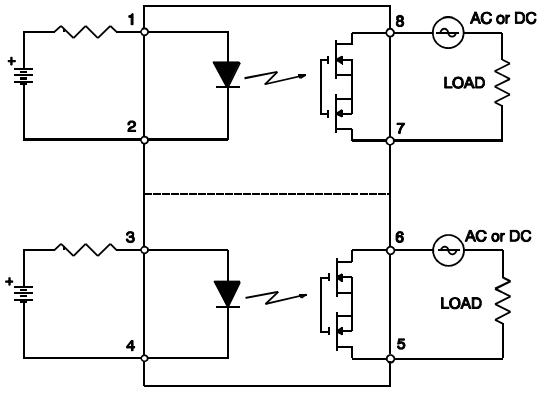
INPUT CHARACTERISTICS	Limits	Units
Minimum Control Current (See figure1)	2.0	mA
Maximum Control Current for Off-State Resistance @TA=+25°C	0.4	mA
Control Current Range (Caution: current limit input LED, see figure 5)	2.0 to 25	mA
Maximum Reverse Voltage	7.0	V

OUTPUT CHARACTERISTICS	Limits	Units
Operating Voltage Range	0 to ±400	$V_{(DC\ or\ AC\ peak)}$
Maximum Load Current @ T_A=+40°C 5mA Control (See figure 1) (single and dual channel operation)	120	mA
Maximum Peak Load Current (10ms maximum duration) (single and dual channel operation)	350	mA
Maximum On-State Resistance @T_A=+25°C For 50mA Pulsed load, 5mA Control (see figure3)	35	Ω
Maximum Off-State Leakage @T_A=+25°C, ±320V (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	2.0	ms
Maximum Turn-Off Time @T_A=+25°C (see figure 6) For 50mA, 100 V_{DC} load, 5mA Control	2.0	ms
Maximum Output Capacitance @ 50V_{DC}	12	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	

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 Diagram



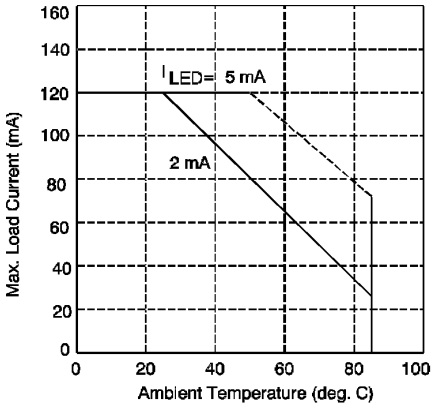


Figure 1. Typical Current Derating Curve

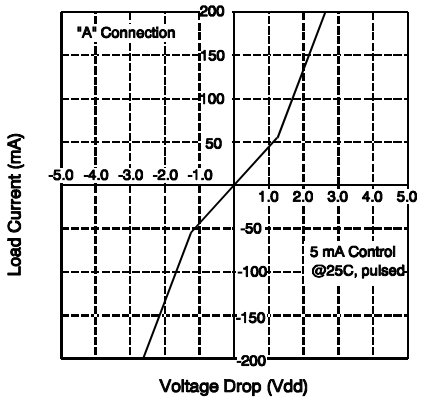


Figure 2. Linearity Characteristics

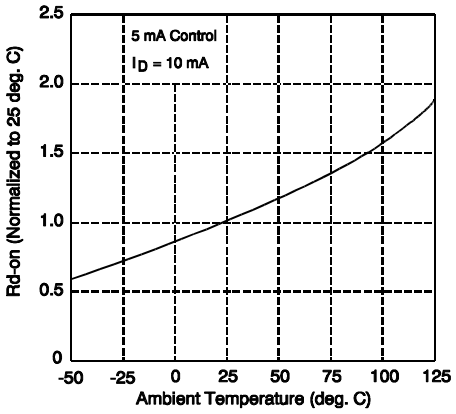


Figure 3. Typical Normalized On-Resistance

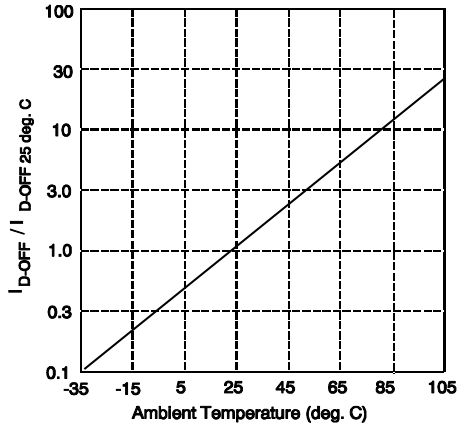


Figure 4. Typical Normalized Off-State Leakage

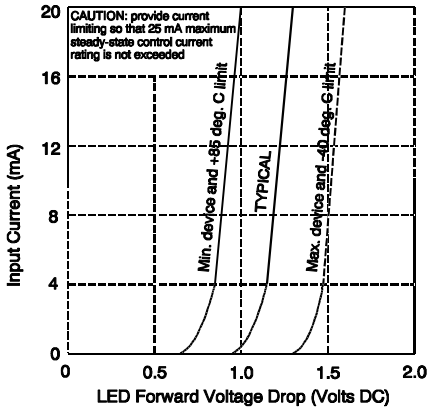


Figure 5. Input Characteristics (Current Controlled)

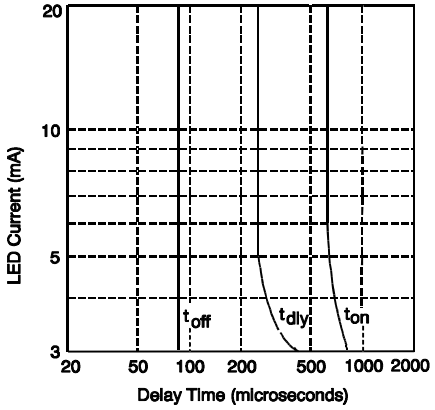


Figure 6. Typical Delay Times

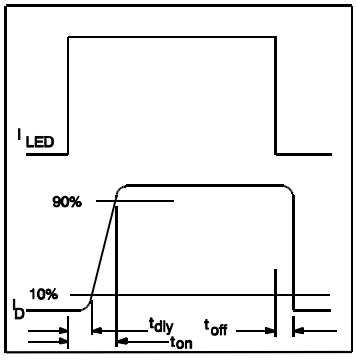


Figure 7. Delay Time Definitions

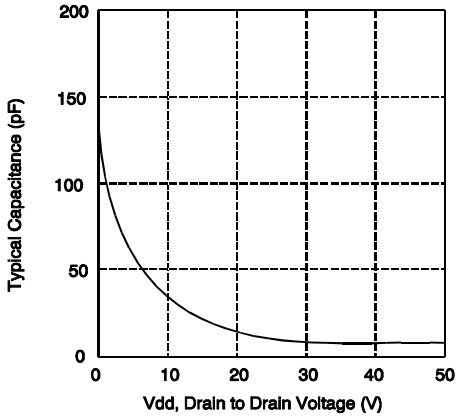
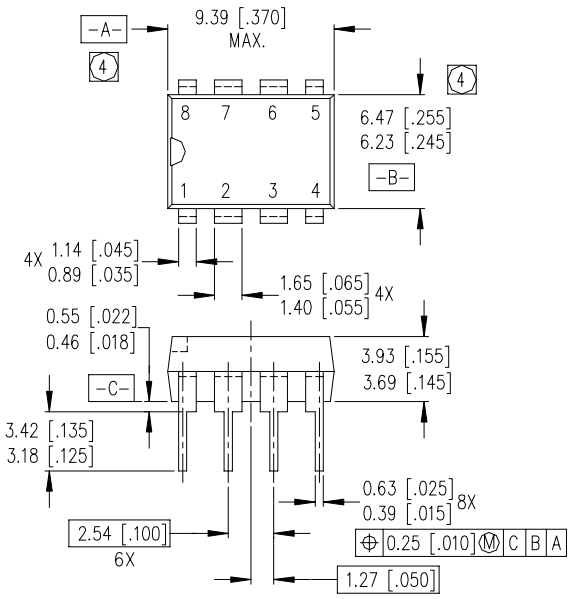
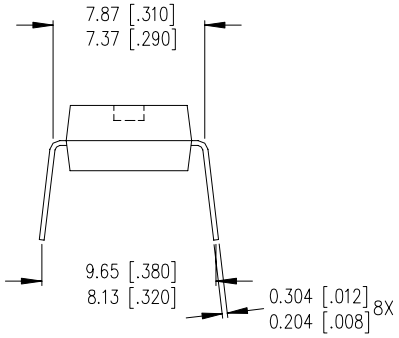


Figure 8. Typical Output Capacitance

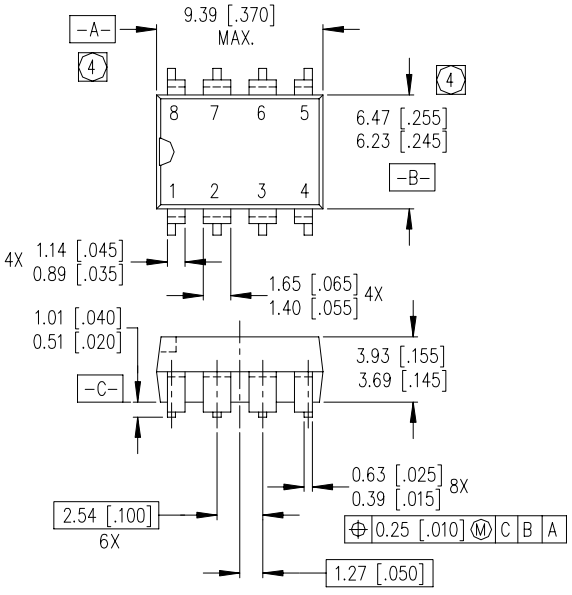
Case Outlines



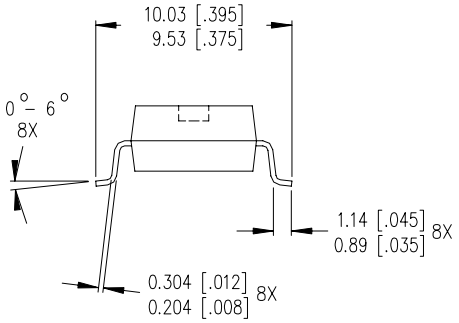
NOTES:
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M−1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS SHALL NOT EXCEED 0.25 [.010].
5. PRODUCTS AFFECTED: PVI1050N, PVT322, PVT322A, PVT422, PVI5013R AND PVI5033R.



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