

General Description

The PVT422P 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.

PVT422P is ideally suited for PCMCIA card applications. Its extremely low profile allows it to be used in Type II cards whose outer shells are only 5mm thick.

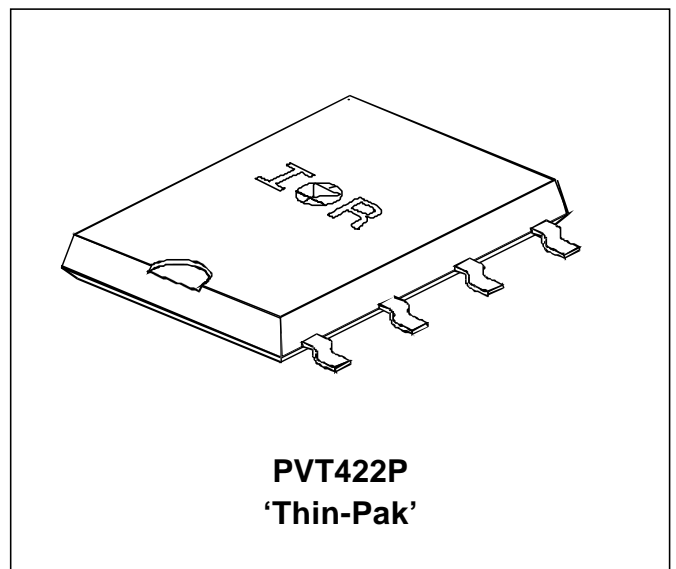
Series PVT422P Relays are packaged in an 8-pin, molded 'Thin-Pak' DIP package with 'gull-wing' surface mount terminals. It is available in plastic shipping tubes or on tape-and-reel. Please refer to Part Identification (opposite) for details.

Applications

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

PVT422P Features

- HEXFET Power MOSFET output ■
- Bounce-free operation ■
- 3,750 V_{RMS} I/O isolation ■
- Linear AC/DC operation ■
- Solid-State reliability ■
- UL recognized ■



Part Identification

PVT422P surface-mount, plastic shipping tube
PVT422P-T surface-mount, tape-and-reel

Series PVT422P — HEXFET® Photovoltaic Relay

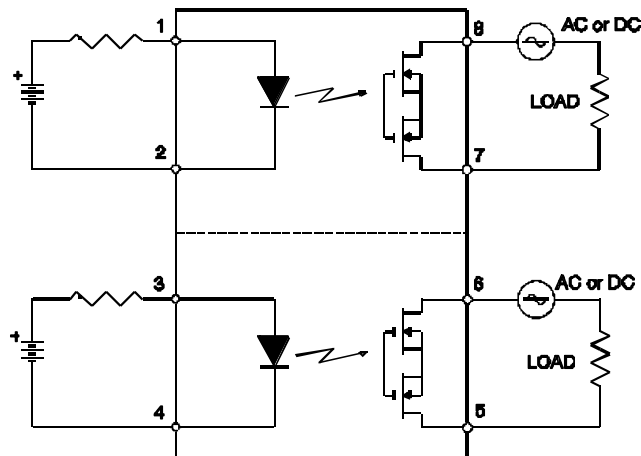
Electrical Specifications (-40°C ≤ T_A ≤ +85°C unless otherwise specified)

INPUT CHARACTERISTICS	Limits	Units
Minimum Control Current (See figure 1)	2.0	mA
Maximum Control Current for Off-State Resistance @T _A =+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 figure 3)	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 Storage	

Connection Diagram



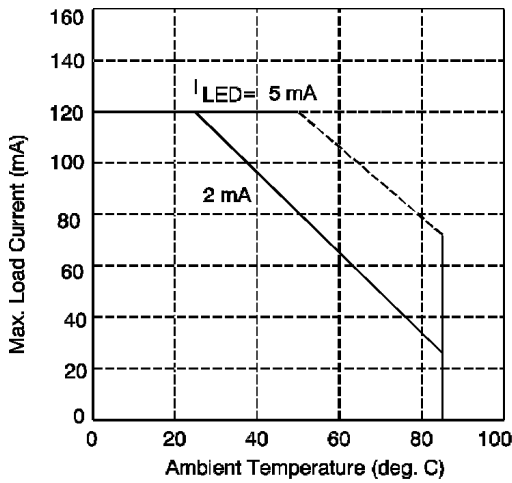


Figure 1. Typical Current Derating Curve

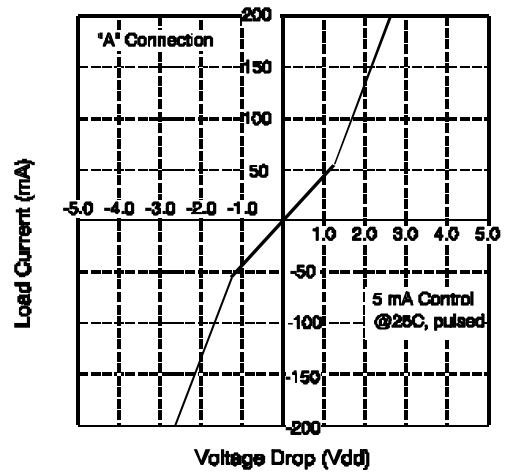


Figure 2. Linearity Characteristics

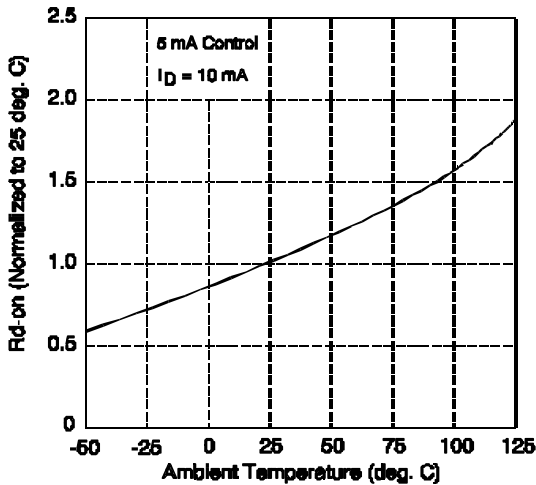


Figure 3. Typical Normalized On-Resistance

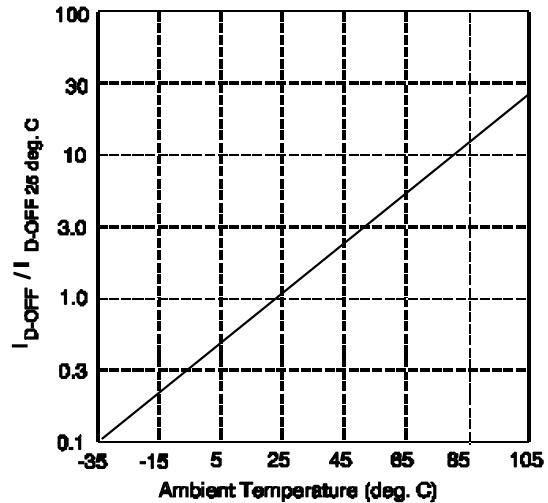


Figure 4. Typical Normalized Off-State Leakage

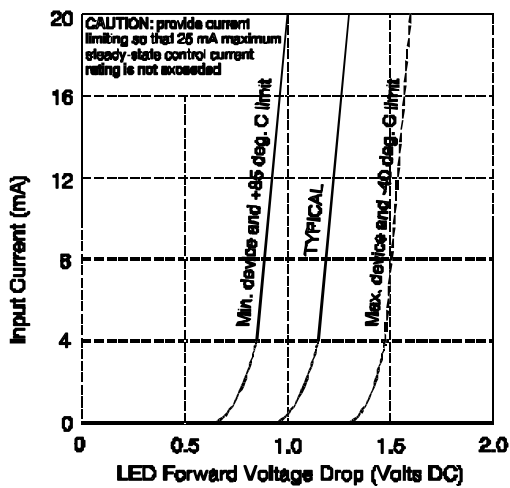


Figure 5. Input Characteristics (Current Controlled)

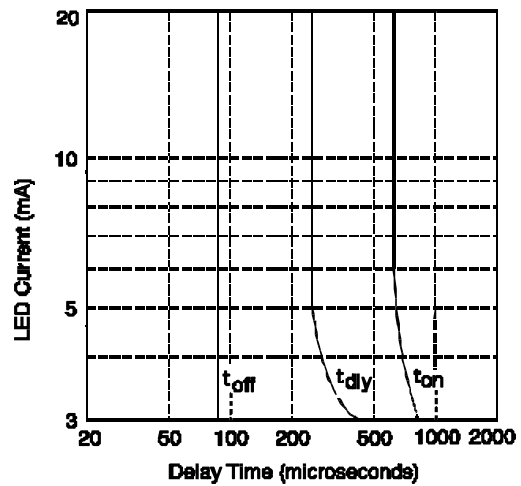


Figure 6. Typical Delay Times

Mechanical Specifications

Dimensions in millimeters (inches)

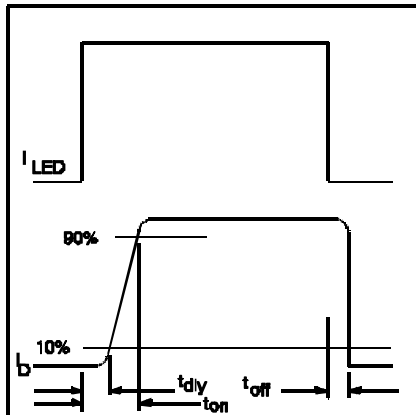


Figure 7. Delay Time Definitions

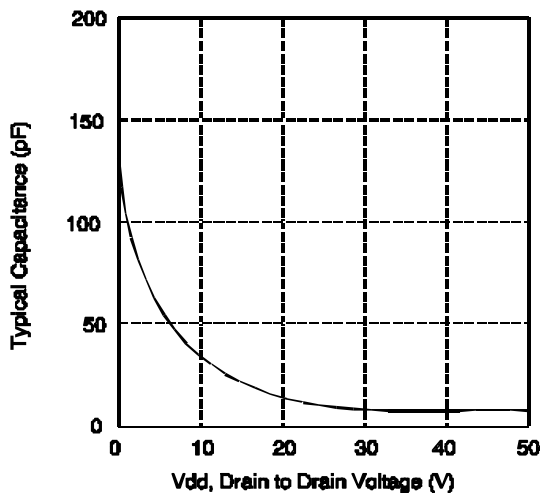
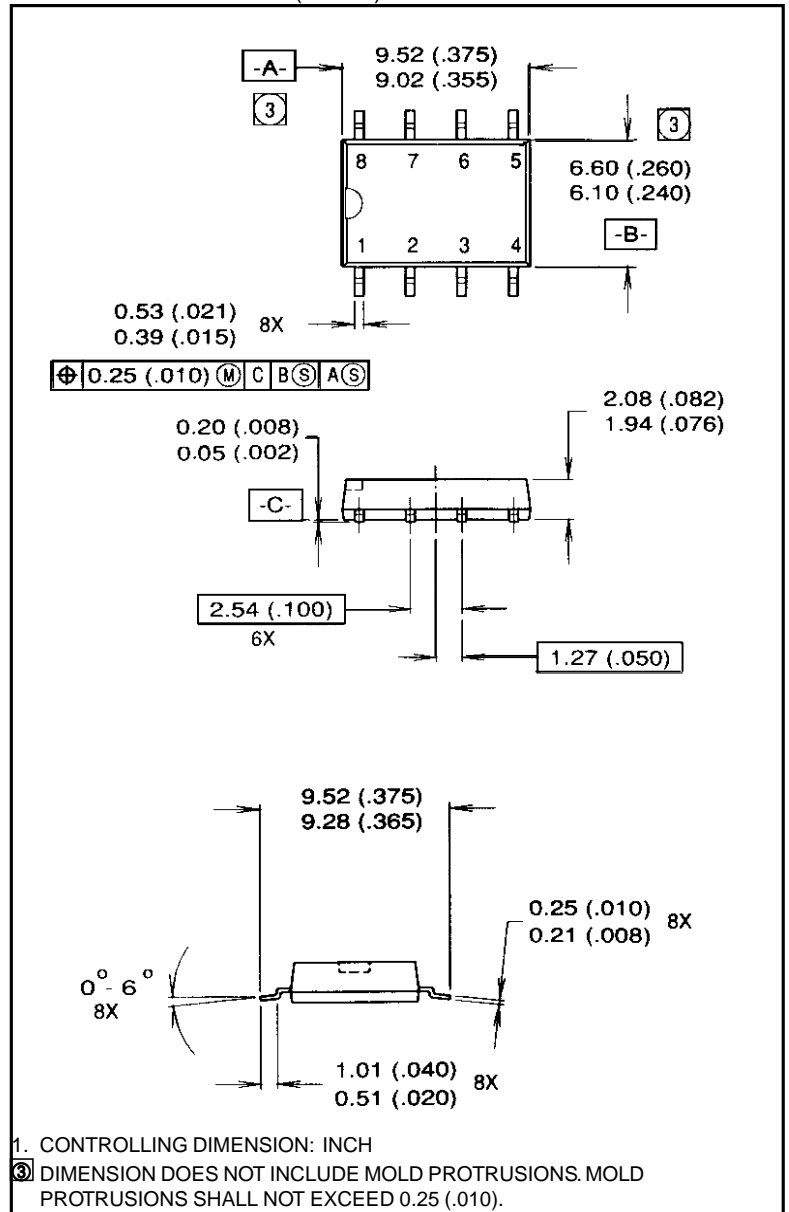


Figure 8. Typical Output Capacitance



WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, Tel: (310) 322 3331
EUROPEAN HEADQUARTERS: Hurst Green, Oxted, Surrey RH8 9BB, UK Tel: ++ 44 1883 713215

IR CANADA: 7321 Victoria Park Ave., Suite 201, Markham, Ontario L3R 2Z8, Tel: (905) 475 1897

IR GERMANY: Saalburgstrasse 157, 61350 Bad Homburg Tel: ++ 49 6172 96590

IR ITALY: Via Liguria 49, 10071 Borgaro, Torino Tel: ++ 39 11 451 0111

IR FAR EAST: 171 (K&H Bldg.), 30-4 Nishi-ikebukuro 3-Chome, Toshima-ku, Tokyo, Japan Tel: ++ 81 3 3983 0641

IR SOUTHEAST ASIA: 315 Outram Road, #10-02 Tan Boon Liat Building, Singapore 0316 Tel: ++ 65 221 8371

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Data and specifications subject to change without notice. 1/97