International
IOR Rectifier

Data Sheet No. PD 10043B

PVT422P

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

General Description

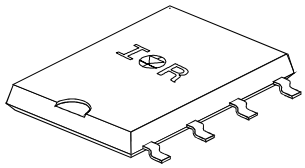
The PVT422P Series Photovoltaic Relay is a dual-pole, normally open solid-state relay that can replace electromechanical relays in many applications. It utilizes International Rectifier's HEXFET power MOSFET as the output switch, driven by an integrated circuit photovoltaic generator of novel construction. 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.

Features

- HEXFET Power MOSFET output
- Bounce-free operation
- 3,750 V_{RMS} I/O isolation
- Load current limiting
- Linear AC/DC operation
- Solid-State Reliability
- BABT certified



PVT422P - Thin-Pak

Applications

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

Part Identification

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

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

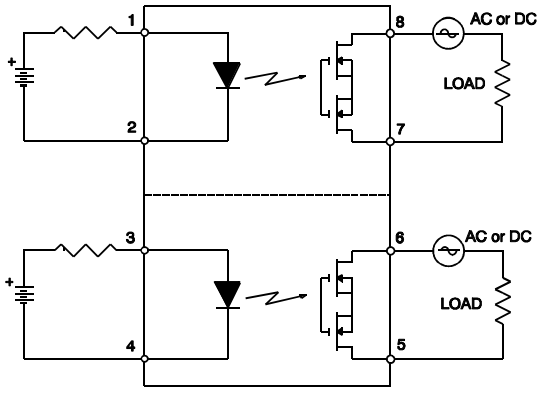
Electrical Specifications (-40°C T_A+85°C unless otherwise specified

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		3750	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}	
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



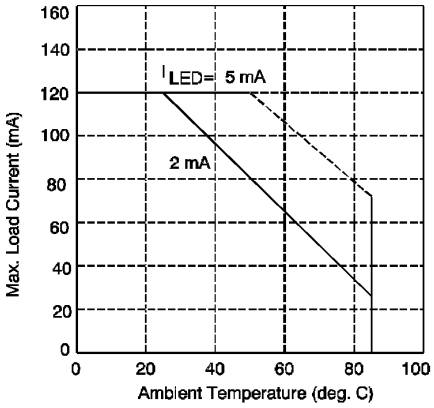


Figure 1. Typical Current Derating Curve

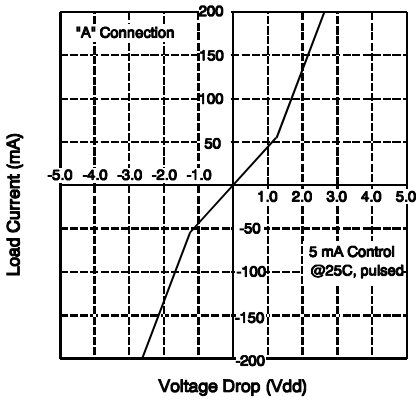


Figure 2. Linearity Characteristics

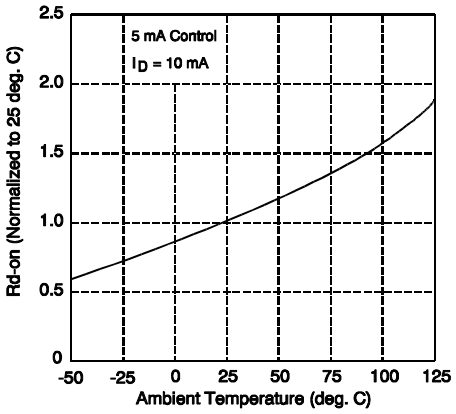


Figure 3. Typical Normalized On-Resistance

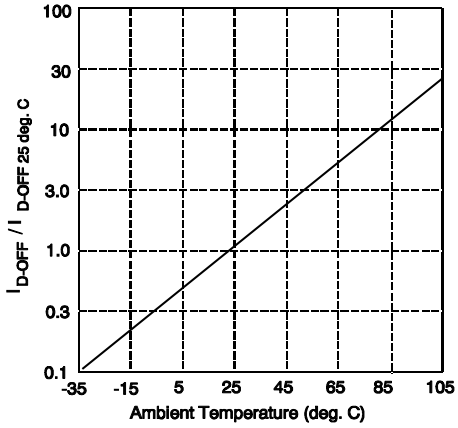


Figure 4. Typical Normalized Off-State Leakage

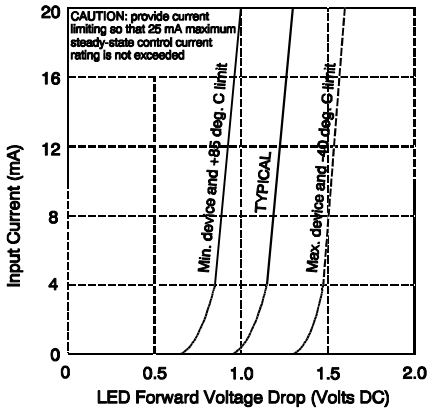


Figure 5. Input Characteristics (Current Controlled)

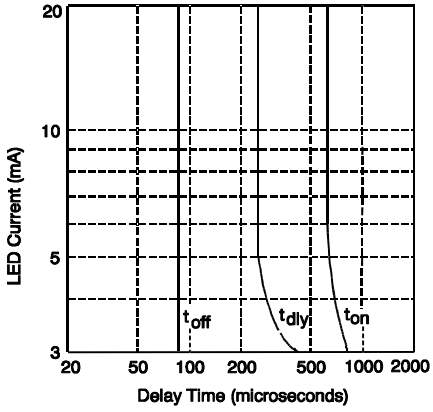


Figure 6. Typical Delay Times

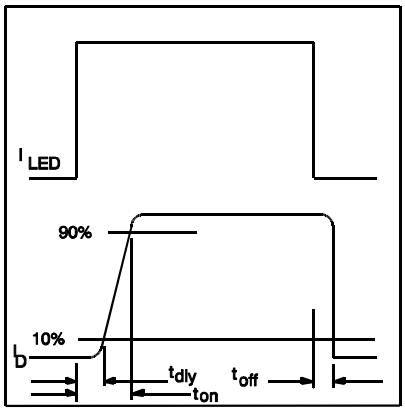


Figure 7. Delay Time Definitions

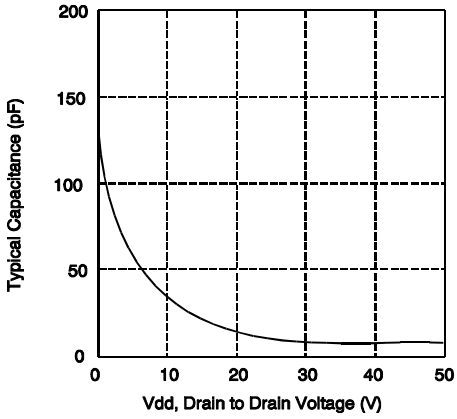


Figure 8. Typical Output Capacitance

Case Outline