



	PD2401	Units
AC Operating Voltage	120	$V_{RMS}$
Load Current	1	A
On-State Voltage Drop	1.2	$V_{RMS}$ ( $A_T I_L = 1A$ )

### Features

- Load Current up to 1A
- Blocking Voltage to 600V
- 5mA Sensitivity
- Zero-Crossing Detection
- DC Control, AC Output
- Optically Isolated
- TTL and CMOS Compatible
- Low EMI and RFI Generation
- High Noise Immunity
- VDE compatible
- Machine Insertable, Wave Solderable

### Applications

- Programmable Control
- Process Control
- Power Control Panels
- Remote Switching
- Gas Pump Electronics
- Contractors
- Large Relays
- Solenoids
- Motors
- Heaters

### Description

The PD2401 is an AC Solid State Switch using optical coupling with dual power SCR outputs to produce an alternative to optocoupler and Triac circuits. The PD2401 switches are robust enough to provide a blocking voltage of up to 500V and max surge current rating of 20A. In addition, tightly controlled zero cross circuitry ensures switching of AC loads without the generation of transients. The input and output circuits are optically coupled to provide 3750V of isolation and noise immunity between control and load circuits. As a result the PD2401 is well suited for industrial environments where electromagnetic interference would disrupt the operation of electromechanical relays.

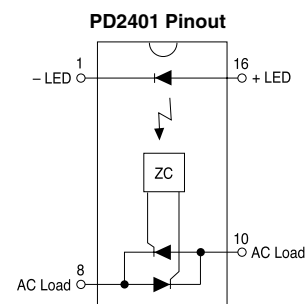
### Approvals

- UL recognized file #: E69938
- CSA certified file #: LR 43639-8

### Ordering Information

Part #	Description
PD2401	16 Pin DIP (25/Tube)

### Pin Configuration



**Absolute Maximum Ratings (@ 25° C)**

Parameter	Min	Typ	Max	Units
Input Power Dissipation	-	-	150 <sup>1</sup>	mW
Input Control Current	-	-	50	mA
Peak (10ms)	-	-	1	A
Reverse Input Voltage	-	-	5	V
Total Package Dissipation PD	-	-	1600 <sup>2</sup>	mW
Isolation Voltage Input to Output	3750	-	-	V <sub>RMS</sub>
Operational Temperature	-40	-	+85	°C
Storage Temperature	-40	-	+125	°C
Soldering Temperature				
DIP Package	-	-	+260	°C
Surface Mount Package (10 Seconds Max.)	-	-	+220	°C

<sup>1</sup> Derate Linearly 1.33 mW/°C

<sup>2</sup> Derate Linearly 16.6 mW/°C

*Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this data sheet is not implied. Exposure of the device to the absolute maximum ratings for an extended period may degrade the device and effect its reliability.*

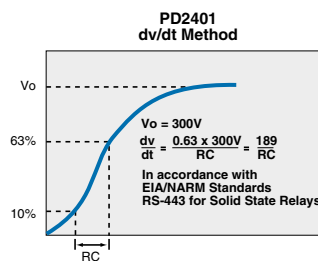
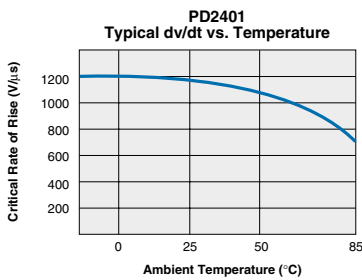
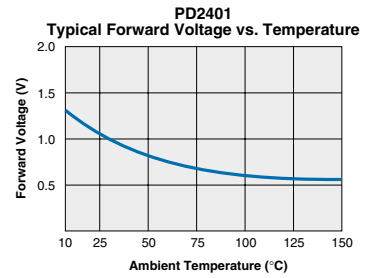
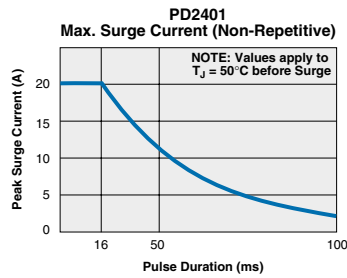
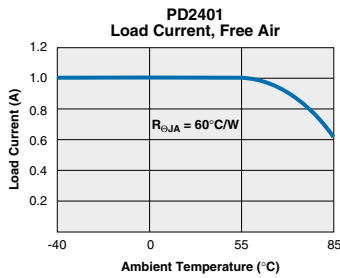
**Electrical Characteristics**

Parameters	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C</b>						
Peak Blocking Voltage	-	V <sub>DRM</sub>	-	-	500	V
Load Current (Continuous)	V <sub>L</sub> =120-240VAC	I <sub>L</sub>	0.005	-	1	A
Off State Leakage Current	V <sub>DRM</sub>	I <sub>LEAK</sub>	-	-	1	mA
On-State Voltage Drop	I <sub>L</sub> =1A		-	-	1.2	V <sub>RMS</sub>
Critical Rate of Rise	dv/dt		1000	1200	-	V/μS
Switching Speeds						
Turn-on	I <sub>F</sub> =5 mA	T <sub>ON</sub>	-	-	0.5	Cycles
Turn-off	I <sub>F</sub> =5 mA	T <sub>OFF</sub>	-	-	0.5	Cycles
Zero-Cross Turn-On Voltage	1st half cycle		-	2	5	V
	Sub. half cycle		-	-	1	V
Operating Frequency <sup>1</sup>	-		20	-	500	Hz
Load Power Factor for Guaranteed Turn-On <sup>2</sup>	-	PF	0.25	-	-	-
Capacitance Input to Output		-	-	-	-	pF
<b>Input Characteristics @ 25°C</b>						
Input Control Current						
For Normal Environment	-	I <sub>F</sub>	5	-	50	mA
For High Noise Environment	-	I <sub>F</sub>	10	-	100	mA
Input Voltage Drop	I <sub>F</sub> =5mA	V <sub>F</sub>	0.9	1.2	1.4	V
Input Drop-out Voltage	-		0.8	-	-	V
Reverse Input Current	V <sub>R</sub> =5V	I <sub>R</sub>	-	-	10	uA
<b>Common Characteristics @ 25°C</b>						
Input to Output Capacitance	-	C <sub>I/O</sub>	-	-	3	V <sub>RMS</sub>
Input to Output Isolation	-	V <sub>I/O</sub>	3750	-	-	V <sub>RMS</sub>

<sup>1</sup> Zero cross 1st 1/2 cycle @ <100Hz

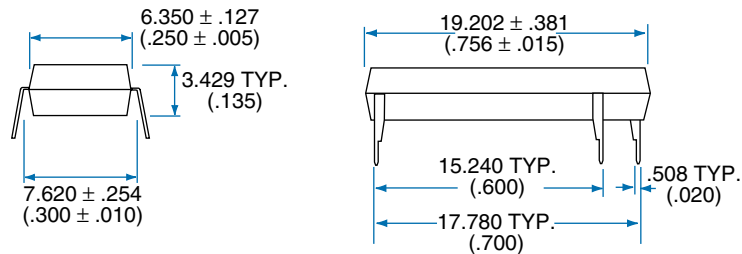
<sup>2</sup> Snubber circuits may be required at low power factors.

PERFORMANCE DATA\*



Mechanical Dimensions

16 Pin DIP



The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

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