



Parameter	Rating	Units
AC Operating Voltage	260	V <sub>rms</sub>
Load Current	500	mA <sub>rms</sub>
On-State Voltage Drop (I <sub>L</sub> =500mA <sub>rms</sub> )	1.4	V <sub>rms</sub>

### Features

- Load Current up to 0.5A<sub>rms</sub>
- Blocking Voltages up to 600V<sub>P</sub>
- 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
- Contactors
- Large Relays
- Solenoids
- Motors
- Heaters

### Description

The PM1206 is an AC Solid State Switch using optical coupling with dual power SCR outputs to produce an alternative to optocoupler and Triac circuits. The PM1206 switches are robust enough to provide a blocking voltage of up to 600V<sub>P</sub>. 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<sub>rms</sub> of isolation and noise immunity between control and load circuits. As a result, the PM1206 is well suited for industrial environments where electromagnetic interference could disrupt the operation of electromechanical relays.

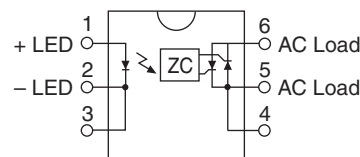
### Approvals

- UL Recognized Component: UL 508, File # E69938
- CSA Certified Component: Certificate # LR43639-8

### Ordering Information

Part #	Description
PM1206	6-Pin DIP (50/Tube)
PM1206S	6-Pin Surface Mount (50/Tube)
PM1206STR	6-Pin Surface Mount (1000/Reel)

### Pin Configuration



**Absolute Maximum Ratings (@ 25°C)**

Parameter	Min	Max	Units
Blocking Voltage	-	600	$V_P$
Reverse Input Voltage	-	5	V
Input Control Current	-	100	mA
Peak (10ms)	-	1	A
Input Power Dissipation <sup>1</sup>	-	150	mW
Total Package Dissipation <sup>2</sup>	-	800	mW
Isolation Voltage, Input to Output	3750	-	$V_{rms}$
Operational Temperature	-40	+85	°C
Storage Temperature	-40	+125	°C

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

<sup>2</sup> Derate Linearly 6.67 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 conditions beyond those indicated in the operational sections of this data sheet is not implied.

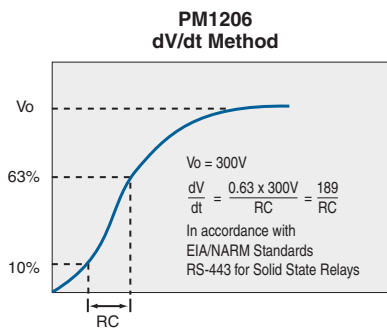
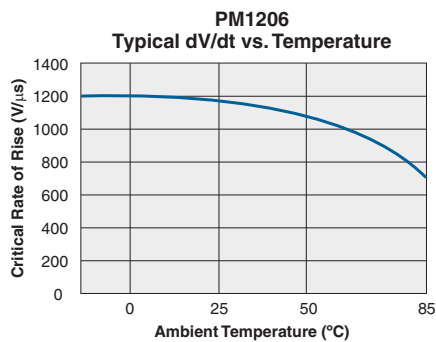
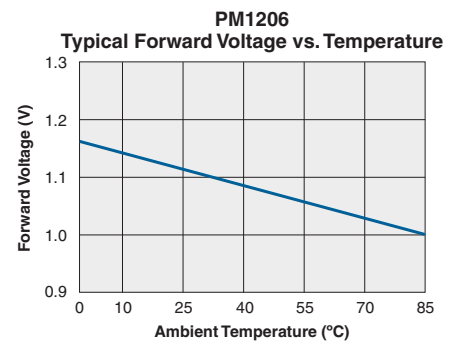
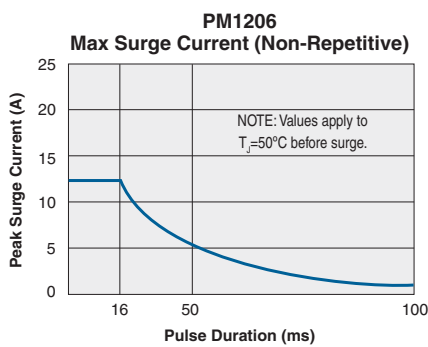
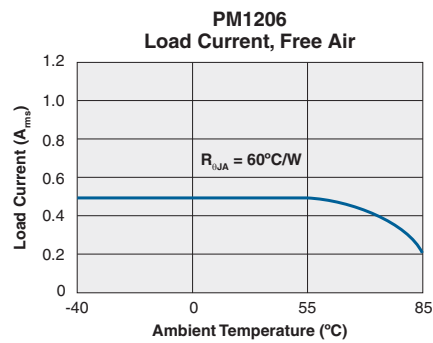
**Electrical Characteristics**

Parameter	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C</b>						
AC Operating Voltage	$I_F=5mA$	$V_{OP}$	20	-	260	$V_{rms}$
Load Current (Continuous)	$V_L=120-240VAC$	$I_L$	0.005	-	0.5	$A_{rms}$
Maximum Surge Current	$t \leq 16ms$	$I_{PEAK}$	-	-	12	A
Off-State Leakage Current	$V_L=600V_{DC}$	$I_{LEAK}$	-	-	1	mA
On-State Voltage Drop	$I_L=0.5A_{rms}$	-	-	-	1.4	$V_{rms}$
Critical Rate of Rise	-	$dV/dt$	1000	1200	-	V/ $\mu s$
Switching Speeds	$I_F=5mA$	$T_{ON}$	-	-	0.5	Cycles
Turn-On		$T_{OFF}$	-	-	0.5	
Turn-Off		-	-	-	-	
Zero-Cross Turn-On Voltage	1 <sup>st</sup> 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	-	$C_{IO}$	-	3	-	pF
<b>Input Characteristics @ 25°C</b>						
Input Control Current	-	$I_F$	-	-	5	mA
For Normal Environment					10	
For High Noise Environment	-	-	-	-	-	-
Input Voltage Drop	$I_F=5mA$	$V_F$	0.9	1.2	1.4	V
Input Dropout Voltage	-	-	0.8	-	-	V
Reverse Input Current	$V_R=5V$	$I_R$	-	-	10	$\mu A$

<sup>1</sup> Zero Cross 1<sup>st</sup> half-cycle @ < 100Hz.

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

**PERFORMANCE DATA\***



\*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.

## MANUFACTURING INFORMATION

### Soldering

For proper assembly, the component must be processed in accordance with the current revision of IPC/JEDEC standard J-STD-020. Failure to follow the recommended guidelines may cause permanent damage to the device resulting in impaired performance and/or a reduced lifetime expectancy.

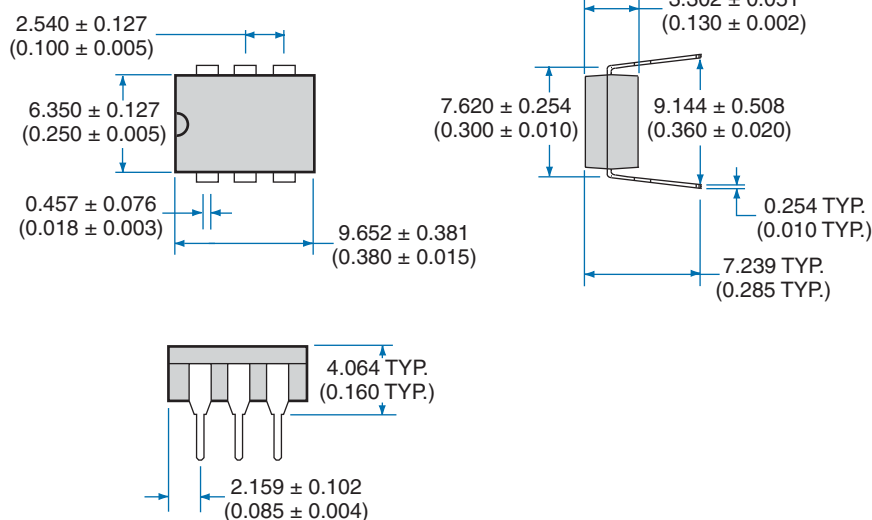
### Washing

Clare does not recommend ultrasonic cleaning or the use of chlorinated solvents.

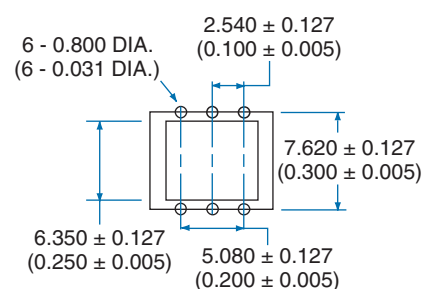


## MECHANICAL DIMENSIONS

### 6-Pin DIP Package

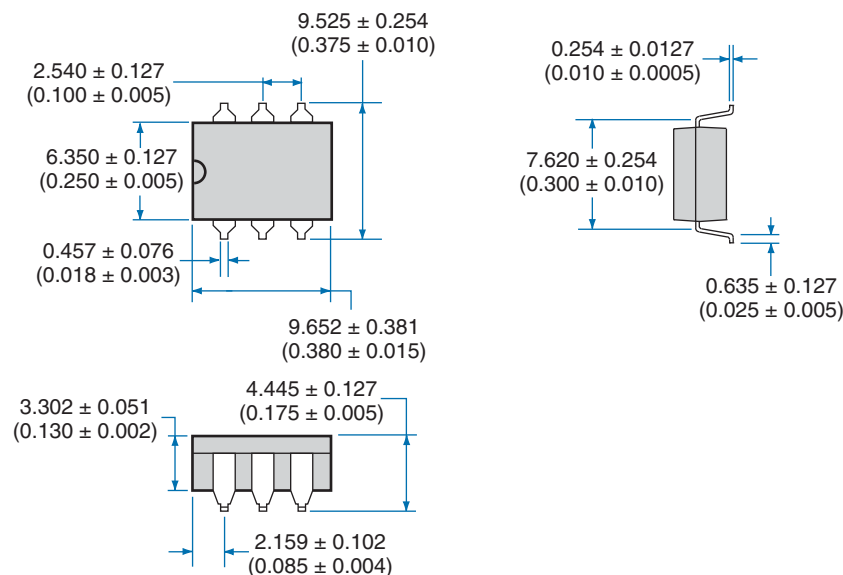


### PC Board Pattern (Top View)

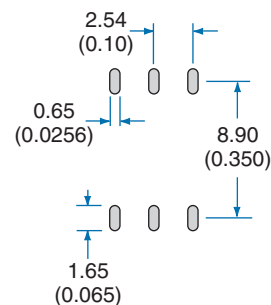


Dimensions  
mm  
(inches)

### 6-Pin Surface Mount Package

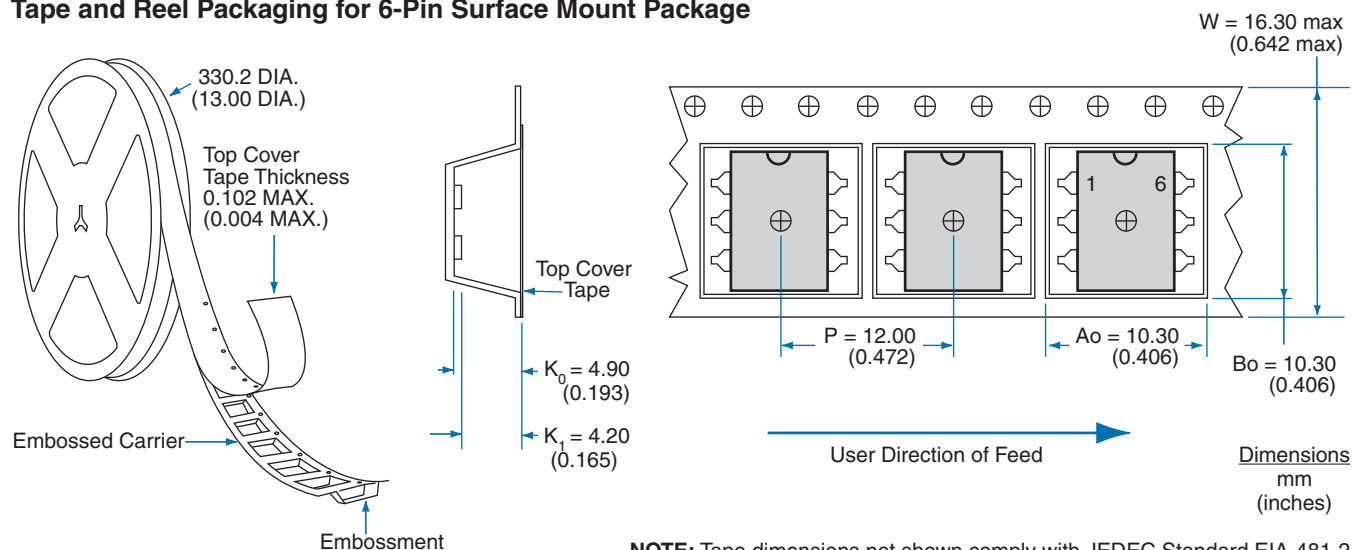


### Recommended PCB Land Pattern



Dimensions  
mm  
(inches)

## Tape and Reel Packaging for 6-Pin Surface Mount Package



**NOTE:** Tape dimensions not shown comply with JEDEC Standard EIA-481-2

**For additional information please visit our website at: [www.clare.com](http://www.clare.com)**

Clare, Inc. makes no representations or warranties with respect to the accuracy or completeness of the contents of this publication and reserves the right to make changes to specifications and product descriptions at any time without notice. Neither circuit patent licenses nor indemnity are expressed or implied. Except as set forth in Clare's Standard Terms and Conditions of Sale, Clare, Inc. assumes no liability whatsoever, and disclaims any express or implied warranty, relating to its products including, but not limited to, the implied warranty of merchantability, fitness for a particular purpose, or infringement of any intellectual property right.

The products described in this document are not designed, intended, authorized or warranted for use as components in systems intended for surgical implant into the body, or in other applications intended to support or sustain life, or where malfunction of Clare's product may result in direct physical harm, injury, or death to a person or severe property or environmental damage. Clare, Inc. reserves the right to discontinue or make changes to its products at any time without notice.

Specification: DS-PM1206-R06  
©Copyright 2008, Clare, Inc.  
All rights reserved. Printed in USA.  
4/24/08