

## PQ07VR5MAZ Low Power-loss Voltage Regulator

Low Power-loss Voltage Regulator with Reset Function in Detecting Input Voltage Drop

### General Description

Sharp's **PQ07VR5MAZ** is a compact, surface mount, 0.5 A output type low power-loss voltage regulator with reset signal output function in detecting input voltage drop. It is suitable for malfunction prevention of microcomputers in various electronic equipment such as AV, OA equipment when it is turned-on or it is in error of operation.

### Features

- (1) Reset signal generating function.  
(The reset detection voltage can be custom-ordered in the range of 3.5 V to 4.5 V.)
- (2) Low power-loss  
(Dropout voltage : Max. 0.5 V at  $I_o=0.3$  A)
- (3) Compact, surface mount package.  
(Equivalent to SC-63.)
- (4) Output voltage variable type (1.5 V to 7.0 V)
- (5) Overcurrent protection and overheat protection function.
- (6) Tape-packaged products and sleeve-packaged products are available.

### Applications

- (1) Power supplies of AV, OA equipment, and various electronic equipment
- (2) CD-ROM drives and CD-R drives
- (3) DVD-ROM drives

### Absolute Maximum Ratings

( $T_a=25^\circ\text{C}$ )

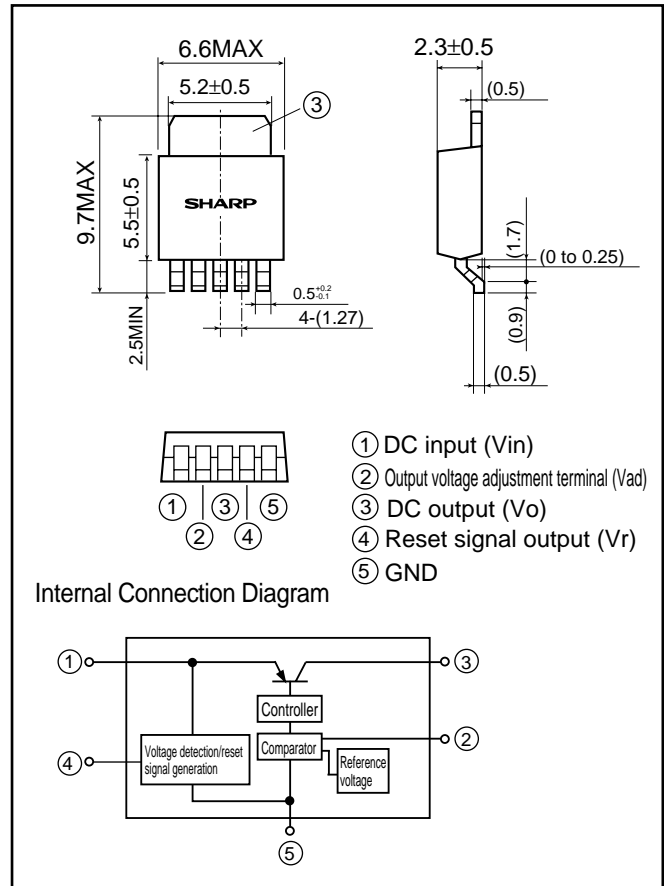
Parameter	Symbol	Rating	Unit
*1 Input voltage	$V_{IN}$	10	V
Output voltage adjustment terminal voltage	$V_{adj}$	7	V
*1 Reset output voltage	$V_r$	10	V
Output current	$I_o$	0.5	A
Reset output current	$I_r$	5	mA
Power dissipation (no heat sink)	$P_D$	0.8	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
*2 Operating temperature	$T_{opr}$	-20 to +80	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-40 to +150	$^\circ\text{C}$
Soldering temperature	$T_{sol}$	260(For 10s)	$^\circ\text{C}$

\*1 All are open except GND and applicable terminals.

\*2 Overheat protection may operate at  $T = 125$  to  $150^\circ\text{C}$ .

### Outline Dimensions

(Unit: mm)



(Notice) • In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.  
• Specifications are subject to change without notice for improvement.

(Internet) • Data for Sharp's optoelectronic/power devices is provided on internet. ( Address <http://www.sharp.co.jp/ecg/>)

## PQ07VR5MAZ Low Power-loss Voltage Regulator

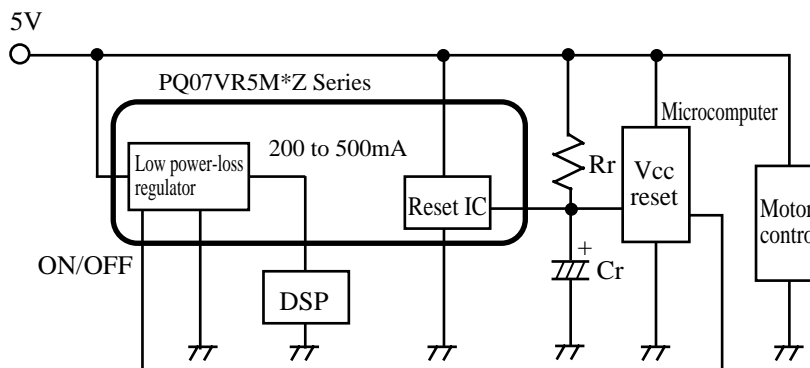
### Electrical Characteristics

( $V_{in} = 5V$ ,  $V_o = 3V$  ( $R_1 = 1k\Omega$ ) and  $I_o = 300mA$  unless otherwise specified) ( $T_a = 25^\circ C$ )

Parameter	Symbol	Condition	MIN.	TYP.	MAX.	Unit
Output voltage	$V_o$	–	1.5	–	7.0	V
Load regulation	$R_{egL}$	$I_o = 5mA$ to $0.5A$	–	0.1	2.0	%
Line regulation	$R_{egI}$	$V_{in} = 5$ to $7V, I_o = 5mA$	–	0.5	2.5	%
Ripple rejection	RR	–	45	60	–	dB
Reference voltage	$V_{ref}$	–	1.22	1.245	1.27	V
Temperature coefficient of reference voltage	$T_c V_{ref}$	$T_j = 0$ to $125^\circ C, I_o = 5mA$	–	$\pm 0.01$	–	%/ $^\circ C$
Dropout voltage	$V_{i-o}$	$V_{in} = 3.4V, I_o = 0.3A$	–	–	0.5	V
Quiescent current	$I_q$	$I_o = 0A$	–	–	5	mA
Reset threshold voltage	$V_{ri}$	$V_r \leq 0.8V, *4, R_r = 10k\Omega$	4.116	4.2	4.284	V
"L" reset output voltage	$V_{ri}$	$I_r = 5mA, I_o = 5mA$	–	–	0.8	V
Hysteresis voltage	$\Delta V_{ri}$	$I_o = 5mA$	50	150	200	mV

\*4 Output voltage when  $V_r$  becomes Low, lowering input voltage.

### Application Example to CD-ROM



### NOTICE

- The circuit application examples in this publication are provided to explain representative applications of SHARP devices and are not intended to guarantee any circuit design or license any intellectual property rights. SHARP takes no responsibility for any problems related to any intellectual property right of a third party resulting from the use of SHARP's devices.
- Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device. SHARP reserves the right to make changes in the specifications, characteristics, data, materials, structure, and other contents described herein at any time without notice in order to improve design or reliability. Manufacturing locations are also subject to change without notice.
- Observe the following points when using any devices in this publication. SHARP takes no responsibility for damage caused by improper use of the devices which does not meet the conditions and absolute maximum ratings to be used specified in the relevant specification sheet nor meet the following conditions:
  - (i) The devices in this publication are designed for use in general electronic equipment designs such as:
    - Personal computers
    - Office automation equipment
    - Telecommunication equipment [terminal]
    - Test and measurement equipment
    - Industrial control
    - Audio visual equipment
    - Consumer electronics
  - (ii) Measures such as fail-safe function and redundant design should be taken to ensure reliability and safety when SHARP devices are used for or in connection with equipment that requires higher reliability such as:
    - Transportation control and safety equipment (i.e., aircraft, trains, automobiles, etc.)
    - Traffic signals
    - Gas leakage sensor breakers
    - Alarm equipment
    - Various safety devices, etc.
  - (iii) SHARP devices shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as:
    - Space applications
    - Telecommunication equipment [trunk lines]
    - Nuclear power control equipment
    - Medical and other life support equipment (e.g., scuba).
- Contact a SHARP representative in advance when intending to use SHARP devices for any "specific" applications other than those recommended by SHARP or when it is unclear which category mentioned above controls the intended use.
- If the SHARP devices listed in this publication fall within the scope of strategic products described in the Foreign Exchange and Foreign Trade Control Law of Japan, it is necessary to obtain approval to export such SHARP devices.
- This publication is the proprietary product of SHARP and is copyrighted, with all rights reserved. Under the copyright laws, no part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, in whole or in part, without the express written permission of SHARP. Express written permission is also required before any use of this publication may be made by a third party.
- Contact and consult with a SHARP representative if there are any questions about the contents of this publication.