

PQ1Lxx3M2SP Series

Low Power-Loss Voltage Regulator

Low Output Current, Compact Surface Mount Type Low Power-Loss Voltage Regulators

Features

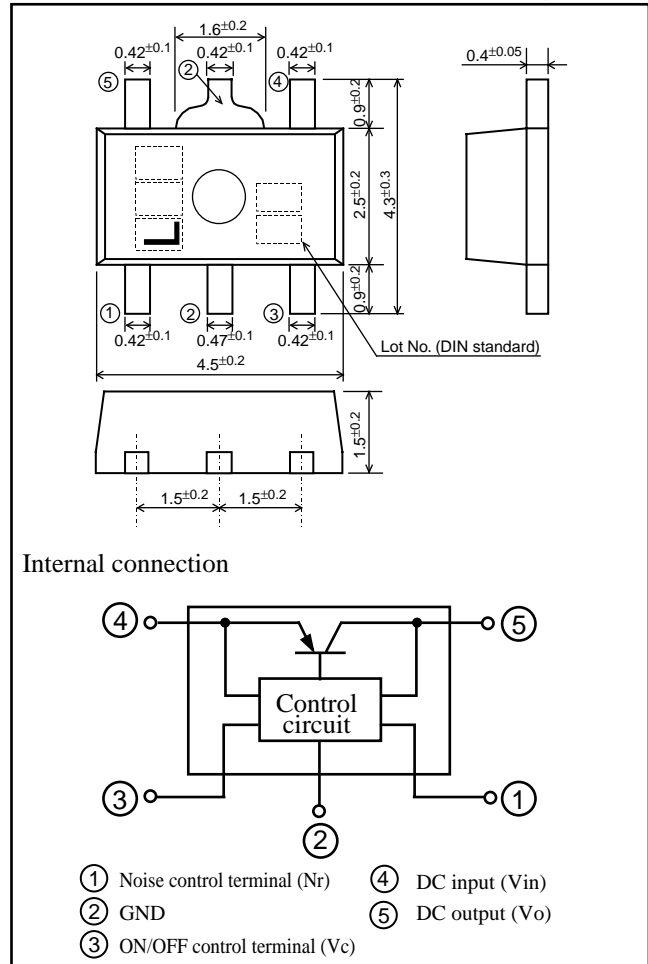
- (1) Compact surface mount package(4.5 × 4.3 × 1.5 mm)
- (2) Output current : MAX. 300 mA
- (3) Power dissipation : MAX. 900mW
- (4) Low power-loss
(Dropout voltage: MAX. 0.7 V at $I_o=300$ mA)
- (5) High ripple rejection (TYP.70 dB)
- (6) Built-in ON/OFF control function
- (7) Built-in overcurrent, overheat protection functions

Applications

- (1) CD-ROM drives
- (2) DVD-ROM drives
- (3) Digital Still Cameras

Outline Dimensions

(Unit: mm)



Absolute Maximum Ratings

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

Parameter	Symbol	Ratings	Unit
*1 Input voltage	V_{in}	16	V
*1 ON/OFF control terminal voltage	V_c	16	V
Output current	I_o	300	mA
*2 Power dissipation	P_d	900	mW
*3 Junction temperature	T_j	150	$^\circ\text{C}$
Operating temperature	T_{opr}	-30 to +80	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 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 At surface-mounted condition
- *3 Overheat protection may operate at $125 \leq T_j \leq 150^\circ\text{C}$.

(Notice)

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•Specifications are subject to change without notice for improvement.

(Internet)

•Data for Sharp's optoelectronic/power devices is provided on internet. (Address <http://sharp-world.com/ecg/>)

Electrical Characteristics

(Unless otherwise specified, $V_{in}=V_o(\text{TYP.})+1.0\text{V}$, $V_c=1.8\text{V}$, $I_o=30\text{mA}$, $T_a=25^\circ\text{C}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	V_o	-	Refer to the table below.			V
Load regulation	RegL	$I_o=5\text{mA}$ to 300mA	-	35	160	mV
Line regulation	RegI	$V_{in}=V_o(\text{TYP.})+1\text{V}$ to $V_o(\text{TYP.})+6\text{V}$	-	3.0	20	mV
Temperature coefficient of output voltage	T_cV_o	$I_o=10\text{mA}$, $T_j=-25$ to $+75^\circ\text{C}$	-	0.05	-	mV/ $^\circ\text{C}$
*4 Ripple rejection	RR	-	-	70	-	dB
*4 Output noise voltage	$V_{no}(\text{rms})$	$10\text{Hz} < f < 100\text{kHz}$ $I_o=30\text{mA}$, $C_n=0.1\mu\text{F}$	-	30	-	μV
Dropout voltage	V_{i-o}	$I_o=300\text{mA}$ *5	-	0.3	0.7	V
*6 ON-state voltage for control	$V_c(\text{on})$	-	1.8	-	-	V
ON-state current for control	$I_c(\text{on})$	$V_c=1.8\text{V}$	-	5	30	μA
OFF-state voltage for control	$V_c(\text{off})$	-	-	-	0.4	V
Quiescent current	I_q	$I_o=0\text{mA}$	-	150	500	μA
Output OFF-state dissipation current	I_{qs}	$V_c=0.2\text{V}$	-	-	1	μA

*4 Typical value at output voltage is 3.0V type.

*5 Dropout voltage when output voltage lowers 0.1V from the voltage at $V_{in}=V_o+1\text{V}$.

*6 In case of opening control terminal ③, output voltage turns off.

Output Voltage Line-up

($V_{in}=V_o(\text{TYP.})+1.0\text{V}$, $V_c=1.8\text{V}$, $I_o=30\text{mA}$, $T_a=25^\circ\text{C}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*7 Output voltage	PQ1L253M2SP	-	2.440	2.5	2.560	V
	PQ1L303M2SP		2.940	3.0	3.060	
	PQ1L333M2SP		3.234	3.3	3.366	
	PQ1L503M2SP		4.900	5.0	5.100	

*7 : It is available for every 0.1V (1.3V to 5V).

Fig.1 Test Circuit

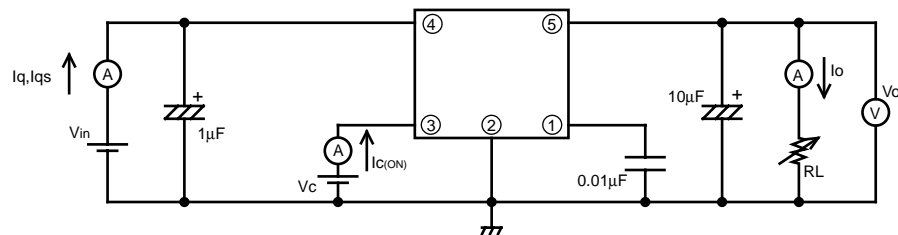
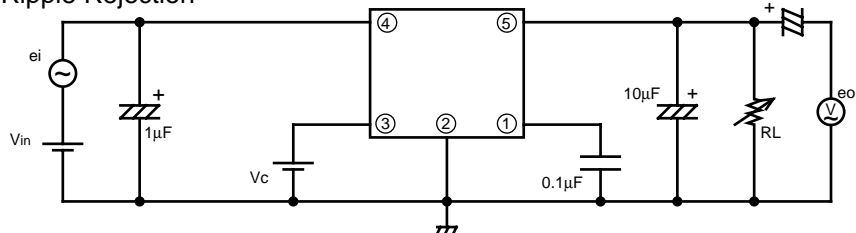


Fig.2 Test Circuit for Ripple Rejection



As of September 2001

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 - Industrial control
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 - Consumer electronics
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