

PQ07VZ5M2Z/PQ07VZ012Z

Low Voltage Operation Type Low Power-Loss Voltage Regulator

■ Features

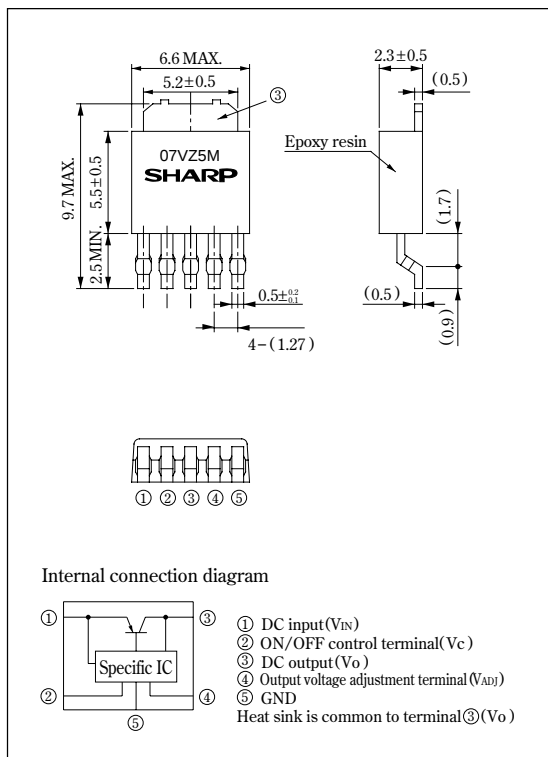
- Low power-loss
(Dropout voltage: MAX. 0.5V)
- Compact surface mount type package
(Equivalent to SC-63)
- Low voltage operation (Minimum supply voltage: 3.0V)
- 0.5A output : PQ07VZ5M2Z
1.0A output : PQ07VZ012Z
- Variable output voltage (1.5V to 7V)
- High-precision output type
(Reference voltage precision: $\pm 2.0\%$)
- Low dissipation current at OFF-state (I_{qs} : MAX. 5 μ A)
- Tape packaged type is also available.
($\phi 330$ mm reel: 3 000pcs.)
- Overcurrent, overheat protection functions

■ Applications

- Personal information tools
- Amusement equipment

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V _{IN}	10	V
Dropout voltage	V _{i-o}	5	V
*1 ON/OFF control terminal voltage	V _c	10	V
Output adjustment terminal voltage	V _{ADJ}	7	V
*2 Output current	I _O	0.5 1	A
*3 Power dissipation	P _D	8	W
Junction temperature	T _j	150	°C
Operating temperature	T _{opr}	-20 to +80	°C
Storage temperature	T _{stg}	-40 to +150	°C
Soldering temperature	T _{sol}	260 (For 10s)	°C

*1 All are open except GND and applicable terminals.

*2 P_D: With infinite heat sink

*3 Overheat protection may operate at 125 $\leq$ T_j $\leq$ 150°C.

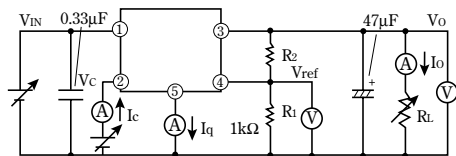
• Please refer to the chapter " Handling Precautions ".

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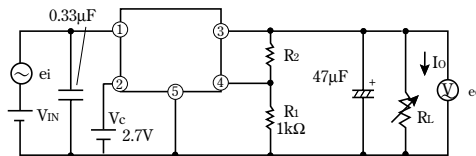
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(Unless otherwise specified, $V_{IN}=5V$, $I_{O1}=0.3A$ [PO07VZ5M2Z], $I_{O2}=0.5A$ [PO07VZ012Z], $V_O=3V$ ($R_I=1k\Omega$), $V_C=2.7V$, $T_A=25^\circ C$)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage		V_{IN}	—	3.0	—	10	V
Output voltage		V_O	—	1.5	—	7.0	V
Load regulation	PQ07VZ5M2Z	R_{regL}	$I_O=5mA$ to 0.5A	—	0.2	2.0	%
	PQ07VZ012Z		$I_O=5mA$ to 1.0A				
Line regulation		R_{regI}	$V_{IN}=4$ to 10V, $I_O=5mA$	—	0.2	2.5	%
Reference voltage		V_{ref}	—	1.225	1.25	1.275	V
Temperature coefficient of reference voltage		$T_C V_{ref}$	$T_J=0$ to 125°C, $I_O=5mA$	—	±1.0	—	%
Ripple rejection		RR	f=120Hz sine wave, ei=0.5Vrms	45	60	—	dB
Dropout voltage	PQ07VZ5M2Z	V_{I-O}	$V_{IN}=3V$, $I_O=0.3A$	—	—	0.5	V
	PQ07VZ012Z		$V_{IN}=3V$, $I_O=0.5A$				
Ⓐ ON-state voltage for control		$V_{C(ON)}$	—	2.0	—	—	V
ON-state current for control		$I_{C(ON)}$	—	—	—	200	μA
OFF-state voltage for control		$V_{C(OFF)}$	$I_O=0A$	—	—	0.8	V
OFF-state current for control		$I_{C(OFF)}$	$V_C=0.4V$, $I_O=0A$	—	—	2	μA
Quiescent current		I_q	$I_O=0A$	—	4	7	mA
Output OFF-state consumption current		I_{as}	$V_C=0.4V$	—	—	5	μA



$$V_O = V_{ref} \times \left(1 + \frac{R_2}{R_1} \right)$$



10-57 (K1-K32)

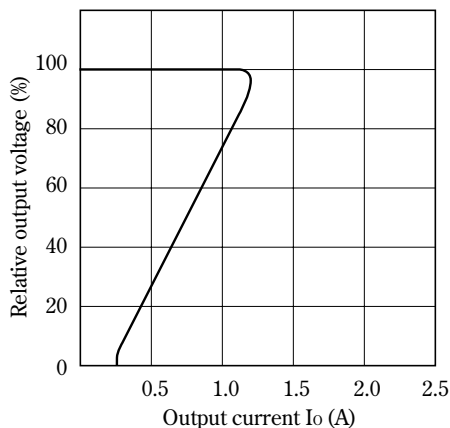
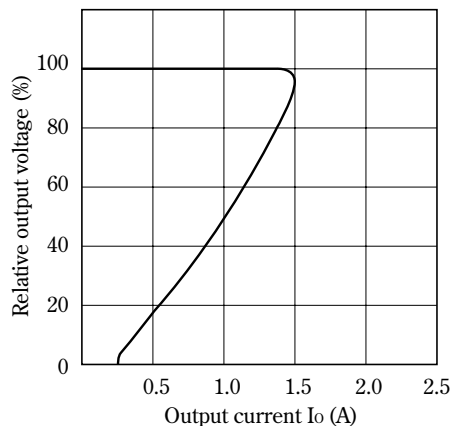
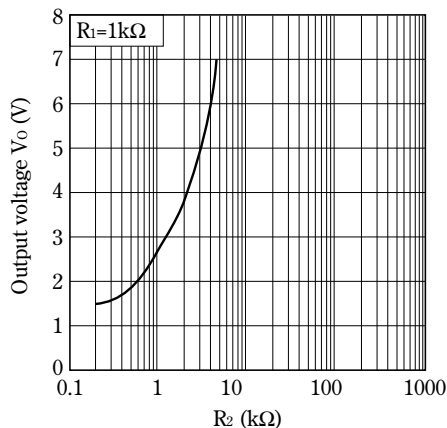
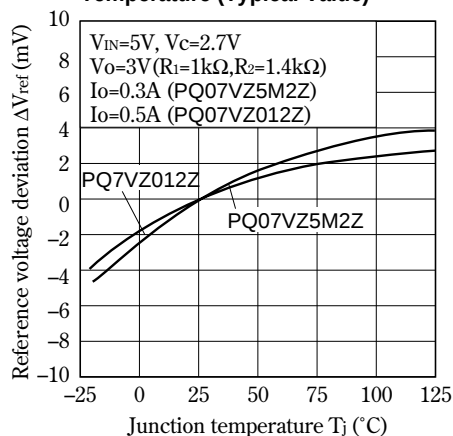
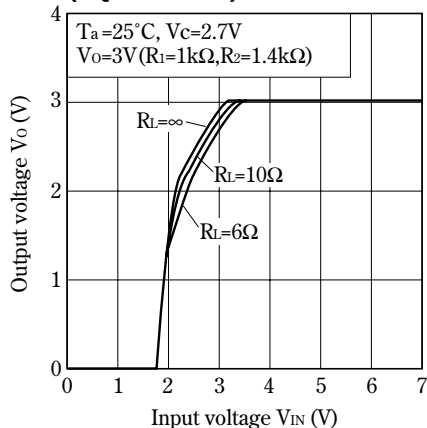
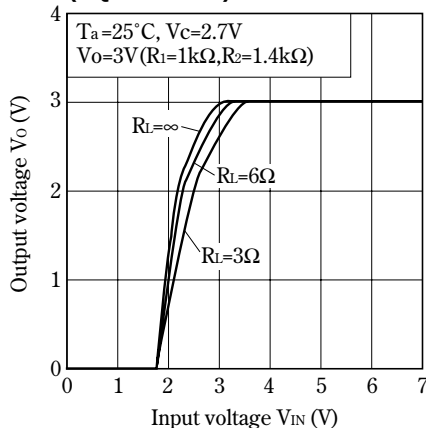
Fig. 4 Overcurrent Protection Characteristics (Typical Value) (PQ07VZ5M2Z)**Fig. 5 Overcurrent Protection Characteristics (Typical Value) (PQ07VZ012Z)****Fig. 6 Output Voltage Adjustment Characteristics****Fig. 7 Reference Voltage Deviation vs. Junction Temperature (Typical Value)****Fig. 8 Output Voltage vs. Input Voltage (PQ07VZ5M2Z)****Fig. 9 Output Voltage vs. Input Voltage (PQ07VZ012Z)**

Fig.10 Circuit Operating Current vs. Input Voltage (PQ07VZ5M2Z)

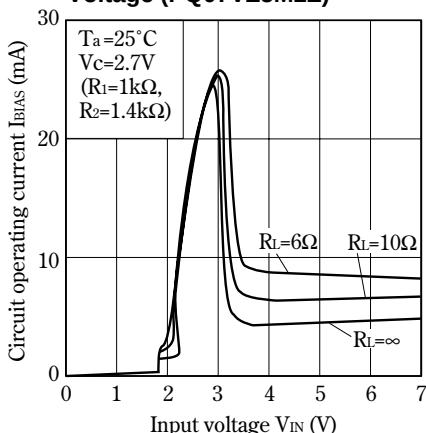


Fig.11 Circuit Operating Current vs. Input Voltage (PQ07VZ012Z)

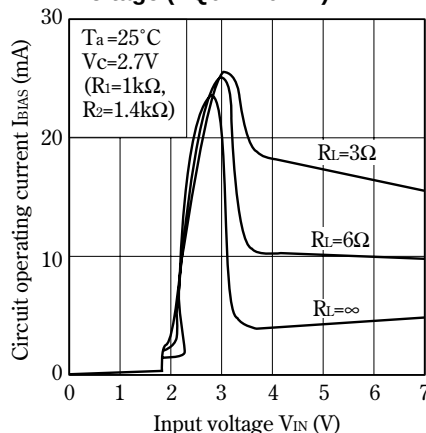


Fig.12 Dropout Voltage vs. Junction Temperature (Typical Value) (PQ07VZ5M2Z)

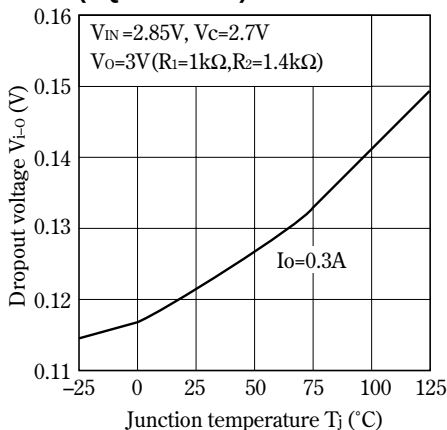


Fig.13 Dropout Voltage vs. Junction Temperature (Typical Value) (PQ07VZ012Z)

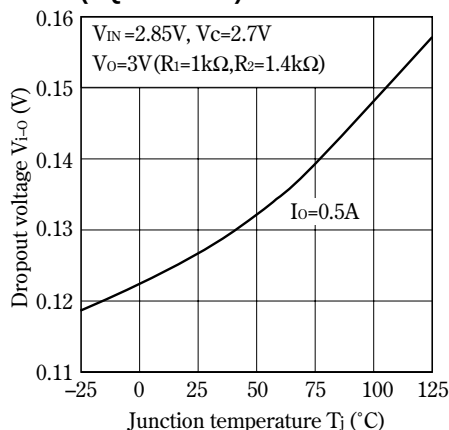


Fig.14 Quiescent Current vs. Junction Temperature (Typical Value)

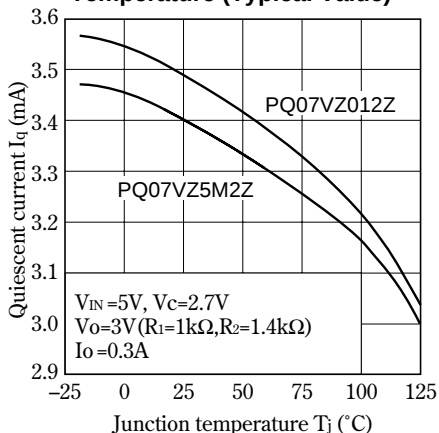


Fig.15 Ripple Rejection vs. Input Ripple Frequency

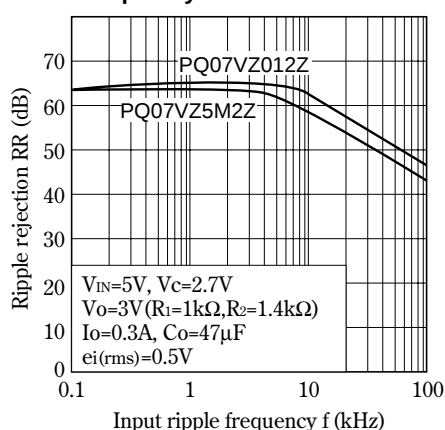


Fig.16 Ripple Rejection vs. Output Current (PQ07VZ5M2Z)

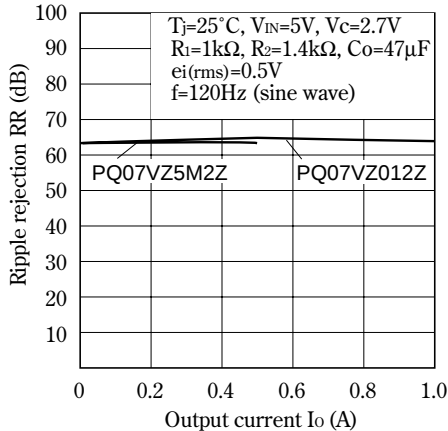
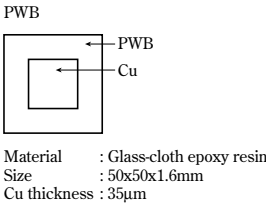
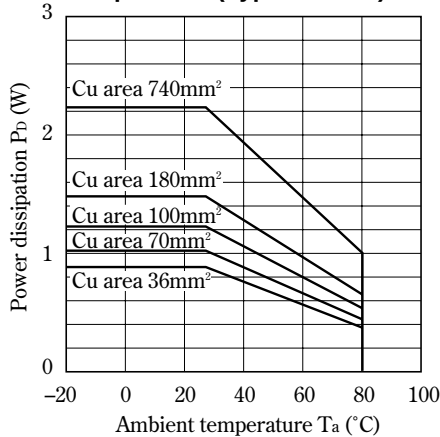
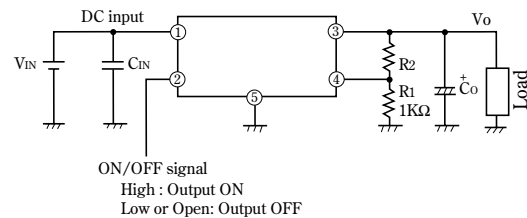


Fig.17 Power Dissipation vs. Ambient Temperature (Typical Value)



Typical Application



Model Line-ups for Tape-packaged Products

Output current	Sleeve-packaged products	Tape-packaged products
0.5A output	PQ07VZ5M2ZZ	PQ07VZ5M2ZP
1.0A output	PQ07VZ012ZZ	PQ07VZ012ZP

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 - Alarm equipment
 - Various safety devices, etc.
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