

PQ07VZ5M2Z/PQ07VZ012Z

Low Voltage Operation Type Low Power-Loss Voltage Regulator

Features

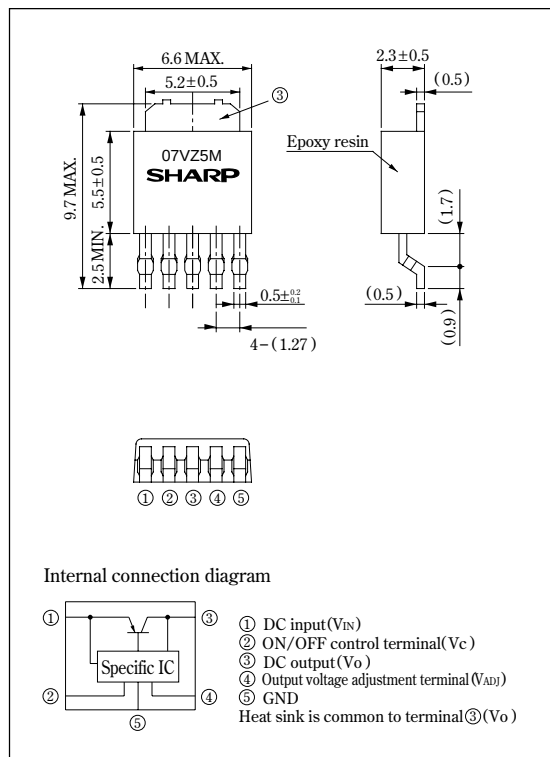
- Low power-loss
(Dropout voltage: MAX. 0.5V)
- Compact surface mount type package
(Equivalent to SC-63)
- Low voltage operation (Minimum supply voltage: 3.0V)
- 0.5A output : PQ07VZ5M2Z
1.0A output : PQ07VZ012Z
- Variable output voltage (1.5V to 7V)
- High-precision output type
(Reference voltage precision: $\pm 2.0\%$)
- 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

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

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	PQ07VZ5M2Z	0.5	A
	PQ07VZ012Z	1	
*3 Power dissipation	P_D	8	W
Junction temperature	T_j	150	$^\circ\text{C}$
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 P_D : With infinite heat sink

*3 Overheat protection may operate at $125 < T_j \leq 150^\circ\text{C}$.

• Please refer to the chapter " Handling Precautions ".

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■ Electrical Characteristics (Unless otherwise specified, VIN=5V, Io=0.3A[PQ07VZ5M2Z], Io=0.5A[PQ07VZ012Z], Vo=3V(R1=1kΩ), Vc=2.7V, Ta=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage	VIN	—	3.0	—	—	V
Output voltage	VO	—	1.5	—	7.0	V
Load regulation	RegL	Io=5mA to 0.5A	—	0.2	2.0	%
		Io=5mA to 1.0A				
Line regulation	RegI	VIN=4 to 10V, Io=5mA	—	0.2	2.5	%
Reference voltage	Vref	—	1.225	1.25	1.275	V
Temperature coefficient of reference voltage	TC Vref	Tj=0 to 125°C, Io=5mA	—	±1.0	—	%
Ripple rejection	RR	f=120Hz sine wave, ei=0.5Vrms	45	60	—	dB
Dropout voltage	Vi-o	VIN=3V, Io=0.3A	—	—	0.5	V
		VIN=3V, Io=0.5A				
④	VC(ON)	—	2.0	—	—	V
ON-state current for control	IC(ON)	—	—	—	200	μA
OFF-state voltage for control	VC(OFF)	Io=0A	—	—	0.8	V
OFF-state current for control	IC(OFF)	Vc=0.4V, Io=0A	—	—	2	μA
Quiescent current	Iq	Io=0A	—	4	7	mA
Output OFF-state consumption current	Iqs	Vc=0.4V	—	—	5	μA

④ In case of opening ON/OFF control terminal②, output voltage turns off.

Fig. 1 Test Circuit

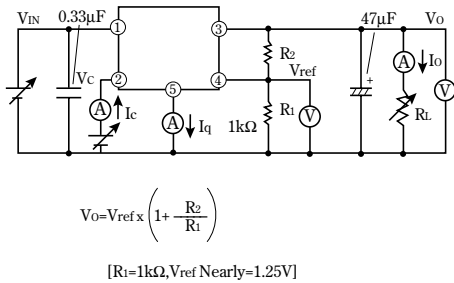
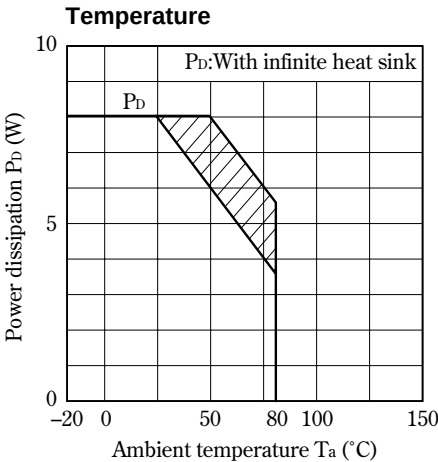
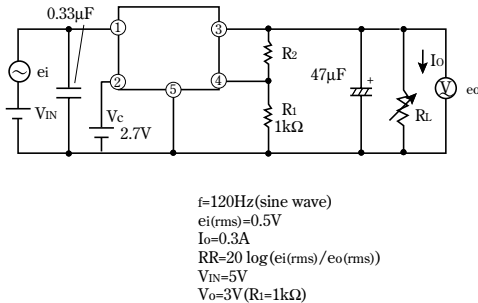
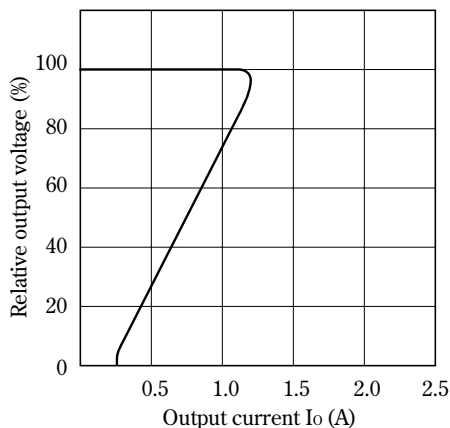


Fig. 2 Test Circuit of Ripple Rejection



Oblique line portion : Overheat protection may operate in this area.

Fig. 4 Overcurrent Protection Characteristics (Typical Value) (PQ07VZ5M2Z)



(Typical Value) (PQ07VZ012Z)

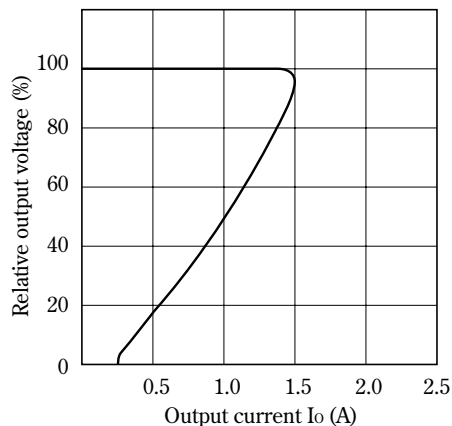
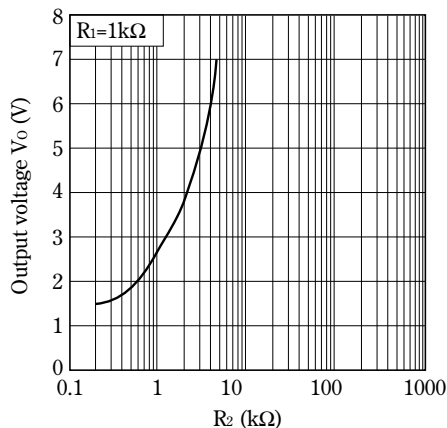


Fig. 6 Output Voltage Adjustment Characteristics



Reference Voltage Deviation vs. Junction Temperature (Typical Value)

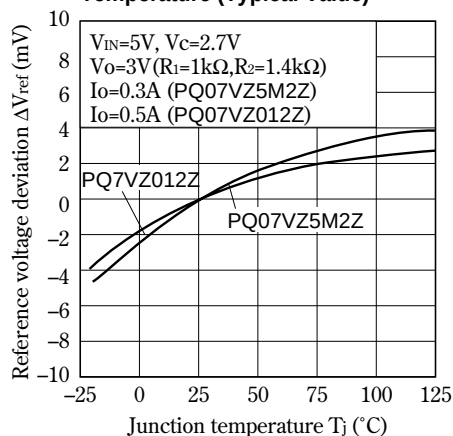
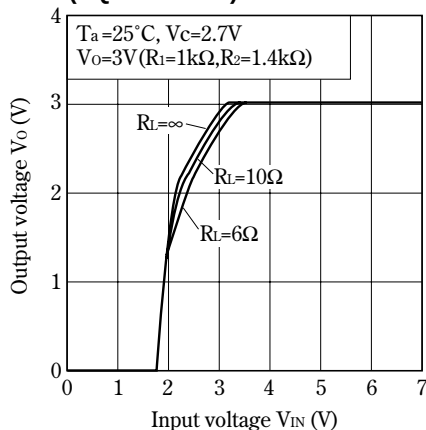


Fig. 8 Output Voltage vs. Input Voltage (PQ07VZ5M2Z)



(PQ07VZ012Z)

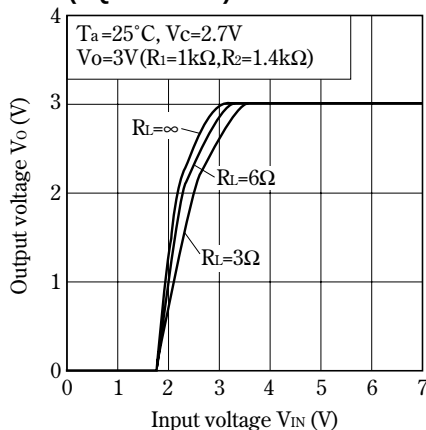
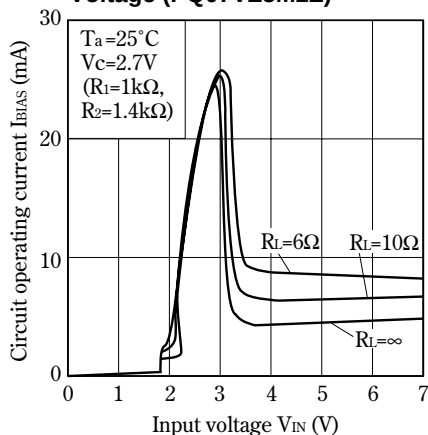


Fig.10 Circuit Operating Current vs. Input Voltage (PQ07VZ5M2Z)



Voltage (PQ07VZ012Z)

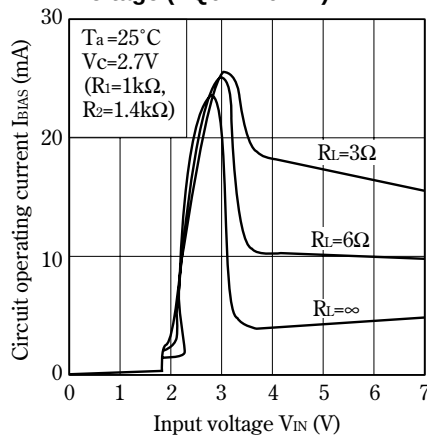
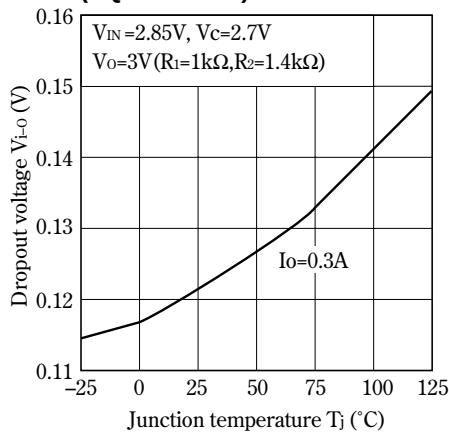
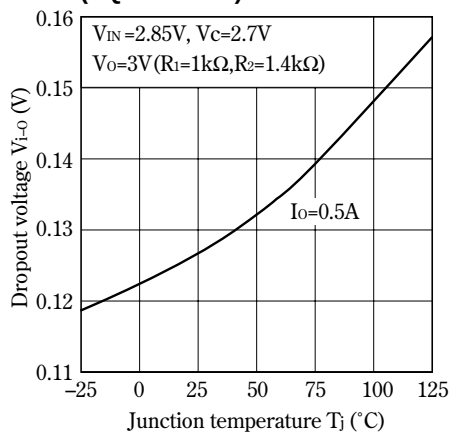


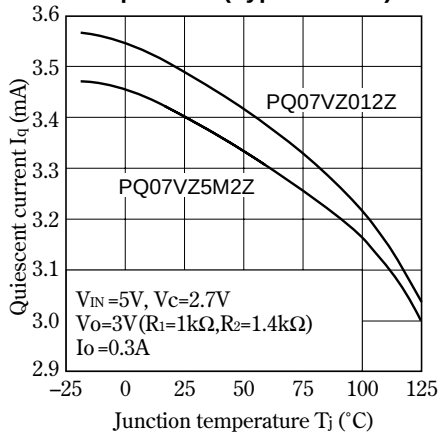
Fig.12 Dropout Voltage vs. Junction Temperature (Typical Value) (PQ07VZ5M2Z)



Temperature (Typical Value) (PQ07VZ012Z)



Temperature (Typical Value)



Frequency

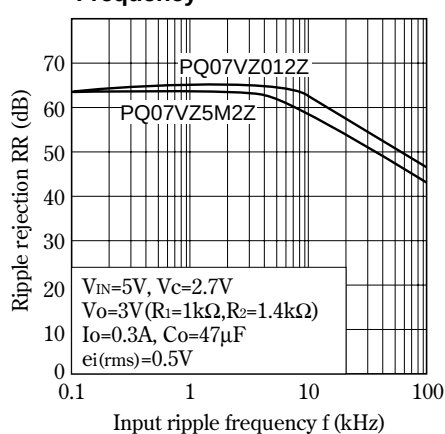


Fig.16 Ripple Rejection vs. Output Current (PQ07VZ5M2Z)

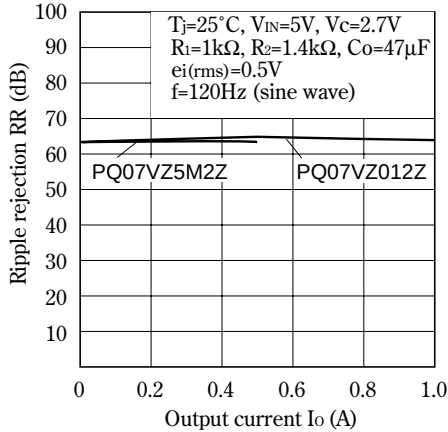
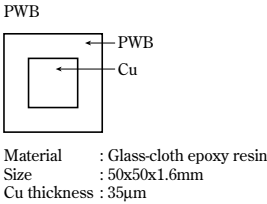
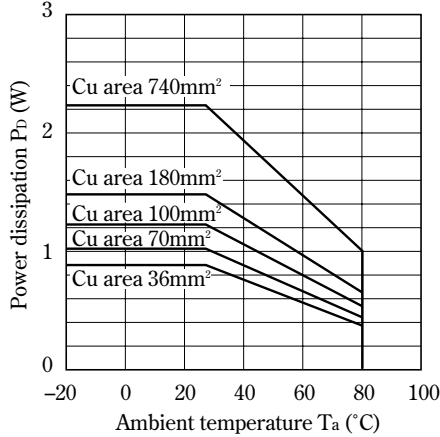
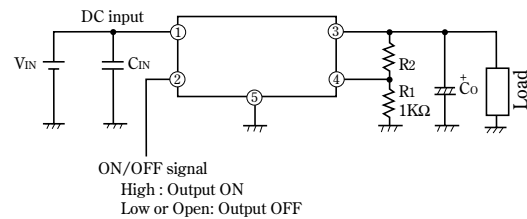


Fig.17 Power Dissipation vs. Ambient Temperature (Typical Value)



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		PQ07VZ012ZP

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