PQxxxFZ5MZ Series/ PQxxxFZ01Z Series

SC-63 Package, Low Voltage Operation, Low Power-Loss Voltage Regulator

■ Features

1. Low voltage operation (Minimum operating voltage:1.7V)
   1.8V input → available 1.0, 1.2V.
2. SC-63 package.

■ Applications

1. Peripheral equipment of personal computers.
2. Power supplies for various electronic equipment such as DVD player or STB.

■ Model Line-up

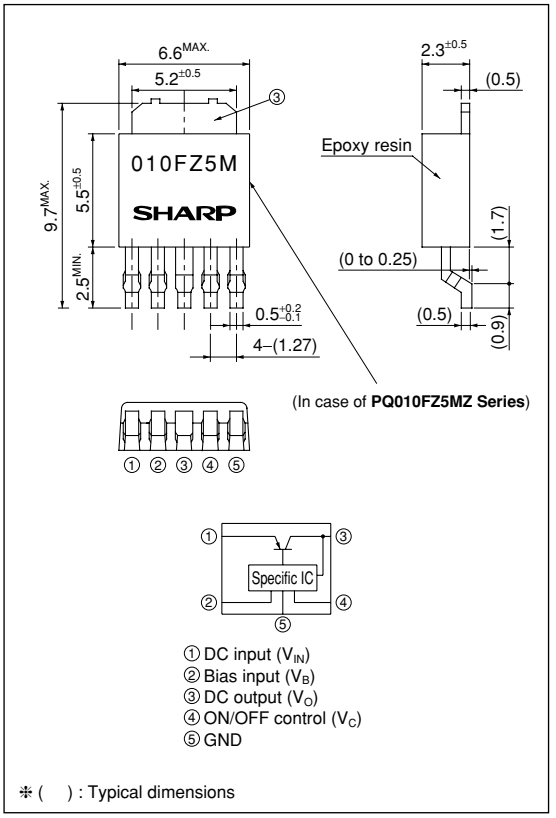
Output current (I_O)	Package type	Output voltage (V_O)	
		1.0V	1.2V
0.5A	Taping	**PQ010FZ5MZP**	**PQ012FZ5MZP**
	Sleeve	**PQ010FZ5MZZ**	**PQ012FZ5MZZ**
1A	Taping	**PQ010FZ01ZP**	**PQ012FZ01ZP**
	Sleeve	**PQ010FZ01ZZ**	**PQ012FZ01ZZ**

■ Absolute Maximum Ratings (T_a=25°C)

Parameter		Symbol	Rating	Unit
Input voltage		V_{IN}	3.7	V
Bias supply voltage		V_B	7	V
*1 Output control voltage		V_C	7	V
Output current	PQxxxFZ5MZ Series	I_O	0.5	A
	PQxxxFZ01Z Series		1	
*2 Power dissipation		P_D	8	W
*3 Junction temperature		T_j	150	°C
Operating temperature		T_{opr}	–25 to +85	°C
Storage temperature		T_{stg}	–40 to +150	°C
Soldering temperature		T_{sol}	260 (10s)	°C

*1 All are open except GND and applicable terminals
*2 P_D:With infinite heat sink
*3 Overheat protection may operate at the condition T_j=125°C to 150°C

■ Outline Dimensions (Unit : mm)



■ Electrical Characteristics

(Unless otherwise specified, condition shall be V_{IN}=1.8V, V_B=3.3V, I_O=0.3A,V_C=2.7V, T_a=25°C (**PQxxxFZ5MZ**))
(Unless otherwise specified, condition shall be V_{IN}=1.8V, V_B=3.3V, I_O=0.5A,V_C=2.7V, T_a=25°C (**PQxxxFZ01Z**))

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage range		V_{IN}	–	1.7	–	3.7	V
Bias voltage		V_B	–	2.35	–	7	V
Output voltage		V_O	–	Refer to below table			V
Load regulation	**PQxxxFZ5MZ**	$R_{eg}L$	I_O=5mA to 0.5A	–	0.2	1	%
	PQxxxFZ01Z		I_O=5mA to 1A				
Line regulation		$R_{eg}I$	V_{IN}=1.7 to 3.7V, V_B=2.35 to 7V, I_O=5mA	–	0.2	1	%
Output voltage temperature coefficient		T_CV_O	T_j=0 to 125°C, I_O=5mA	–	0.5	–	%/°C
Ripple Rejection		RR1	Refer to Fig.2	–	65	–	dB
		RR2	Refer to Fig.3	–	60	–	dB
*4 Output on control voltage		$V_{C\ (ON)}$	–	2	–	–	V
Output on control current		$I_{C\ (ON)}$	–	–	–	200	µA
Output off control voltage		$V_{C\ (OFF)}$	–	–	–	0.8	V
Output off control current		$I_{C\ (OFF)}$	V_C=0.4V	–	–	2	µA
Bias inflow current		I_B	I_O=0A	–	1.5	3	mA
Output OFF-state consumption current		I_{qs}	I_O=0A, V_C=0.4V	–	–	10	µA

*4 In case of opening control terminal ④, output voltage turns off

■ Output Voltage Range

(Unless otherwise specified, condition shall be V_{IN}=1.8V, V_B=3.3V, I_O=0.3A,V_C=2.7V, T_a=25°C (**PQxxxFZ5MZ**))
(Unless otherwise specified, condition shall be V_{IN}=1.8V, V_B=3.3V, I_O=0.5A,V_C=2.7V, T_a=25°C (**PQxxxFZ01Z**))

Model No.	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
PQ010FZ5MZ/PQ010FZ01Z	V_O	–	0.97	1.0	1.03	V
PQ012FZ5MZ/PQ012FZ01Z	V_O	–	1.17	1.2	1.23	V

Fig.1 Standard Test Circuit

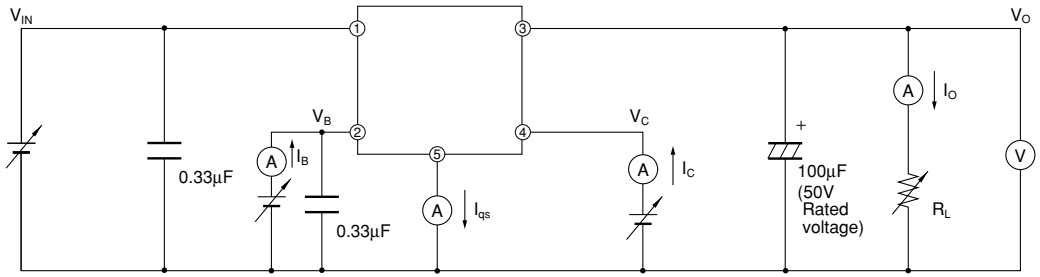
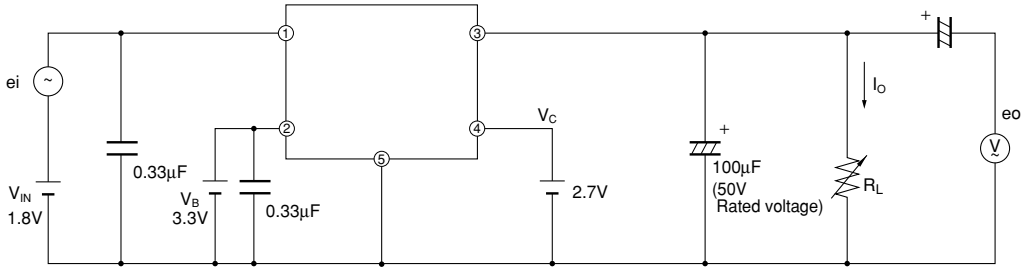
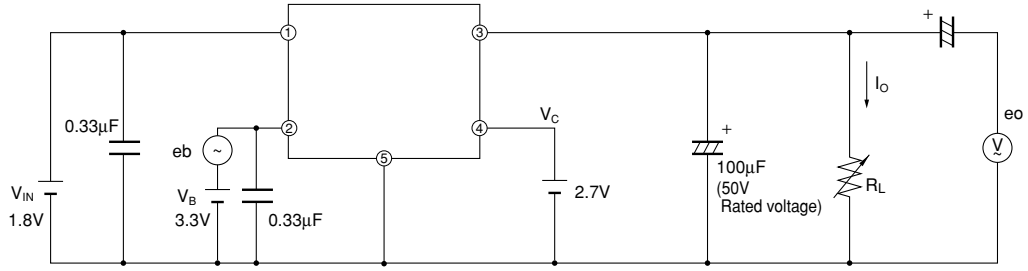


Fig.2 Test Circuit for Ripple Rejection



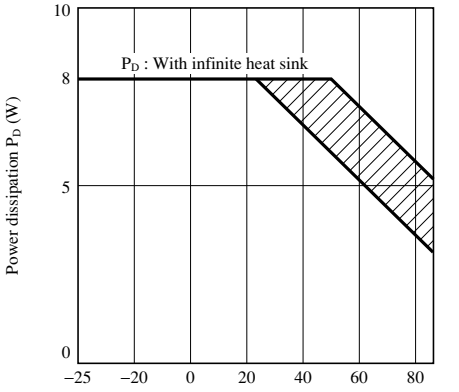
f=120Hz (sine wave)
ei(rms)=0.1V
V_{IN}=1.8V, V_B=3.3V
I_O=0.3A
RR=20log (ei(rms)/eo(rms))

Fig.3 Test Circuit for Ripple Rejection



f=120Hz (sine wave)
eb(rms)=0.1V
V_{IN}=1.8V, V_B=3.3V
I_O=0.3A
RR=20log (eb(rms)/eo(rms))

Fig.4 Power Dissipation vs. Ambient Temperature



Note) Oblique line prtion:Overheat protection may operate in this area

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  --- Office automation equipment
  --- Telecommunication equipment [terminal]
  --- Test and measurement equipment
  --- Industrial control
  --- Audio visual equipment
  --- Consumer electronics

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  --- Traffic signals
  --- Gas leakage sensor breakers
  --- Alarm equipment
  --- Various safety devices, etc.

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  --- Telecommunication equipment [trunk lines]
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