PQxxxEZ02Z Series

Low Voltage Operation Low Power-loss Voltage Regulator

■ Features

- Low voltage operation (Minimum operating voltage: 2.35V)
  2.5V input → available 1.5 to 1.8V output
- Low dissipation current
  Dissipation current at no load: MAX.2mA
  Output OFF-state dissipation current: MAX.5μA
- Low power-loss
- Built-in overcurrent and overheat protection functions
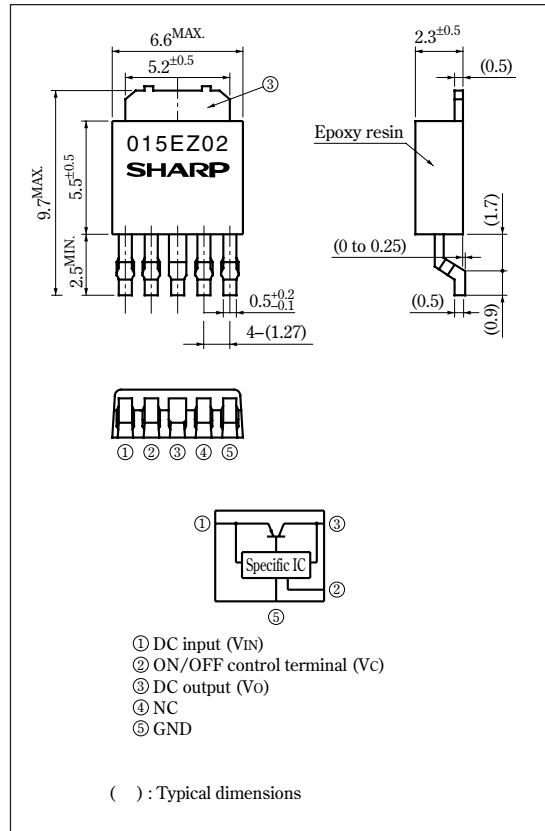
■ Applications

- Power supplies for personal computers and peripheral equipment
- Power supplies for various electronic equipment such as DVD player or STB

■ Model Line-up

Output current	Output Voltage (V_O)		
(I_O)	1.5V	1.8V	2.5V
2.0A	**PQ015EZ02Z**	**PQ018EZ02Z**	**PQ025EZ02Z**

■ Outline Dimensions

(Unit : mm)

① DC input (V_{IN})
② ON/OFF control terminal (V_C)
③ DC output (V_O)
④ NC
⑤ GND

(   ) : Typical dimensions

■ Absolute Maximum Ratings

(T_a=25˚C)

Parameter	Symbol	Rating	Unit
[1] Input voltage	V_{IN}	10	V
[1] ON/OFF control terminal voltage	V_C	10	V
Output current	I_O	2	A
[2] Power dissipation	P_D	8	W
[3] Junction temperature	T_j	150	˚C
Operating temperature	T_{opr}	−40 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 125 <=T_j<=150˚C

• Please refer to the chapter " Handling Precautions ".

■ Electrical Characteristics

(Unless otherwise specified, condition shall be $V_{IN}=V_O$(TYP.)+1V, I_O=0.5A,V_C=2.7V, Ta=25°C)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
	Input voltage	V_{IN}	–	Refer to the table 1			V
	Output voltage	V_O	–	Refer to the table 2			V
	Load regulation	$R_{eg}L$	I_O=5mA to 2.0A	–	0.2	2	%
	Line regulation	$R_{eg}I$	$V_{IN}=V_O$(TYP.)+1V to V_O(TYP.)+6V	–	0.1	1	%
	Temperature coefficient of output voltage	T_CV_O	T_J=0 to 125°C, I_O=5mA	–	±0.01	–	%/°C
	Ripple Rejection	RR	Refer to Fig.2	45	60	–	dB
	Dropout voltage	V_{I-O}	*4 I_O=1A	–	–	0.5	V
*5	ON-state voltage for control	$V_{C(ON)}$	–	2	–	–	V
	ON-state current for control	$I_{C(ON)}$	–	–	–	200	µA
	OFF-state voltage for control	$V_{C(OFF)}$	–	–	–	0.8	V
	OFF-state current for control	$I_{C(OFF)}$	V_C=0.4V	–	–	2	µA
	Quiescent current	I_q	I_O=0A	–	1	2	mA
	Output OFF-state dissipation current	I_{qs}	I_O=0A, V_C=0.4V	–	–	5	µA

*4 Input voltage shall be the value when output voltage is 95% in comparison with the initial value.
*5 In case of opening control terminal ②, output voltage turns off.

Table.1 Input Voltage Line-up

(Unless otherwise specified, condition shall be I_O=0.5A,V_C=2.7V, Ta=25°C)

Model No.	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
PQ015EZ02Z	V_{IN}	–	2.35	–	10	V
PQ018EZ02Z	V_{IN}	–	2.35	–	10	V
PQ025EZ02Z	V_{IN}	–	3.0	–	10	V

Table.2 Output Voltage Line-up

(Unless otherwise specified, condition shall be $V_{IN}=V_O$(TYP.)+1V, I_O=1A,V_C=2.7V, Ta=25°C)

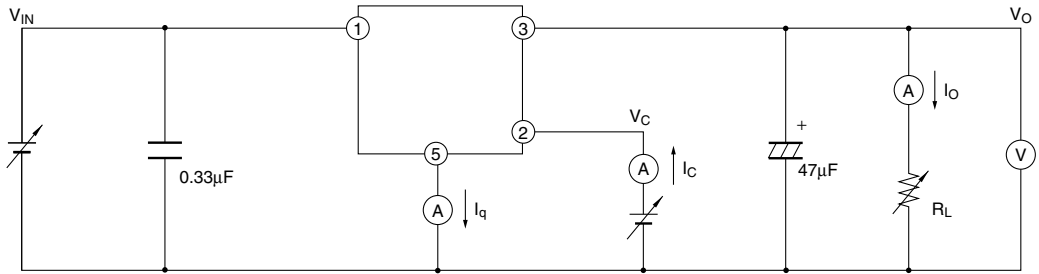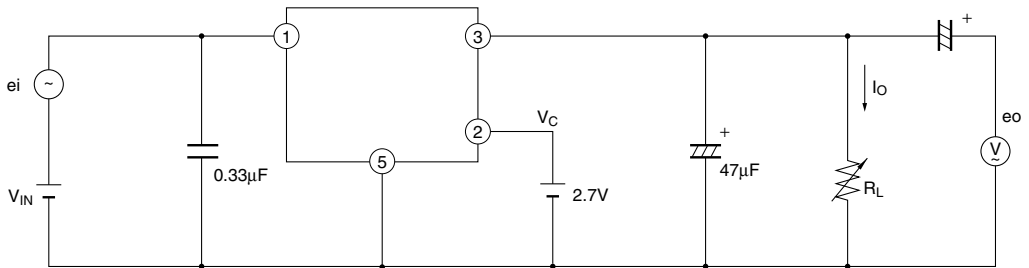| Model No.	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
PQ015EZ02Z	V_O	–	1.45	1.5	1.55	V
PQ018EZ02Z	V_O	–	1.75	1.8	1.85	V
PQ025EZ02Z	V_O	–	2.438	2.5	2.562	V

Fig.1   Test Circuit

Fig.2   Test Circuit for Ripple Rejection

f=120Hz (sine wave)
ei(rms)=0.5V
$V_{IN}=V_O$(TYP)+2V
I_O=0.3A
RR=20log (ei(rms)/eo(rms))

Fig.3   Power Dissipation vs. Ambient Temperature

P_D : With infinite heat sink

Power dissipation P_D (W)

Ambient temperature T_a (°C)
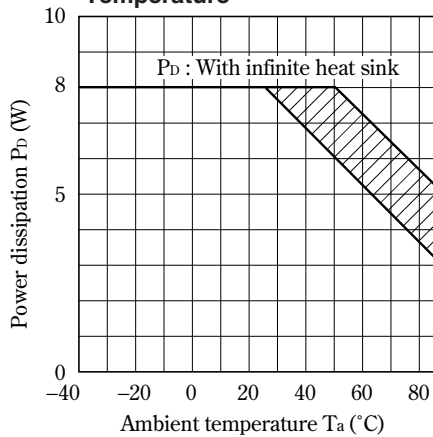
Note) Oblique line portion:Overheat protection may operate in this area.

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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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      --- Alarm equipment
      --- Various safety devices, etc.

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