PQxxxEZ02ZxH Series

Compact Surface Mount type
Low Power-Loss Voltage Regulators

Features

1. Low voltage operation (Minimum operating voltage: 2.35V)
   2.5V input → available 1.5 to 1.8V
2. Low dissipation current
   Dissipation current at no load: MAX. 2mA
   Output OFF-state dissipation current: MAX. 5μA
3. Built-in overcurrent protection and overheat protection functions
4. RoHS directive compliant

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)		
		1.5V	1.8V	2.5V
2.0A	Taping	PQ015EZ02ZPH	PQ018EZ02ZPH	PQ025EZ02ZPH
	Sleeve	PQ015EZ02ZZH	PQ018EZ02ZZH	PQ025EZ02ZZH

Absolute Maximum Ratings

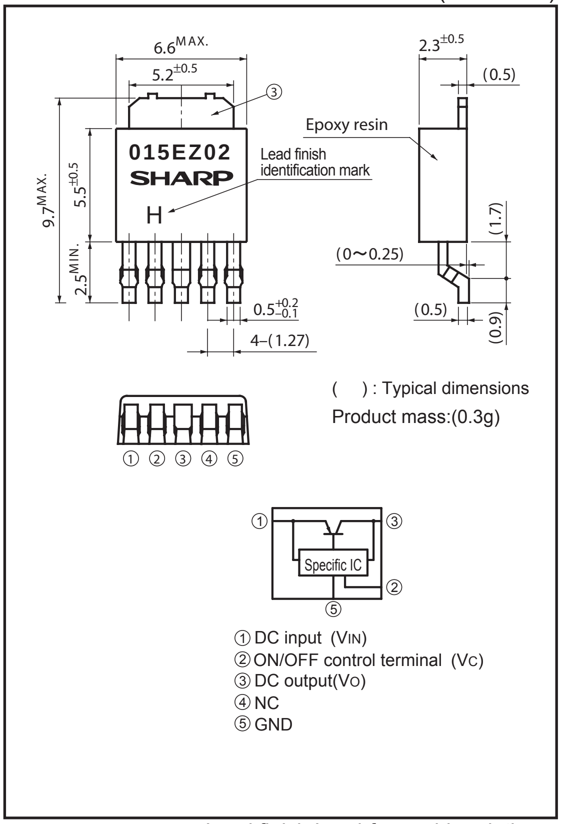
(Ta=25°C)

Parameter	Symbol	Rating	Unit
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 Tj:125°C to 150°C

Outline Dimensions

(Unit : mm)



Lead finish:Lead-free solder plating
(Composition: Sn2Cu)

Electrical Characteristics

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

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
	Input voltage	V_{IN}	–	Refer to below table			V
	Output voltage	V_O	–	Refer to below table			V
	Load regulation	$R_{eg}L$	I_O=5mA to 2.0A	–	0.2	2.0	%
	Line regulation	$R_{eg}I$	$V_{IN}=V_O(TYP.)+1V$ to $V_O(TYP.)+6V$	–	0.1	1.0	%
	Temperature coefficient of output voltage	T_CV_O	Tj=0 to 125°C, I_O=5mA	–	±0.01	–	%/°C
	Ripple Rejection	RR	Refer to Fig.2	45	60	–	dB
※4	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	$V_{C(OFF)}$	–	–	–	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 In case of opening control terminal ②, output voltage turns off.

Input voltage range

(Unless otherwise specified, condition shall be $I_O=1A$, $V_C=2.7V$, $Ta=25^\circ C$)

Model No.	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
PQ015EZ02ZxH	V_{IN}	–	2.35	–	10	V
PQ018EZ02ZxH	V_{IN}	–	2.35	–	10	V
PQ025EZ02ZxH	V_{IN}	–	3.0	–	10	V

Output voltage

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

Model No.	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
PQ015EZ02ZxH	V_O	–	1.45	1.5	1.55	V
PQ018EZ02ZxH	V_O	–	1.75	1.8	1.85	V
PQ025EZ02ZxH	V_O	–	2.438	2.5	2.562	V

Fig.1 Test Circuit

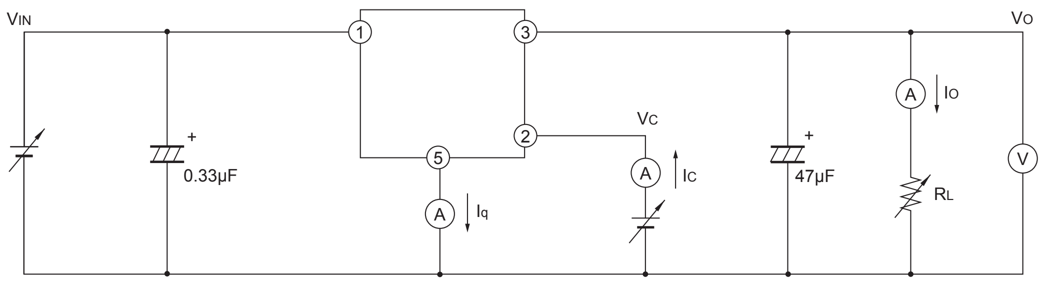
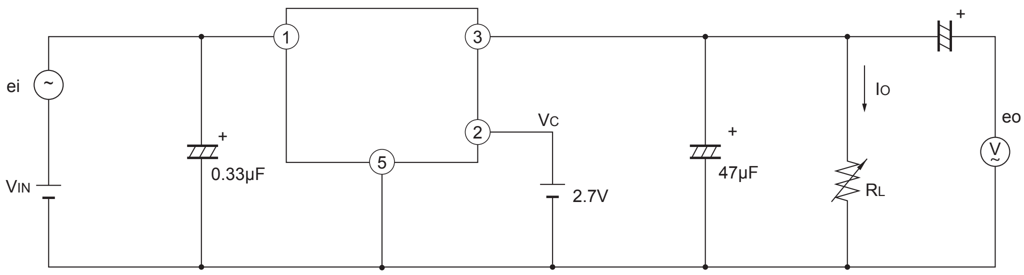
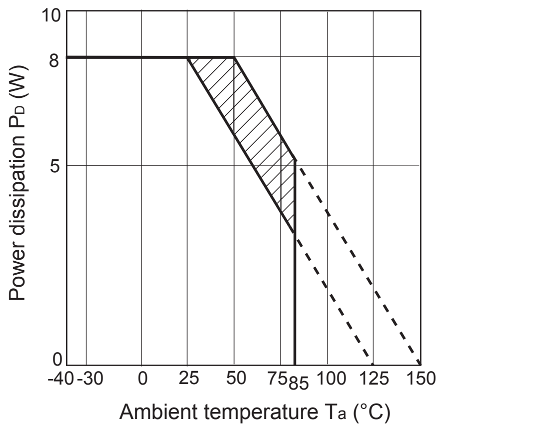


Fig.2 Test Circuit for Ripple Rejection



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

Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics (**PQ015EZ02ZxH**)

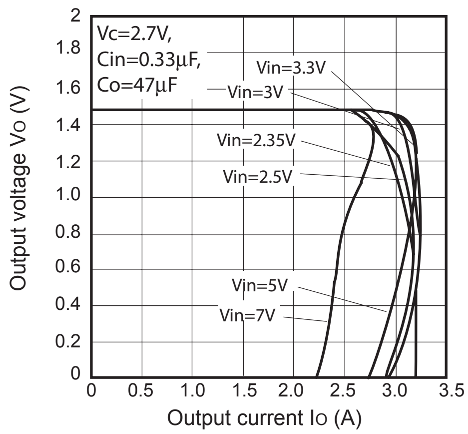


Fig.5 Overcurrent Protection Characteristics (**PQ018EZ02ZxH**)

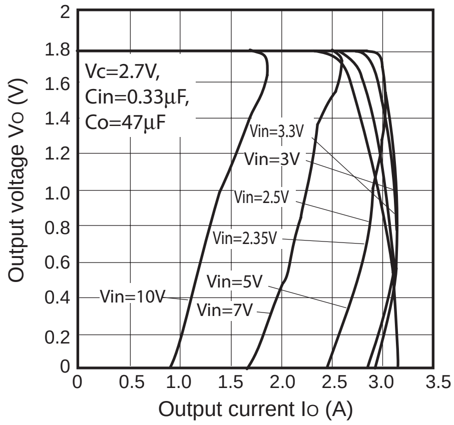


Fig.6 Overcurrent Protection Characteristics (**PQ025EZ02ZxH**)

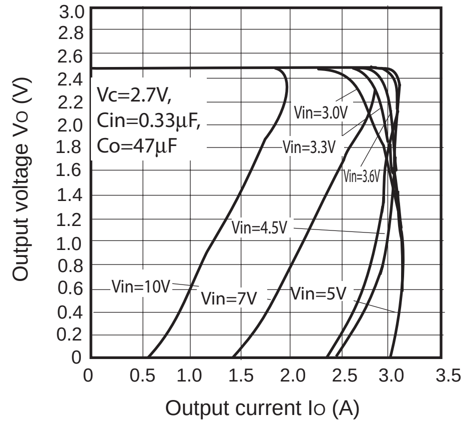


Fig.7 Output Voltage vs. Input Voltage (**PQ015EZ02ZxH**)

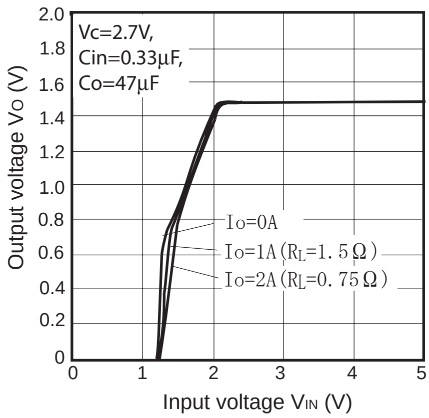


Fig.8 Output Voltage vs. Input Voltage (**PQ018EZ02ZxH**)

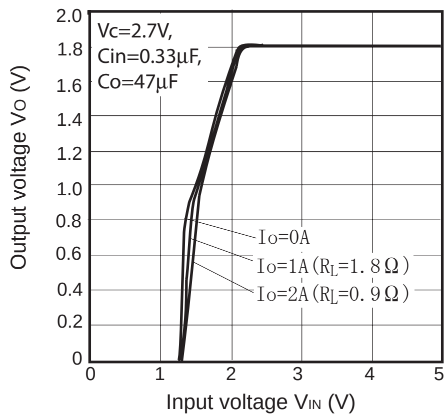


Fig.9 Output Voltage vs. Input Voltage (**PQ025EZ02ZxH**)

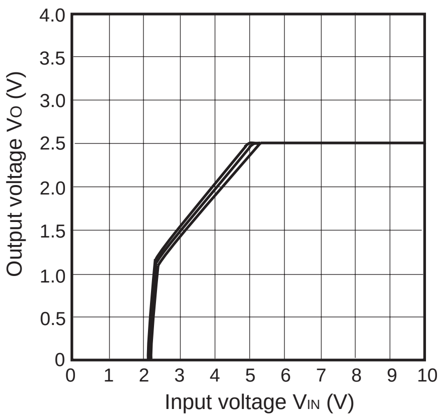


Fig.10 Circuit Operating Current vs. Input Voltage (**PQ015EZ02ZxH**)

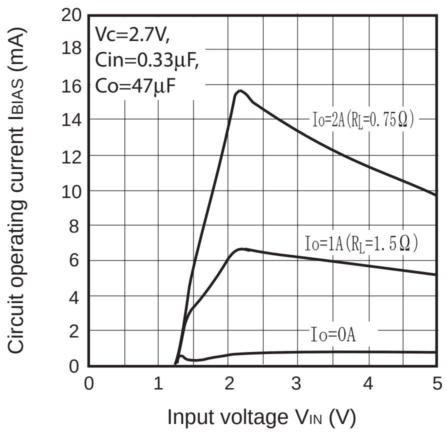


Fig.11 Circuit Operating Current vs. Input Voltage (**PQ018EZ02ZxH**)

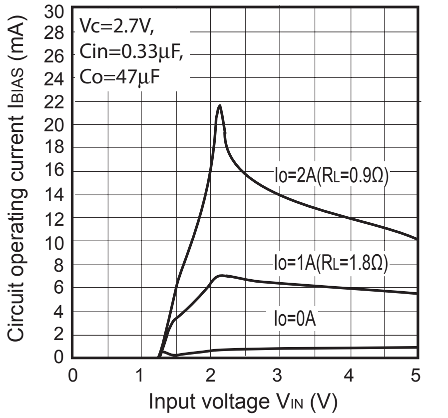


Fig.12 Circuit Operating Current vs. Input Voltage (**PQ025EZ02ZxH**)

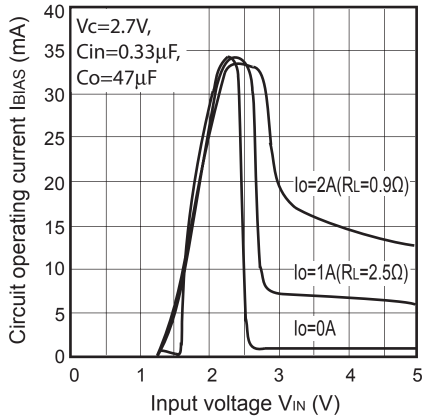
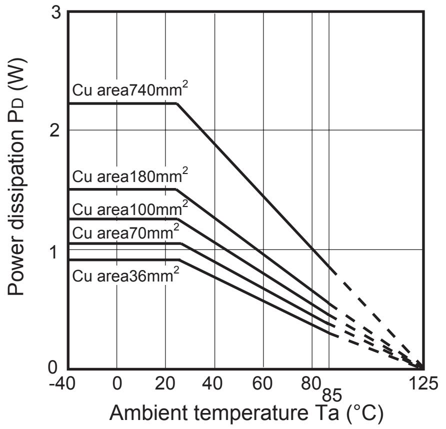
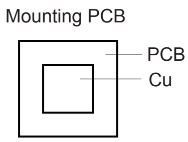


Fig.13 Power Dissipation vs. Ambient Temperature (Typical Value)





Material : Glass-cloth epoxy resin
Size : 50×50×1.6mm
Cu thickness : 35µm