

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

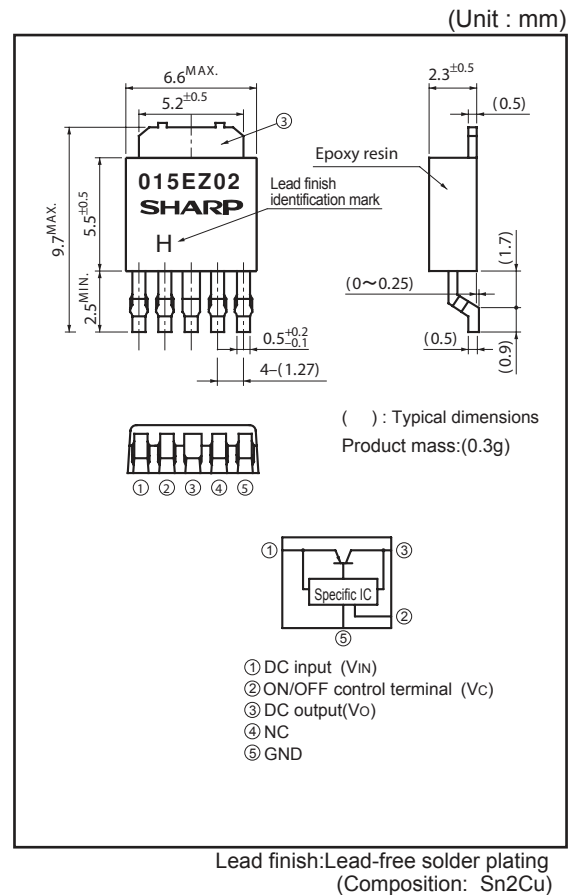
Output current (I _o)	Package type	Output voltage (V _o)		
		1.5V	1.8V	2.5V
2.0A	Taping	PQ015EZ02ZPH	PQ018EZ02ZPH	PQ025EZ02ZPH
	Sleeve	PQ015EZ02ZZH	PQ018EZ02ZZH	PQ025EZ02ZZH

■ 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 T_J:125°C to 150°C

■ Outline Dimensions



Notice The content of data sheet is subject to change without prior notice.

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.

Electrical Characteristics

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

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_{egL}	$I_O=5\text{mA}$ to 2.0A	—	0.2	2.0	%
Line regulation	R_{egI}	$V_{IN}=V_O(\text{TYP.})+1V$ to $V_O(\text{TYP.})+6V$	—	0.1	1.0	%
Temperature coefficient of output voltage	$T_C V_O$	$T_j=0$ to 125°C , $I_O=5\text{mA}$	—	± 0.01	—	$\%/^\circ\text{C}$
Ripple Rejection	RR	Refer to Fig.2	45	60	—	dB
*4 ON-state voltage for control	$V_{C(\text{ON})}$	—	2.0	—	—	V
ON-state current for control	$I_{C(\text{ON})}$	—	—	—	200	μA
OFF-state voltage for control	$V_{C(\text{OFF})}$	—	—	—	0.8	V
OFF-state current for control	$I_{C(\text{OFF})}$	$V_C=0.4V$	—	—	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 $I_O=1A$, $V_C=2.7V$, $T_a=25^\circ\text{C}$)

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 $V_{IN}=V_O(\text{TYP.})+1V$, $I_O=1A$, $V_C=2.7V$, $T_a=25^\circ\text{C}$)

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

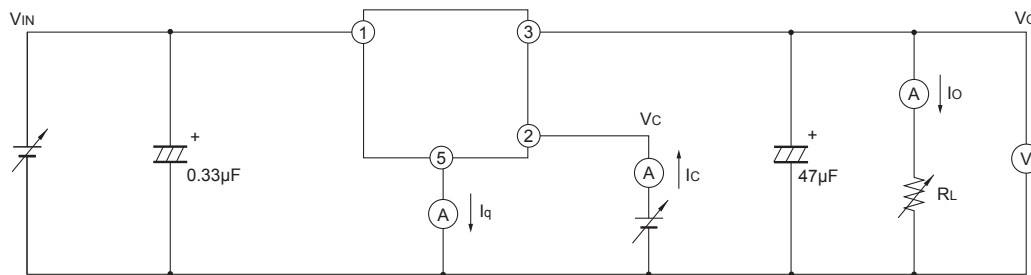
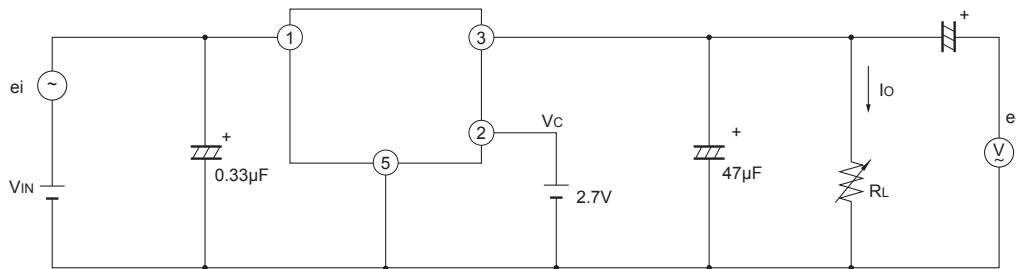
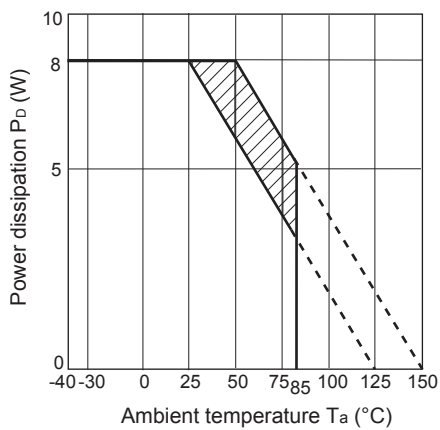


Fig.2 Test Circuit for Ripple Rejection



$f=120\text{Hz}(\text{sine wave})$
 $e_i(\text{rms})=0.5\text{V}$
 $V_{IN}=V_O(\text{TYP})+0.5\text{V}$
 $I_O=0.3\text{A}$
 $RR=20\log(e_i(\text{rms})/e_o(\text{rms}))$

Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics (PQ015EZ02ZxH)

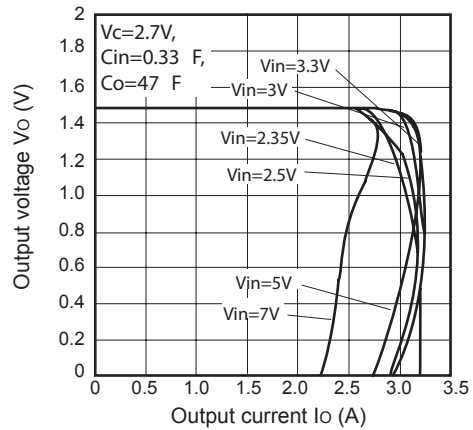


Fig.5 Overcurrent Protection Characteristics (PQ018EZ02ZxH)

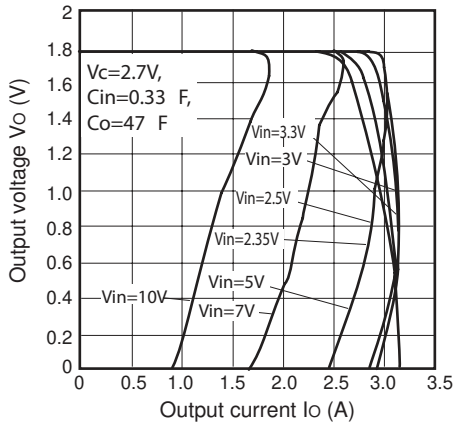


Fig.6 Overcurrent Protection Characteristics (PQ025EZ02ZxH)

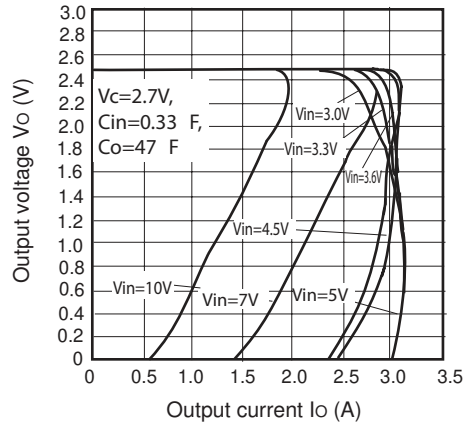


Fig.7 Output Voltage vs. Input Voltage (PQ015EZ02ZxH)

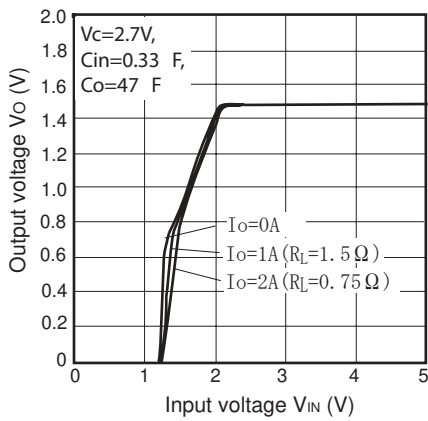


Fig.8 Output Voltage vs. Input Voltage (PQ018EZ02ZxH)

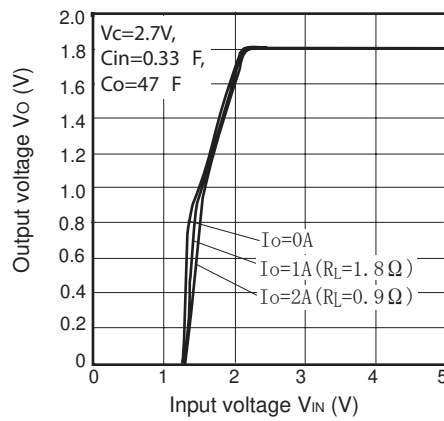


Fig.9 Output Voltage vs. Input Voltage (PQ025EZ02ZxH)

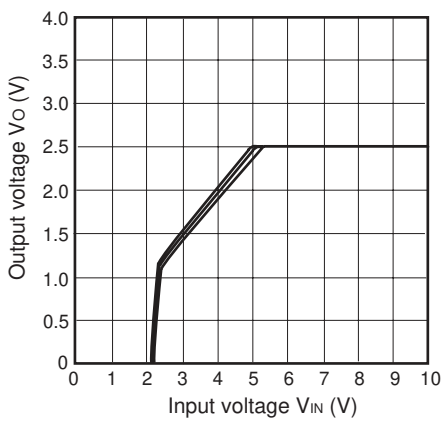


Fig.10 Circuit Operating Current vs. Input Voltage (PQ015EZ02ZxH)

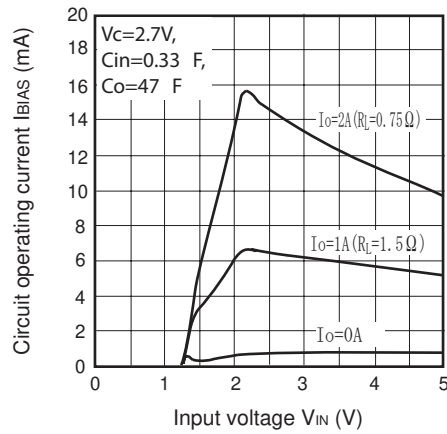


Fig.11 Circuit Operating Current vs. Input Voltage (PQ018EZ02ZxH)

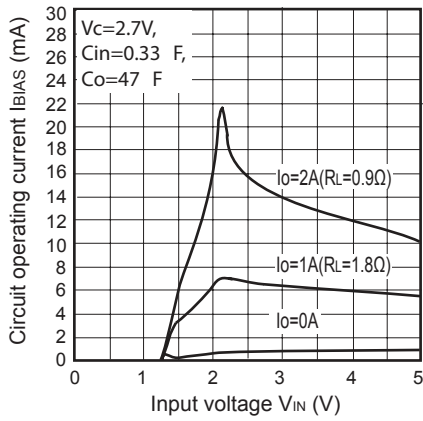


Fig.12 Circuit Operating Current vs. Input Voltage (PQ025EZ02ZxH)

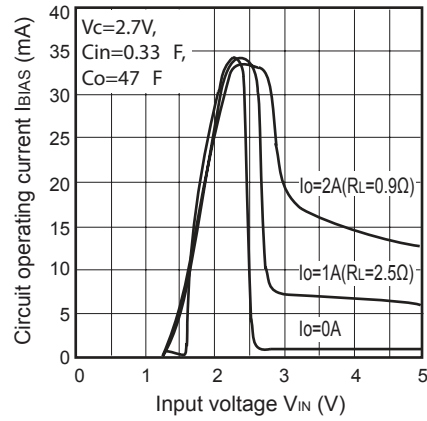
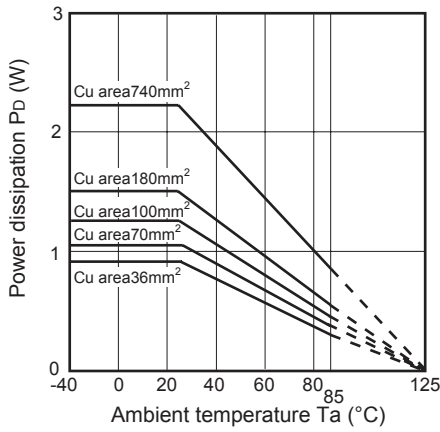
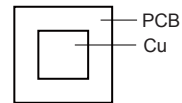


Fig.13 Power Dissipation vs. Ambient Temperature (Typical Value)



Mounting PCB



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