PQ070XH01Z

Low Voltage Operation Low Power-loss Voltage Regulator

Features

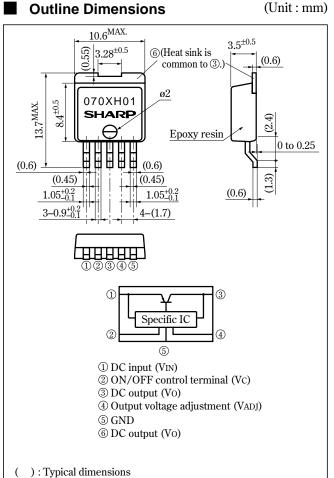
- Low voltage operation (Minimum operating voltage: 2.35V) 2.5V input \rightarrow available 1.5 to 1.8V
- Large output current type (Io: 1A)
- Low dissipation current (Dissipation current at no load: MAX. 2mA Output OFF-state dissipation current: MAX. 5µA)
- Low power-loss
- Built-in overcurrent and overheat protection functions
- TO-263 package

PQ070XH01ZZ: Sleeve-packaged product PQ070XH01ZP: Tape-packaged product

Applications

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

Outline Dimensions



Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
*1 Input voltage	$V_{\rm IN}$	10	V
**1 ON/OFF control terminal voltage	$V_{\rm C}$	10	V
**1 Output adjustment terminal voltage	V _{ADJ}	5	V
Output current	Io	1	A
*2 Power dissipation	PD	35	W
*3 Junction temperature	Tj	150	°C
Operating temperature	Topr	-40 to +85	°C
Storage temperature	Tstg	-40 to +150	°C
Soldering temperature	Tsol	260 (10s)	°C

^{*1} All are open except GND and applicable terminals.

 $(Ta=25^{\circ}C)$

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^{*2} PD:With infinite heat sink

^{*3} Overheat protection may operate at Tj=125°C to 150°C.

[•] Please refer to the chapter " Handling Precautions ".

■ Electrical Characteristics

(Unless otherwise specified, condition shall be V_{IN}=5V, Vo=3V (R1=1kΩ), Io=0.5A, Vc=2.7V, Ta=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage	Vin	-	2.35	_	10	V
Output voltage	Vo	-	1.5	_	7	V
Reference voltage	Vref	-	1.225	1.25	1.275	V
Load regulation	RegL	Io=5mA to 1A	_	0.2	2	%
Line regulation	RegI	$V_{IN}=4$ to $8V$, $Io=5mA$	_	0.2	1	%
Temperature coefficient of reference voltage	TcVref	T _j =0 to 125°C, Io=5mA	-	±1.0	_	%
Ripple rejection	RR	Refer to Fig.2	45	60	_	dB
Dropout voltage	V _{I-O}	V _{IN} =2.85V, Io=0.5A	_	_	0.5	V
*4 ON-state voltage for control	V _C (ON)	-	2.0	_	_	V
ON-state current for control	Ic (on)	-	_	_	200	μΑ
OFF-state voltage for control	V _C (OFF)	Io=0A	_	_	0.8	V
OFF-state current for control	Ic (off)	Io=0A, Vc=0.4V	_	_	2	μΑ
Quiescent current	I_q	Io=0A	_	1	2	mA
Output OFF-state dissipation current	I_{qs}	Io=0A, Vc=0.4V	_	_	5	μΑ

^{*4} In case of opening control terminal ②, output voltage turns off.

Fig.1 Test Circuit

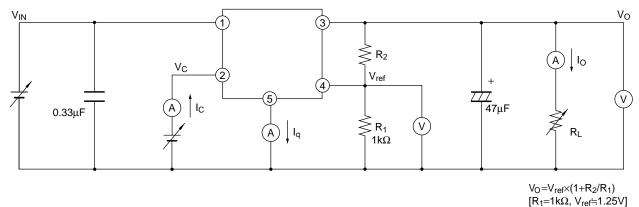


Fig.2 Test Circuit for Ripple Rejection

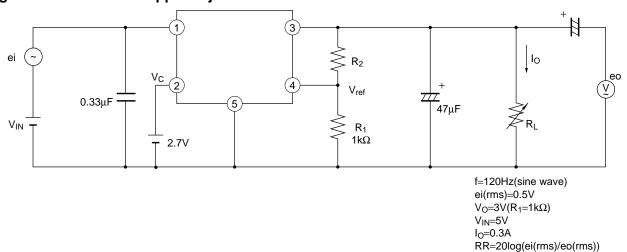
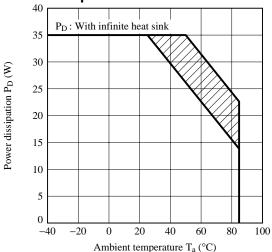


Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.5 Reference Voltage vs. Ambient Temperature

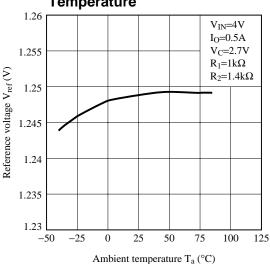


Fig.7 Circuit Operating Current vs. Input Voltage

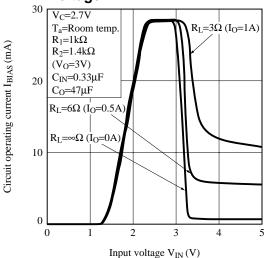


Fig.4 Overcurrent Protection Characteristics

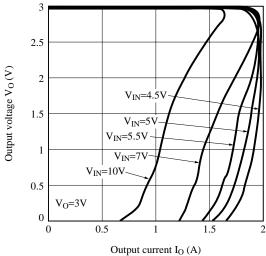


Fig.6 Output Voltage vs. Input Voltage

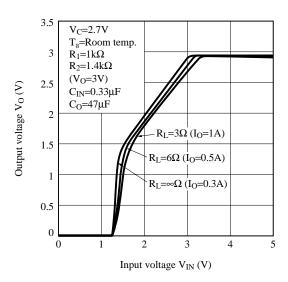
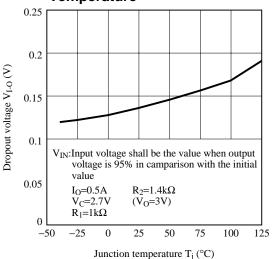


Fig.8 Dropout Voltage vs. Junction Temperature



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Fig.9 ON-OFF Threshold Voltage vs. Ambient Temperature

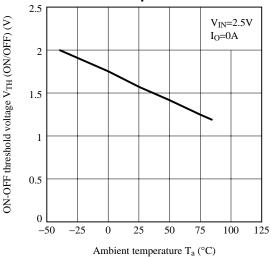


Fig.11 Ripple Rejection vs. Input Ripple Frequency

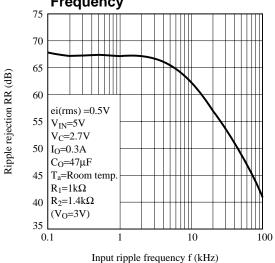


Fig.13 Power Dissipation vs. Ambient Temperature

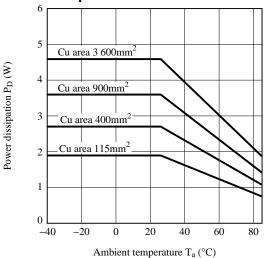


Fig.10 Quiescent Current vs. Ambient Temperature

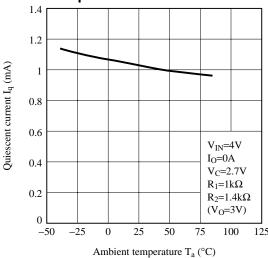
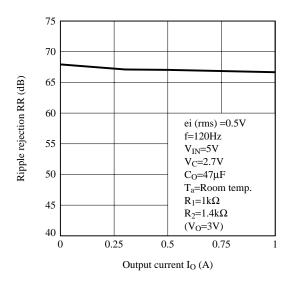
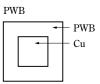


Fig.12 Ripple Rejection vs. Output Current





Material : Glass-cloth epoxy resin Size : 60×60×1.6mm

Cu thickness : 65µm

Fig.14 Output Voltage Adjustment Characteristics (Typical Value)

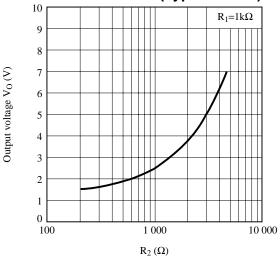
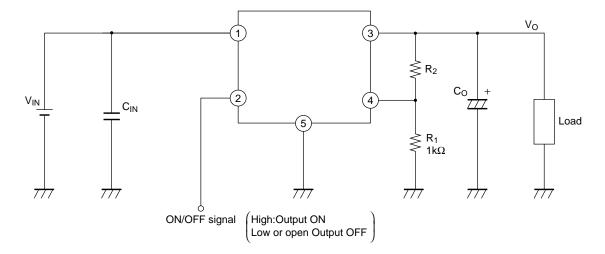
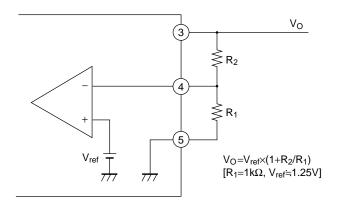


Fig.15 Typical Application



Setting of Output Voltage

Output voltage is able to set from 1.5V to 7V when resistors R_1 and R_2 are attached to @, @, @ terminals. As for the external resistors to set output voltage, refer to the figure below and Fig.14.



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