



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# PQ070XF01SZH

TO-220 Type, Low Voltage Operation  
Low Power-Loss Voltage Regulators

## ■ Features

1. Low voltage operation  
(Minimum operating voltage: 2.35V)
2. Low dissipation current  
(Dissipation current at no load: MAX. 2mA)
3. Low power-loss  
Dropout voltage: MAX.0.5V at  $I_O=0.5A$
4. Built-in overcurrent and overheat protection functions
5. RoHS directive compliant

## ■ Applications

1. Power supplies for personal computers and peripheral equipment
2. Power supplies for various electronic equipment such as DVD player or STB
3. LBP

## ■ Absolute Maximum Ratings

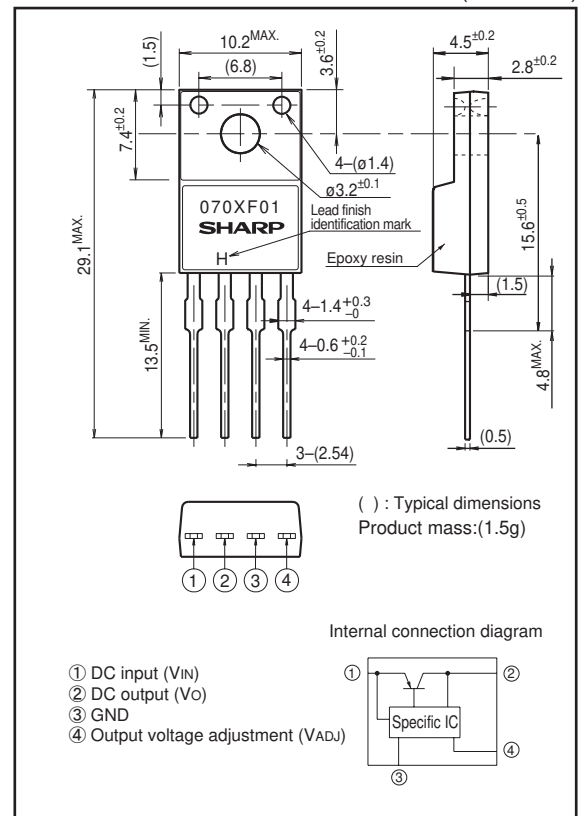
( $T_a=25^{\circ}C$ )

Parameter	Symbol	Rating	Unit
*1 Input voltage	$V_{IN}$	10	V
*1 Output adjustment terminal voltage	$V_{ADJ}$	5	V
Output current	$I_O$	1.0	A
	$P_{D1}$	1.4	W
*2 Power dissipation	$P_{D2}$	15	
	*3 Junction temperature	$T_j$	150
Operating temperature	$T_{opr}$	-40 to +85	$^{\circ}C$
Storage temperature	$T_{stg}$	-40 to +150	$^{\circ}C$
Soldering temperature	$T_{sol}$	260(10s)	$^{\circ}C$

\*1 All are open except GND and applicable terminals.  
 \*2  $P_{D1}$ : No heat sink,  $P_{D2}$ : With infinite heat sink.  
 \*3 Overheat protection may operate at  $T_j=125^{\circ}C$  to  $150^{\circ}C$

## ■ Outline Dimensions

(Unit : mm)



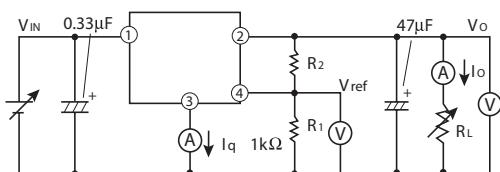
Lead finish: Lead-free solder plating  
(Composition: Sn2Cu)

## Electrical Characteristics

(Unless otherwise specified, condition shall be  $V_{IN}=5V, V_O=3V(R_1=1k\Omega), I_O=0.5A, T_a=25^\circ C$ )

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage	$V_{IN}$	-	2.35	-	10	V
Output voltage	$V_O$	-	1.5	-	7	V
Reference voltage	$V_{REF}$	-	1.225	1.25	1.275	V
Load regulation	$R_{egL}$	$I_O=5mA$ to 1A	-	0.2	2.0	%
Line regulation	$R_{egI}$	$V_{IN}=4$ to 8V, $I_O=5mA$	-	0.2	1.0	%
Temperature coefficient of reference voltage	$TcV_{REF}$	$T_j=0$ to $+125^\circ C$ , $I_O=5mA$	-	$\pm 1.0$	-	%
Ripple rejection	RR	Refer to Fig.2	45	60	-	dB
Dropout voltage	$V_{I-O}$	$V_{IN}=2.85V, I_O=0.5A$	-	-	0.5	V
Quiescent current	$I_q$	$I_O=0A$	-	1.3	2	mA

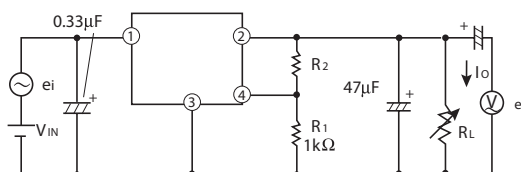
Fig.1 Test Circuit



$$V_O = V_{ref} \times \left( 1 + \frac{R_2}{R_1} \right)$$

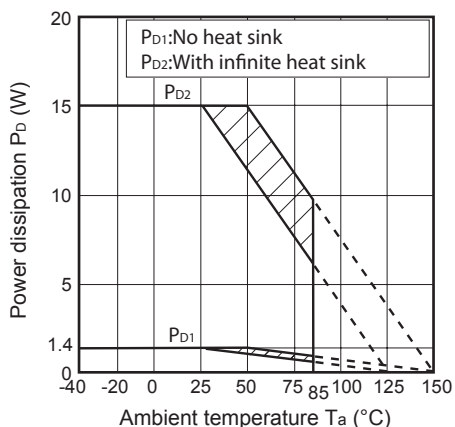
[ $R_1=1k\Omega, V_{ref}$  Nearly= $1.25V$ ]

Fig.2 Test Circuit of Ripple Rejection



$f=120Hz$ (sine wave)  
 $e_i(rms) = 0.5V$   
 $I_O=0.5A$   
 $RR=20 \log(e_i(rms) / e_o(rms))$   
 $V_{IN}=5V$   
 $V_O=3.0V(R_1=1k\Omega)$

Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics (Typical Value)

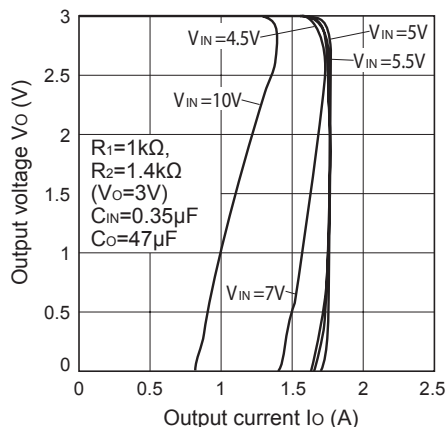


Fig.5 Reference Voltage vs. Junction Temperature

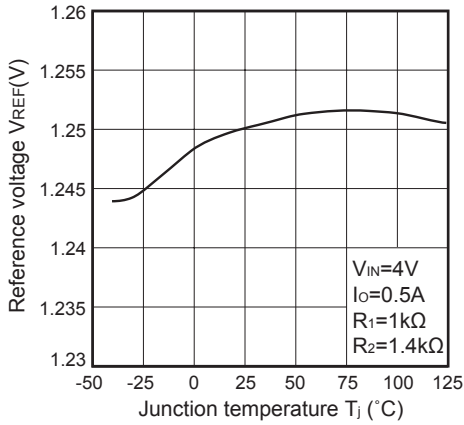


Fig.6 Output Voltage vs. Input Voltage

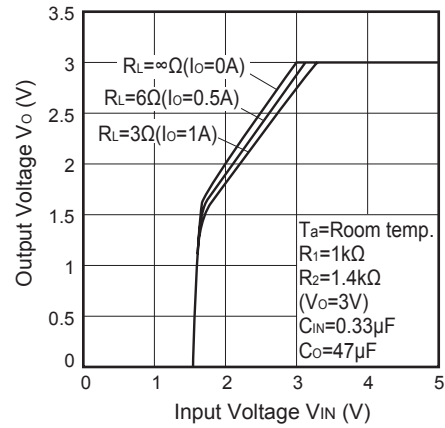


Fig.7 Circuit Operating Current vs. Input Voltage

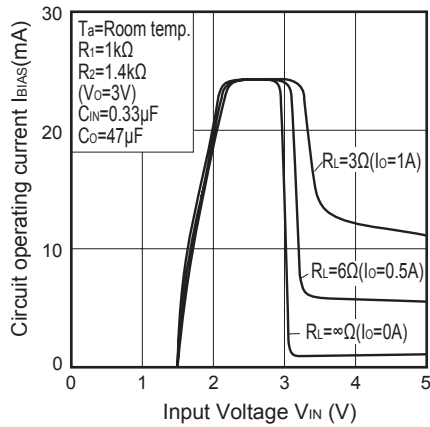


Fig.8 Dropout Voltage vs. Junction Temperature

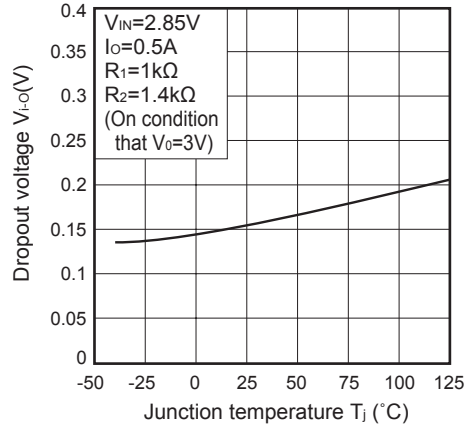


Fig.9 Quiescent Current vs. Junction Temperature

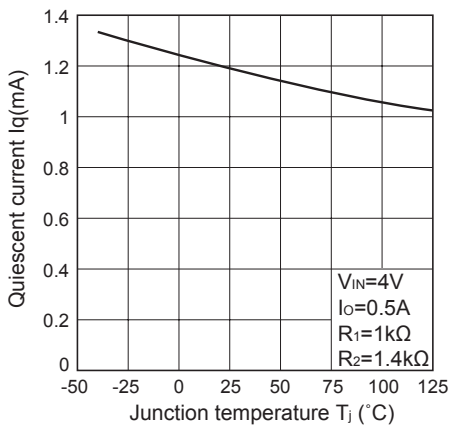


Fig.10 Ripple Rejection vs. Input Ripple Frequency

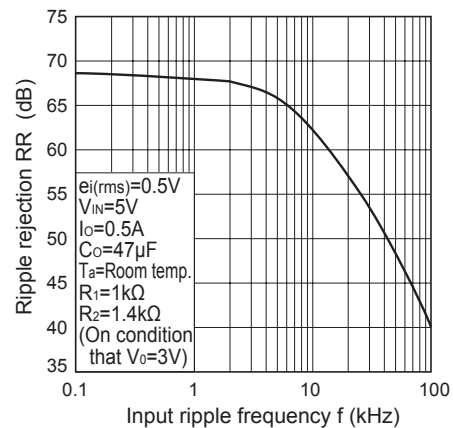




Fig.11 Ripple Rejection vs. Output Current

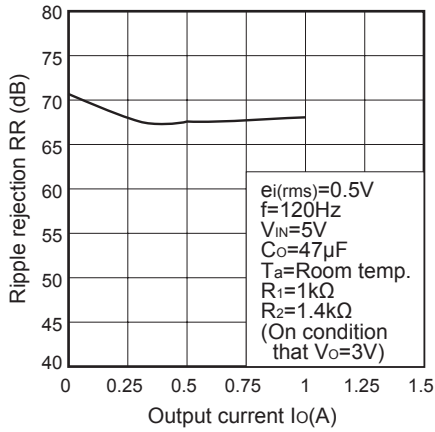
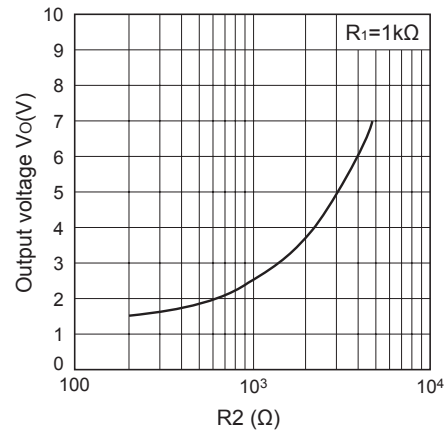
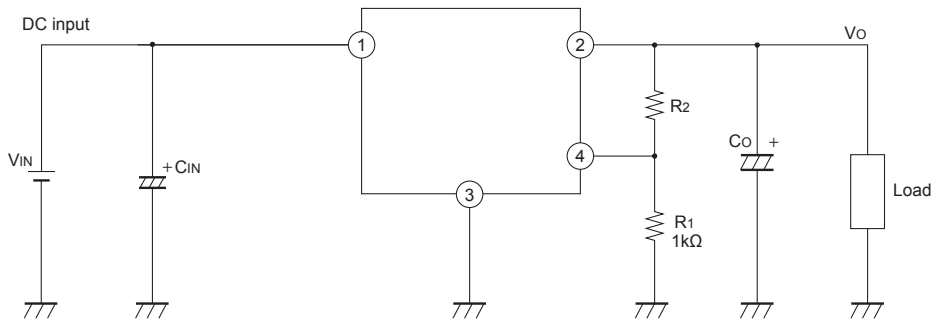


Fig.12 Output Voltage Adjustment Characteristics (Typical value)



■ Typical Application



■ Setting of Output Voltage

Output voltage is able to set from 1.5V to 7V when resistors R1 and R2 are attached to ,②、③、④ terminals. As for the external resistors to set output voltage, refer to the figure below and Fig.12.

