PQ070XZ02ZxH

Low Voltage Operation
Low Power-loss Voltage Regulator

■ Features

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

■ Applications

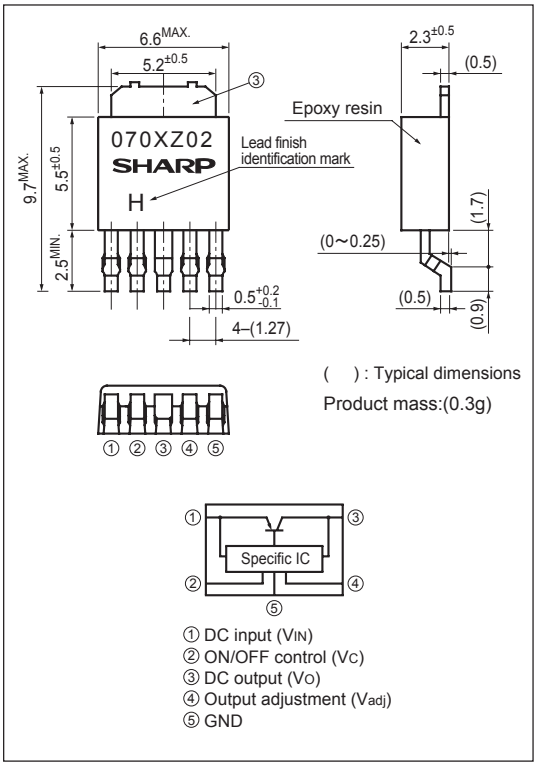
1.Peripheral equipment of personal computers
2.Power supplies for various electronic equipment such as DVD player or STB

■ Model Line-up

Output current (I_O)	Package type	Variable output
2A	Taping	**PQ070XZ02ZPH**
	Sleeve	**PQ070XZ02ZZH**

■ Outline Dimensions

(Unit : mm)



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

■ Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V_{IN}	10	V
*1 Output control voltage	V_C	10	V
*1 Output adjustment pin voltage	V_{adj}	5	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 Pd:With infinite heat sink
*3 There is case that over heat protection operates at the temperature Tj:125°C to 150°C, so this item cannot be used in this temperature range.

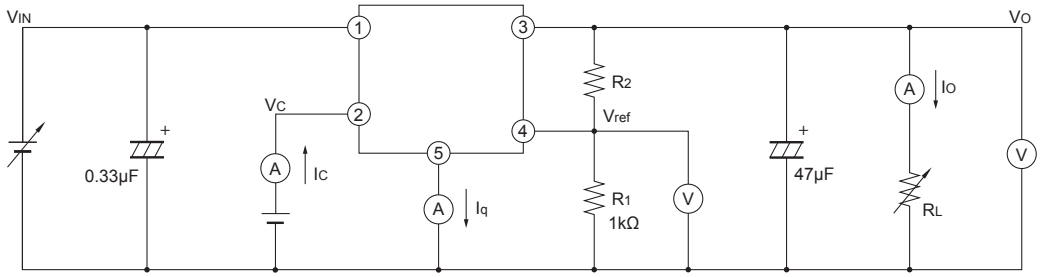
■ Electrical Characteristics

(Unless otherwise specified, condition shall be V_{IN}=5V, V_O=3V(R1=1kΩ), I_O=0.5A, V_C=2.7V,Ta=25˚C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage	V_{IN}	-	2.35	-	10	V
Output voltage	V_O	-	1.5	-	7	V
Load regulation	RegL	I_O=5mA to 2.0A	-	0.2	2	%
Line regulation	RegI	V_{IN}=4 to 8V,I_O=5mA	-	0.2	1	%
Ripple rejection	RR	Refer to Fig.2	45	60	-	dB
Dropout voltage	V_{I-O}	V_{IN}=2.85V,I_O=2.0A	-	-	0.5	V
Reference voltage	V_{ref}	-	1.225	1.25	1.275	V
Temperature coefficient of reference voltage	T_CV_{ref}	Tj=0 to 125°C, I_O=5mA	-	±1.0	-	%
※4 ON-state voltage for control	$V_{C(ON)}$	※4	2.0	-	-	V
ON-state current for control	$I_{C(ON)}$	-	-	-	200	μA
OFF-state voltage for control	$V_{C(OFF)}$	I_O=0A	-	-	0.8	V
OFF-state current for control	$I_{C(OFF)}$	I_O=0A, V_C=0.4V	-	-	2	μA
Quiescent current	Iq	I_O=0A	-	1	2	mA
Output OFF-state consumption current	Iqs	V_C=0.4V	-	-	5	μA

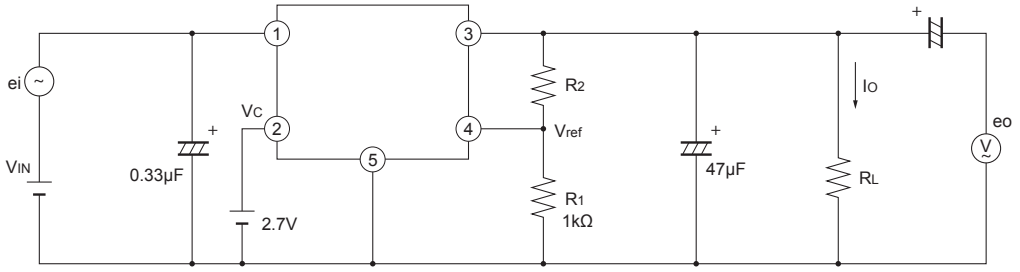
※4 In case of opening control terminal ② , output voltage turns off.

Fig.1 Test Circuit



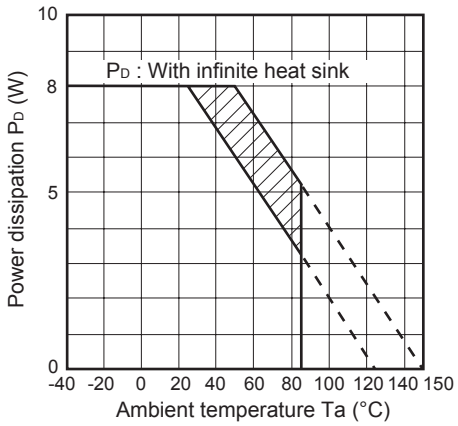
$V_O=V_{ref}\times(1+R_2/R_1)$
$[R_1=1k\Omega, V_{ref}\fallingdotseq 1.25V]$

Fig.2 Test Circuit for Ripple Rejection



f=120Hz sine wave
ei(rms)=0.5V
V_O=3V(R1=1kΩ)
V_{IN}=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

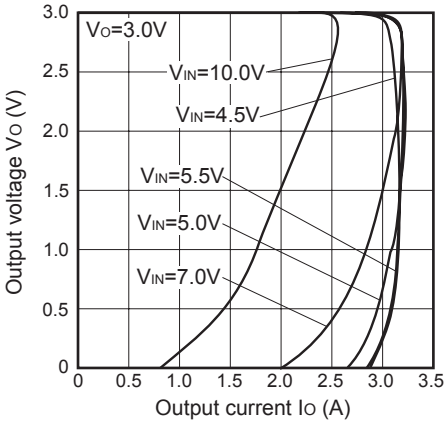
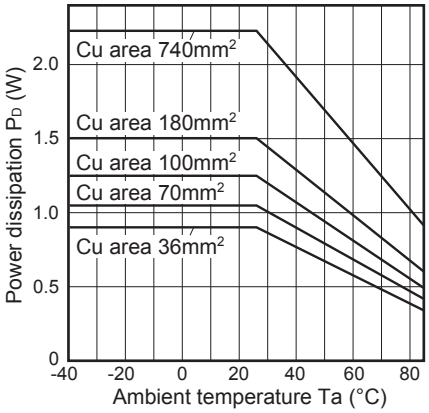
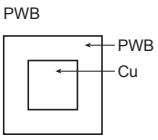


Fig.5 Power Dissipation vs. Ambient Temperature (Typical Value)





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

Fig.6 Output Voltage Adjustment Characteristics (Typical Value)

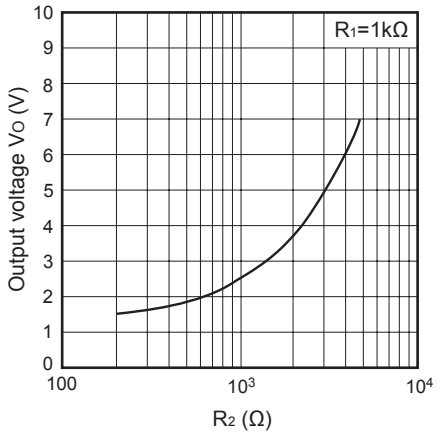
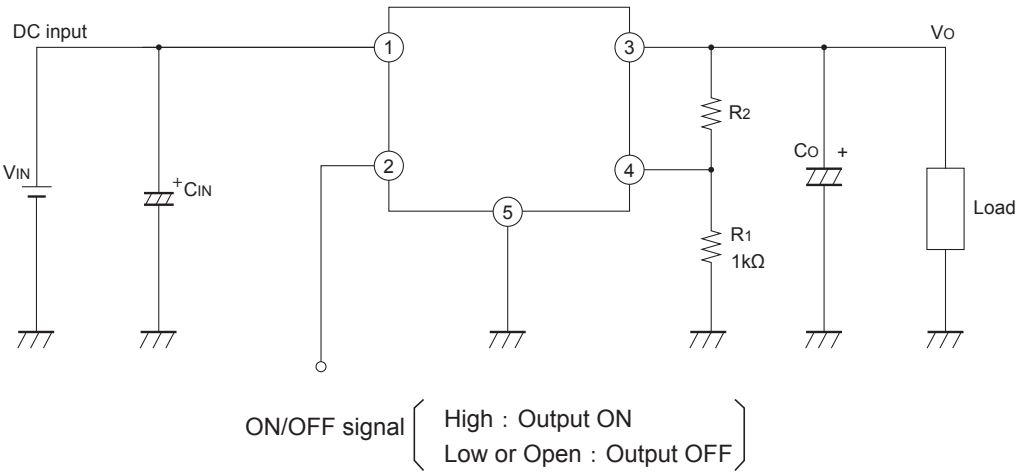
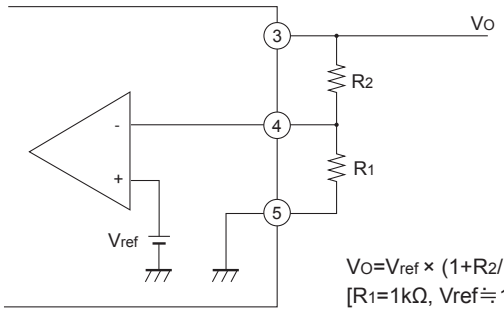


Fig.7 Typical Application



■ 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 ③,④,⑤ terminals. As for the external resistors to set output voltage, refer to the figure below and Fig.6.



$V_O = V_{ref} \times (1 + R_2/R_1)$
$[R_1 = 1k\Omega, V_{ref} \fallingdotseq 1.25V]$