

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 (Io) | Package type | Variable output |
|---------------------|--------------|---------------------|
| 2A | Taping | PQ070XZ02ZPH |
| | Sleeve | PQ070XZ02ZZH |

■ Absolute Maximum Ratings

(Ta=25°C)

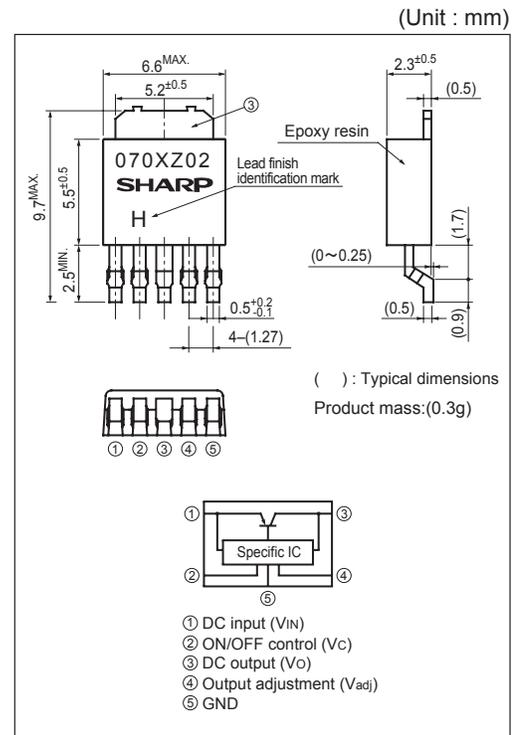
| Parameter | Symbol | Rating | Unit |
|----------------------------------|------------------|-------------|------|
| *1 Input voltage | V _{IN} | 10 | V |
| *1 Output control voltage | V _C | 10 | V |
| *1 Output adjustment pin voltage | V _{adj} | 5 | V |
| Output current | I _o | 2 | A |
| *2 Power 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 P_d:With infinite heat sink

*3 There is case that over heat protection operates at the temperature T_j:125°C to 150°C, so this item cannot be used in this temperature range.

■ Outline Dimensions



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

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Electrical Characteristics

(Unless otherwise specified, condition shall be $V_{IN}=5V$, $V_O=3V(R_1=1k\Omega)$, $I_O=0.5A$, $V_C=2.7V$, $T_a=25^\circ C$)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|----------------------------------------------|---------------|--------------------------------------|-------|-----------|-------|---------|
| Input voltage | V_{IN} | - | 2.35 | - | 10 | V |
| Output voltage | V_O | - | 1.5 | - | 7 | V |
| Load regulation | Reg_L | $I_O=5mA$ to 2.0A | - | 0.2 | 2 | % |
| Line regulation | Reg_L | $V_{IN}=4$ 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 | $T_C V_{ref}$ | $T_j=0$ to $125^\circ C$, $I_O=5mA$ | - | ± 1.0 | - | % |
| *#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 | $V_{C(OFF)}$ | $I_O=0A$ | - | - | 0.8 | V |
| OFF-state current for control | $I_{C(OFF)}$ | $I_O=0A$, $V_C=0.4V$ | - | - | 2 | μA |
| Quiescent current | I_q | $I_O=0A$ | - | 1 | 2 | mA |
| Output OFF-state consumption current | I_{qs} | $V_C=0.4V$ | - | - | 5 | μA |

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

Fig.1 Test Circuit

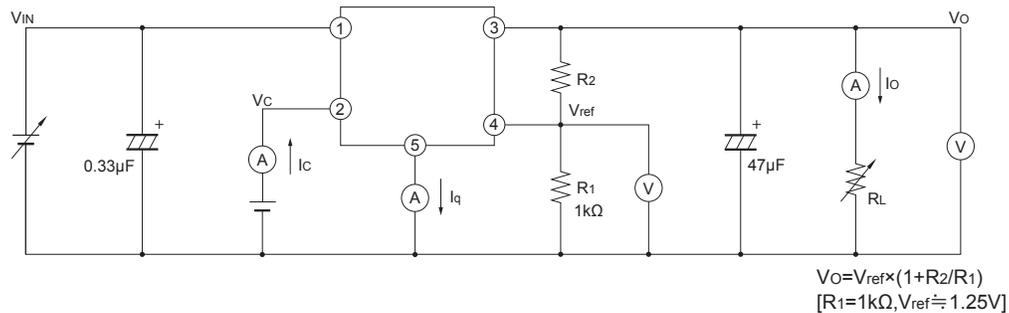


Fig.2 Test Circuit for Ripple Rejection

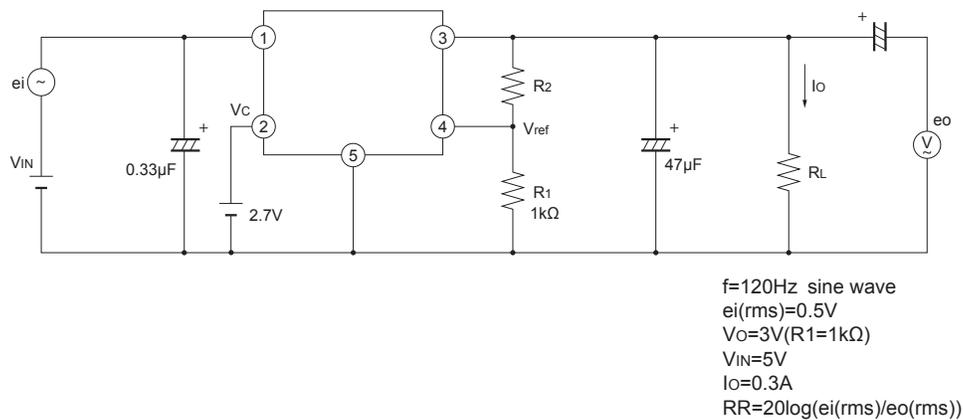
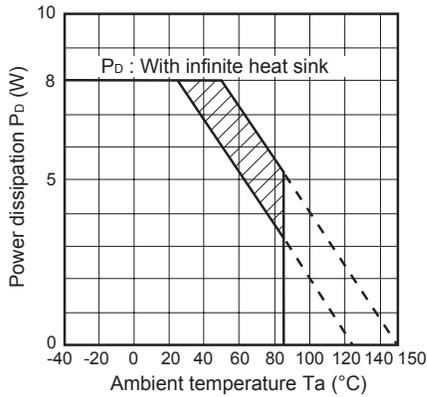


Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics

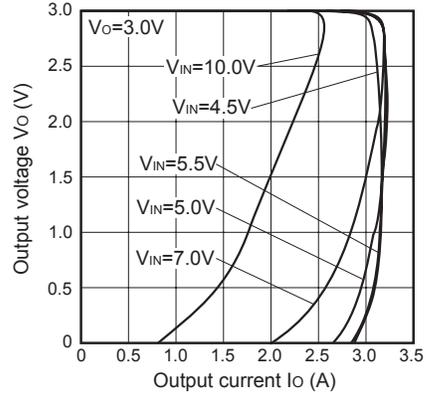


Fig.5 Power Dissipation vs. Ambient Temperature (Typical Value)

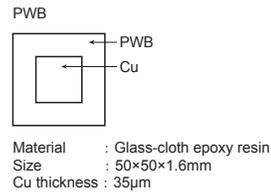
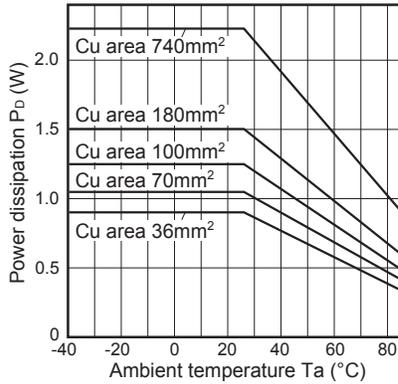


Fig.6 Output Voltage Adjustment Characteristics (Typical Value)

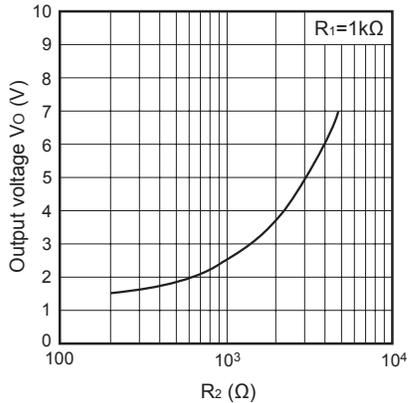
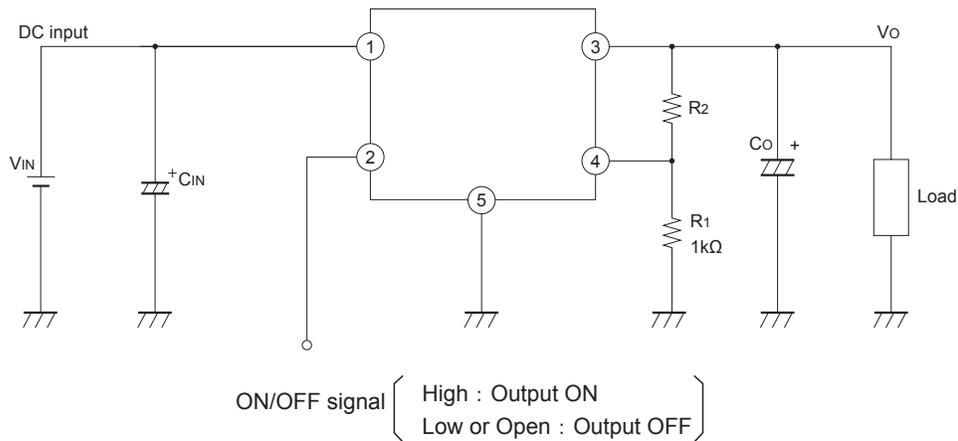


Fig.7 Typical Application



■ Setting of Output Voltage

Output voltage is able to set from 1.5V to 7V when resistors R₁ and R₂ are attached to ③,④,⑤ terminals. As for the external resistors to set output voltage, refer to the figure below and Fig.6.

