

Power supply PCMCIA / flash memory

BP5320

The BP5320 is a DC / DC converter for supplying power to PCMCIA flash memory. From a power supply (+5V) for PCMCIA operations, the IC supplies a voltage for programming operations (+12V). Compact and thin surface-mounted package with embossing tape for automatic mounting.

●Applications

Personal computers, CD-ROM players, portable information devices, and other PCMCIA-slot equipped devices

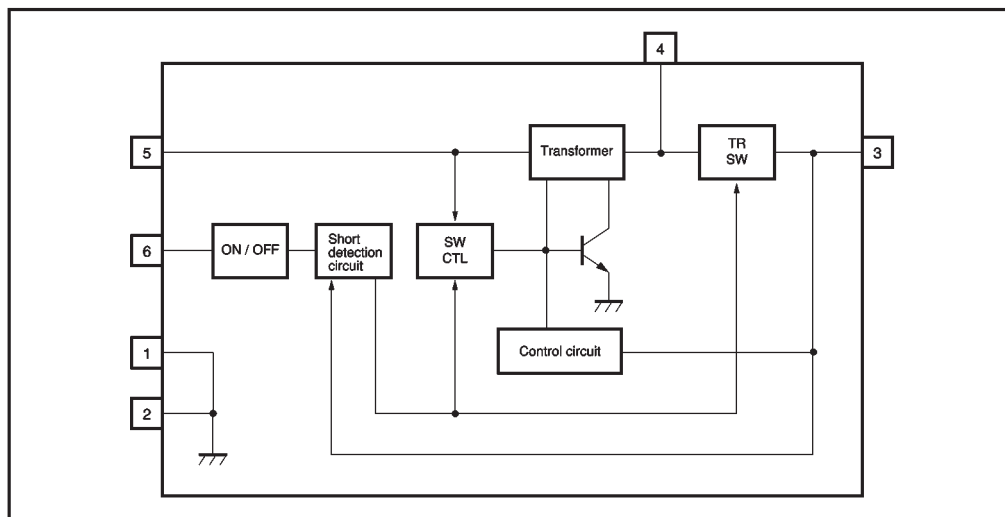
●Features

- 1) Designed to provide power to PCMCIA programming operations.
- 2) The 5V operating voltage is same as the IC memory card operating voltage.
- 3) The large current enables power to be supplied to sound ICs.
- 4) Compact and thin SMD package.
- 5) Supplied with embossing tape for automatic mounting by the mounter.
- 6) Built-in short-circuit protection circuit.

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------|-----------|---------|------|
| Power supply voltage | V_{IN} | 7.0 | V |
| Output current | I_{OUT} | 170 | mA |
| Operating temperature | T_{opr} | 0~+60 | °C |
| Storage temperature | T_{stg} | -20~+80 | °C |

●Block diagram



●Electrical characteristics (unless otherwise noted, Ta=25°C and V_{CTL}=5V)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|-------------------------------|------------------|------|------|------|-------------------|--|
| Input voltage | V _{IN} | 4.5 | 5.0 | 5.5 | V | |
| Output current | I _{OUT} | — | — | 150 | mA | |
| Output voltage | V _{OUT} | 11.4 | 12.0 | 12.6 | V | V _{IN} =4.5~5.5V, I _{OUT} =0~170mA |
| Ripple noise voltage | ν | — | — | 200 | mV _{P-P} | V _{IN} =5V, I _{OUT} =170mA |
| Efficiency | η | 73 | 79 | — | % | V _{IN} =5V, I _{OUT} =170mA |
| ON / OFF CTL voltage when ON | V _{CTL} | 3.3 | — | 6.0 | V | V _{IN} =5V, V _{OUT} ≥11.4V |
| ON / OFF CTL voltage when OFF | V _{CTL} | — | — | 0.4 | V | V _{IN} =5V, V _{OUT} ≤0.3V |
| ON / OFF CTL current | I _{CTL} | — | — | 0.2 | mA | V _{IN} =5V |

* Measured with a band width of 20MHz.

●Measurement circuit

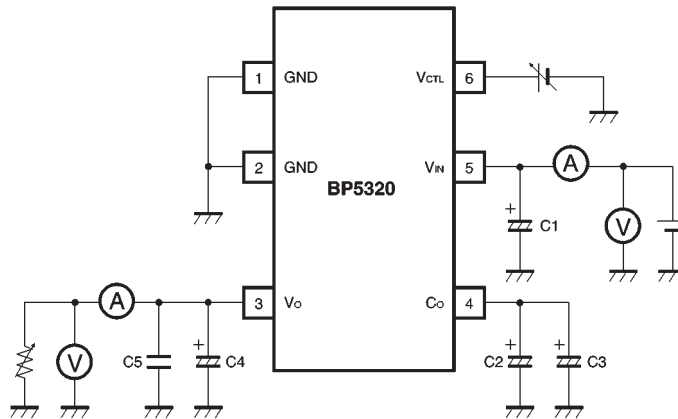


Fig.1

C1 : 22 μF / 10V (MSVB21A226M : NEC)

C2 : 10 μF / 35V (MSVD21V106M : NEC)

C3 : 47 μF / 16V (UZS1C470MCR1GB : NICHICON)

C4 : 47 μF / 16V (UZS1C470MCR1GB : NICHICON)

C5 : 0.1 μF (Ceramic capacitor)

●Pin descriptions

| Pin No. | Pin name | Function |
|---------|------------------|--|
| 1,2 | GND | Ground |
| 3 | V _{OUT} | Output ; connect an output capacitor with a recommended capacitance off 2.2 μF between this pin and GND |
| 4 | Co | Output smoothing capacitor connection ; connect a low-impedance capacitor with a recommended capacitance of 47 μF between this pin and GND |
| 5 | V _{IN} | Input ; connect a low-impedance capacitor with a recommended capacitance of 100 μF between this pin and GND |
| 6 | V _{CTL} | Output ON / OFF control ; output starts when the pin is HIGH level, and stops at Low level |

●Application example

(1) Flash memory that requires 5V for reading

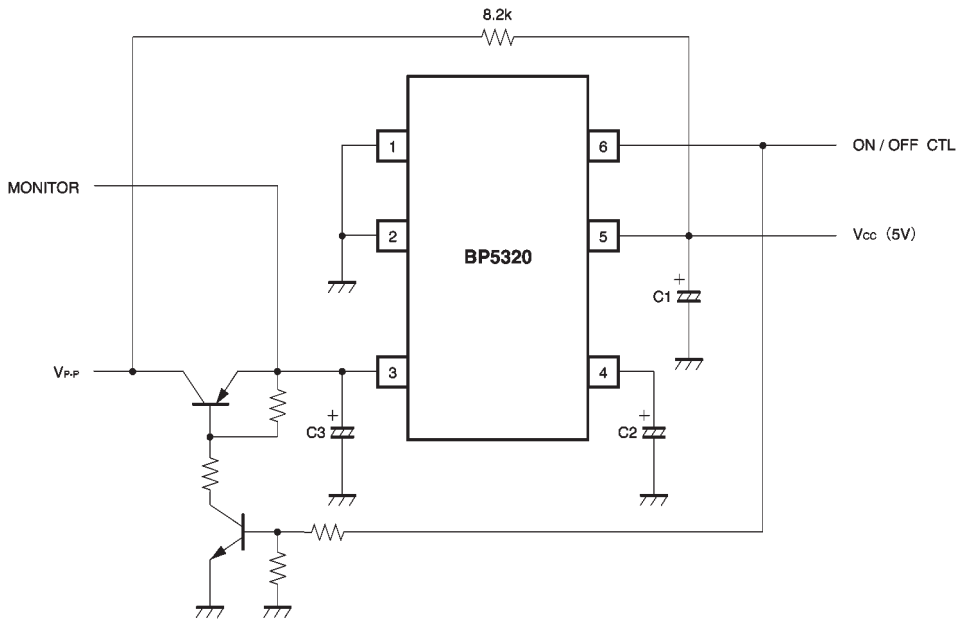


Fig.2

(2) Pull-down of V_{P-P}

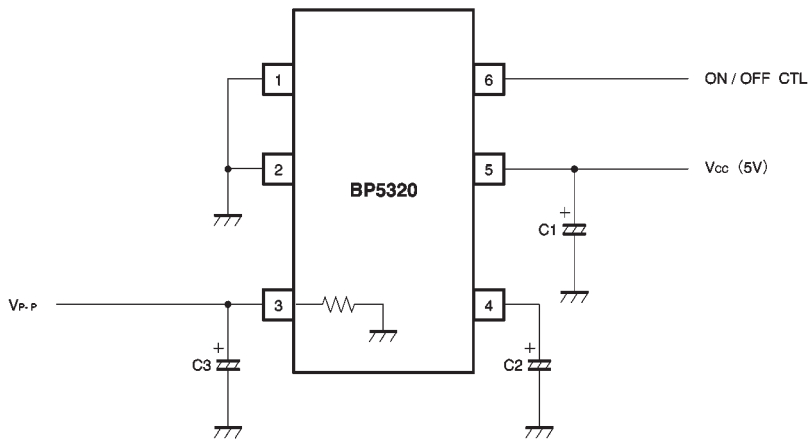


Fig.3

The OFF output is pulled down through an effective resistance of 30kΩ.

●Operation notes

(1) Place I/O external capacitors as near as possible to the connection pins. In particular, make sure to minimize the impedance between the input-side capacitor (C1) and pin 5. a length less than 50mm is recommended for a copper foil of 1.0mm wide and 35μm thick.

(2) Avoid frequent switching using the ON/OFF CTL pin (five times per second at the maximum).

● Electrical characteristics curve

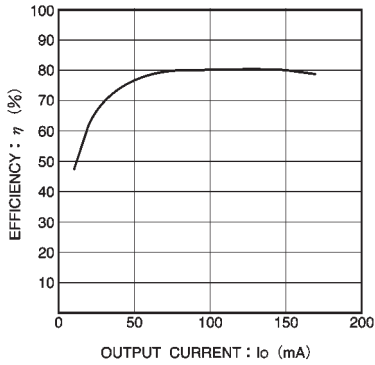
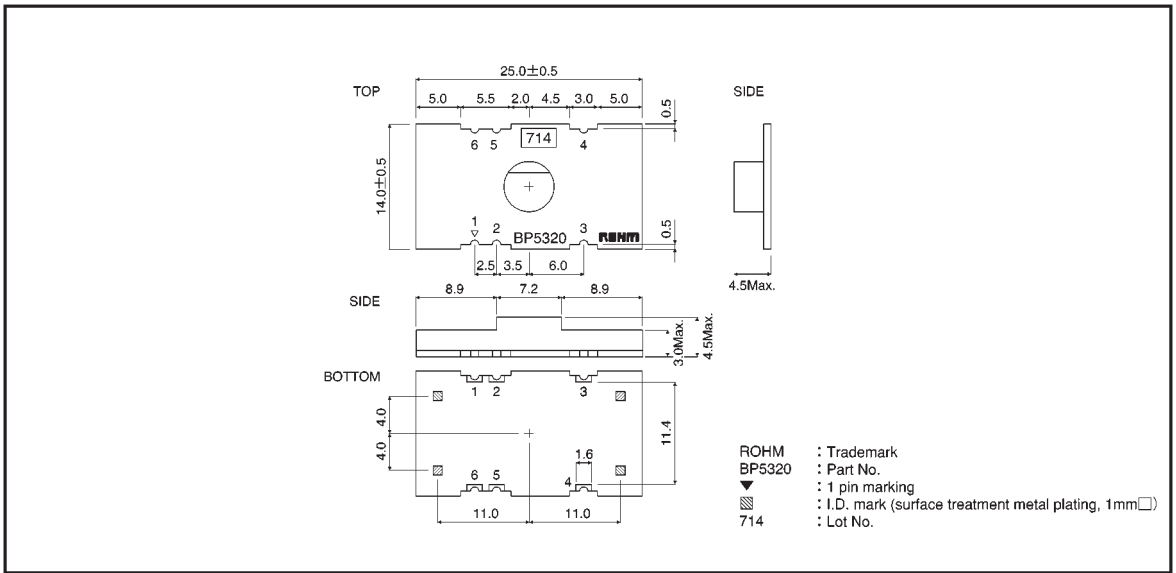


Fig. 4 Efficiency

● External dimensions (Units: mm)



• The soldering used inside the unit is equivalent to H63 solder, so it will remelt during reflow. Be sure not to subject the unit to any vibrations when passing through the reflow furnace.