

# PCMCIA / Flash memory power supply

## BP5310A

The BP5310A is a DC / DC converter for supplying power to PCMCIA flash memory. From a power supply (+5V) for PCMCIA operations, the module supplies a voltage for programming operations (+12V).

### ● Applications

Personal computers, CD-ROM players, personal digital assistants, and other PCMCIA-slot equipped devices

### ● Features

- 1) Designed to provide power for PCMCIA/flash memory programming operations (output voltage=12V±5%; output current=120mA)
- 2) The 5V operating voltage is same as the IC memory card operating voltage.
- 3) Built-in protection circuit for shorted-circuit.
- 4) Compact 9-pin SIP package.
- 5) Surface mounting is possible because parts are concentrated on one side.

### ● Absolute maximum ratings (Ta=25°C)

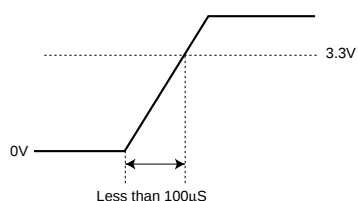
| Parameter                   | Symbol           | Limits    | Unit |
|-----------------------------|------------------|-----------|------|
| Input voltage               | V <sub>IN</sub>  | 7         | V    |
| Operating temperature range | T <sub>opr</sub> | 0 ~ 60    | °C   |
| Storage temperature range   | T <sub>stg</sub> | -30 ~ +85 | °C   |

**● Electrical characteristics** (unless otherwise noted,  $T_a=25^{\circ}\text{C}$ ,  $V_{\text{CTL}}=5\text{V}$ )

| Parameter                          | Symbol              | Min. | Typ. | Max. | Unit             | Conditions                                                                   |
|------------------------------------|---------------------|------|------|------|------------------|------------------------------------------------------------------------------|
| Input voltage                      | $V_{\text{IN}}$     | 4.75 | 5.00 | 5.25 | V                |                                                                              |
| Output current                     | $I_{\text{OUT}}$    | –    | –    | 120  | mA               |                                                                              |
| Output voltage                     | $V_{\text{OUT}}$    | 11.4 | 12.0 | 12.6 | V                | $V_{\text{IN}}=4.75\sim 5.25\text{V}$<br>$I_{\text{OUT}}=0\sim 120\text{mA}$ |
| Ripple noise voltage               | $v_1$               | –    | 100  | 200  | mV <sub>PP</sub> | $V_{\text{IN}}=5\text{V}$ , $I_{\text{OUT}}=60\text{mA}$ *1                  |
| Efficiency                         | $\eta$              | 65   | 73   | –    | %                | $V_{\text{IN}}=5\text{V}$ , $I_{\text{OUT}}=60\text{mA}$                     |
| ON/OFF CTL voltage when ON         | $V_{\text{CTL}}$    | 3.3  | –    | –    | V                | $V_{\text{IN}}=5\text{V}$ , $V_{\text{OUT}}\geq 11.4\text{V}$ *2             |
| ON/OFF CTL voltage when OFF        | $V_{\text{CTL}}$    | –    | –    | 0.4  | V                | $V_{\text{IN}}=4.75\sim 5.25\text{V}$                                        |
| ON/OFF CTL sink current when ON    | $I_{\text{SINK}}$   | –    | 0.8  | 1.3  | mA               | $V_{\text{IN}}=5\text{V}$<br>$V_{\text{CTL}}=3.3\text{V}$ *3                 |
| ON/OFF CTL source current when OFF | $I_{\text{SOURCE}}$ | –    | 1.0  | 1.5  | mA               | $V_{\text{IN}}=5\text{V}$<br>$V_{\text{CTL}}=0.4\text{V}$ *4                 |

\*1 Measured with a band width of 20 MHz.

\*2 Ensure that the HIGH signal of the CTL pin(pin 8) rises in less than 100 $\mu\text{s}$  to the level at which the output turns on.



\*3 When the HIGH signal is applied to the CTL pin, a current flows into the CTL pin for a short period until the output rises. Little current flows thereafter.

\*4 When the LOW signal is applied to the CTL pin to turn OFF the output, a current flows from the CTL pin for a short period until the output drops to 0V. Ensure that the control circuit can sink this current.

**● Pin descriptions**

| Pin No. | Pin name         | Function                                                                                                                                                 |
|---------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | $C_o$            | Output smoothing capacitor connection pin; connect a low-impedance capacitor with a recommended capacitance of 47 $\mu\text{F}$ between this pin and GND |
| 2       | $V_{\text{OUT}}$ | Output pin; connect an output capacitor with a recommended capacitance of 2.2 $\mu\text{F}$ between this pin and GND                                     |
| 3       | TP               | Test pin; use this internally connected pin in OPEN mode                                                                                                 |
| 4, 7    | GND              | Ground pin                                                                                                                                               |
| 8       | $V_{\text{CTL}}$ | Output ON/OFF control pin; output starts when the pin is HIGH level, and stops at LOW level                                                              |
| 9       | $V_{\text{IN}}$  | Input pin; connect a low-impedance capacitor with a recommended capacitance of 100 $\mu\text{F}$ between this pin and GND                                |

### ● Measurement circuit

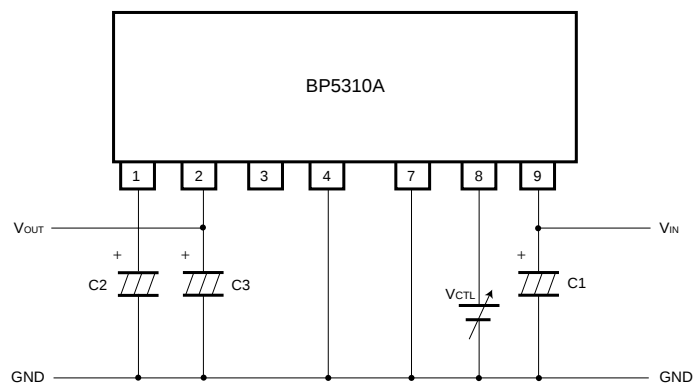


Fig.1

C1 : 100 $\mu$ F / 16V (Low impedance)  
 C2 : 47 $\mu$ F / 35V (Low impedance)  
 C3 : 2.2 $\mu$ F (Al electrolytic capacitor)

### ● Application example

(1) Flash memory that applies 5V for reading

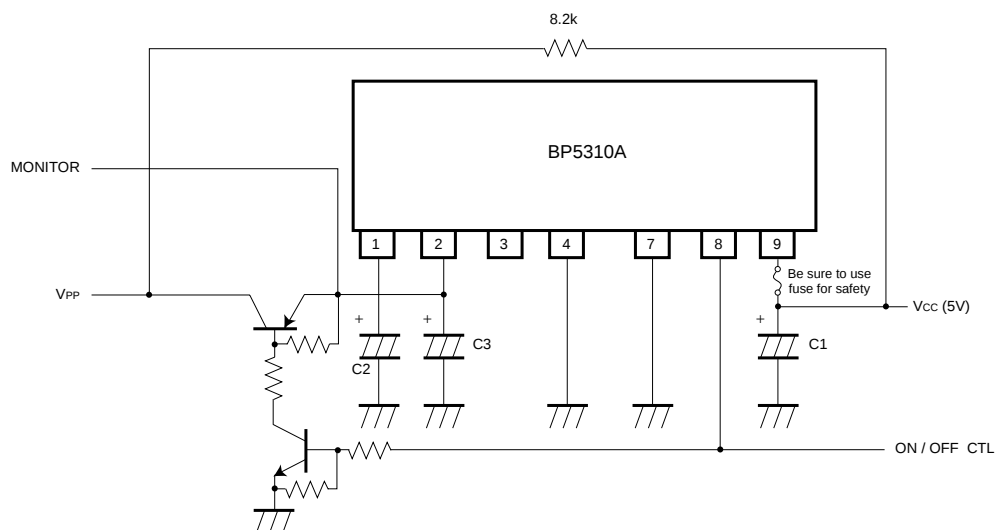


Fig.2



# Precautions on Use of ROHM Power Module

## Safety Precautions

- 1) The products are designed and produced for application in ordinary electronic equipment (AV equipment, OA equipment, telecommunication equipment, home appliances, amusement equipment etc.).  
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  - [b] Installation of redundant circuits in the case of single-circuit failure
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  - [b] Use outdoors where the products are exposed to direct sunlight, or in dusty places
  - [c] Use in places where the products are exposed to sea winds or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>
  - [d] Use in places where the products are exposed to static electricity or electromagnetic waves
  - [e] Use in proximity to heat-producing components, plastic cords, or other flammable items
  - [f] Use involving sealing or coating the products with resin or other coating materials
  - [g] Use involving unclean solder or use of water or water-soluble cleaning agents for cleaning after soldering
  - [h] Use of the products in places subject to dew condensation
- 3) The products are not radiation resistant.
- 4) The Company is not responsible for any problems resulting from use of the products under conditions not recommended herein.
- 5) The Company should be notified of any product safety issues. Moreover, product safety issues should be periodically monitored by the customer.

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