

# 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

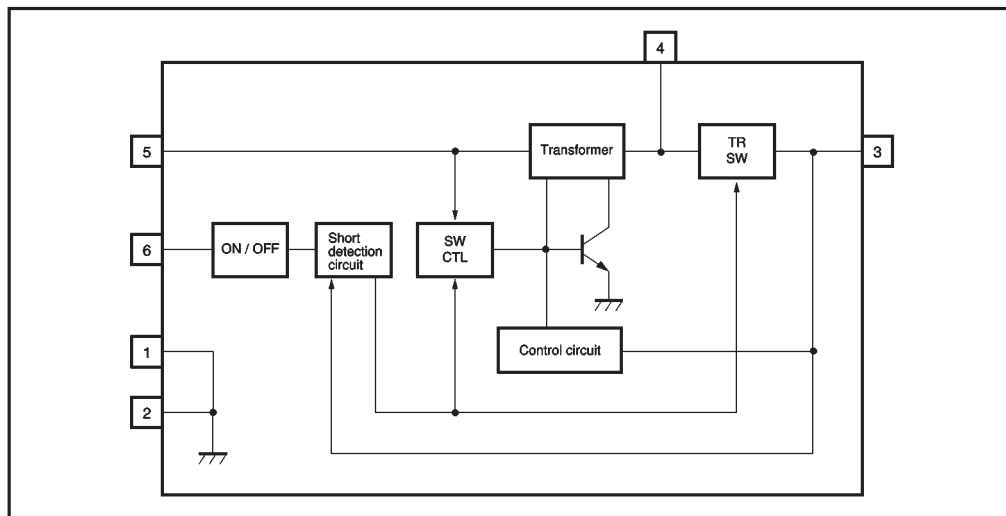
### ●Features

- 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,  $T_a=25^\circ\text{C}$  and  $V_{\text{CTL}}=5\text{V}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{\text{IN}}$	4.5	5.0	5.5	V	
Output current	$I_{\text{OUT}}$	—	—	150	mA	
Output voltage	$V_{\text{OUT}}$	11.4	12.0	12.6	V	$V_{\text{IN}}=4.5\sim 5.5\text{V}$ , $V_{\text{OUT}}=0\sim 170\text{mA}$
Ripple noise voltage	$\nu$	—	—	200	mV <sub>P-P</sub>	$V_{\text{IN}}=5\text{V}$ , $I_{\text{OUT}}=170\text{mA}$
Efficiency	$\eta$	73	79	—	%	$V_{\text{IN}}=5\text{V}$ , $I_{\text{OUT}}=170\text{mA}$
ON / OFF CTL voltage when ON	$V_{\text{CTL}}$	3.3	—	6.0	V	$V_{\text{IN}}=5\text{V}$ , $V_{\text{OUT}}\geq 11.4\text{V}$
ON / OFF CTL voltage when OFF	$V_{\text{CTL}}$	—	—	0.4	V	$V_{\text{IN}}=5\text{V}$ , $V_{\text{OUT}}\leq 0.3\text{V}$
ON / OFF CTL current	$I_{\text{CTL}}$	—	—	0.2	mA	$V_{\text{IN}}=5\text{V}$

\* Measured with a band width of 20MHz.

●Measurement circuit

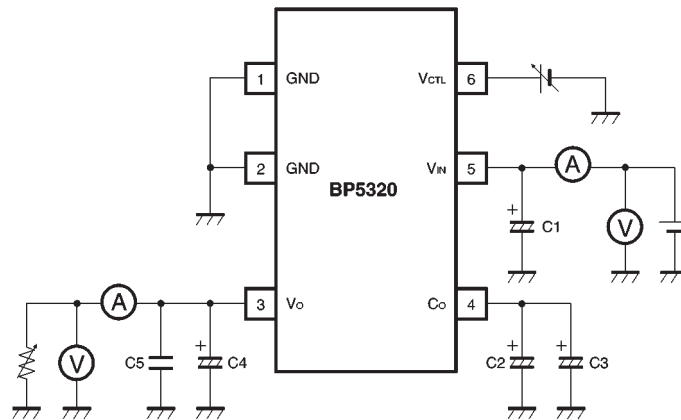


Fig.1

C1 : 22  $\mu\text{F}$  / 10V (MSVB21A226M : NEC)

C2 : 10  $\mu\text{F}$  / 35V (MSVD21V106M : NEC)

C3 : 47  $\mu\text{F}$  / 16V (UZS1C470MCR1GB : NICHICON)

C4 : 47  $\mu\text{F}$  / 16V (UZS1C470MCR1GB : NICHICON)

C5 : 0.1  $\mu\text{F}$  (Ceramic capacitor)

●Pin descriptions

Pin No.	Pin name	Function
1,2	GND	Ground
3	$V_{\text{OUT}}$	Output ; connect an output capacitor with a recommended capacitance of 2.2 $\mu\text{F}$ between this pin and GND
4	$C_{\text{O}}$	Output smoothing capacitor connection ; connect a low-impedance capacitor with a recommended capacitance of 47 $\mu\text{F}$ between this pin and GND
5	$V_{\text{IN}}$	Input ; connect a low-impedance capacitor with a recommended capacitance of 100 $\mu\text{F}$ between this pin and GND
6	$V_{\text{CTL}}$	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

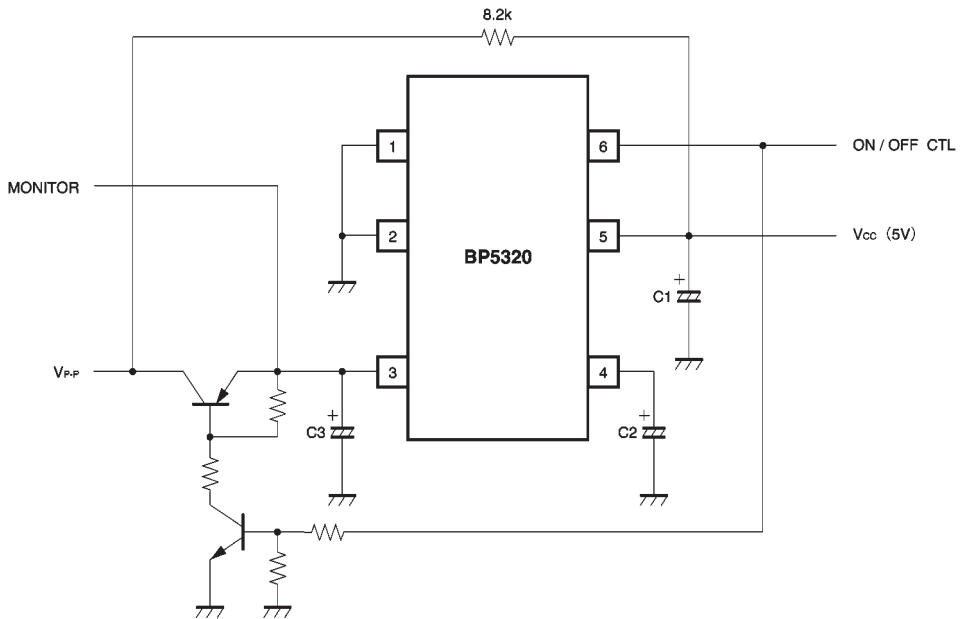


Fig.2

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

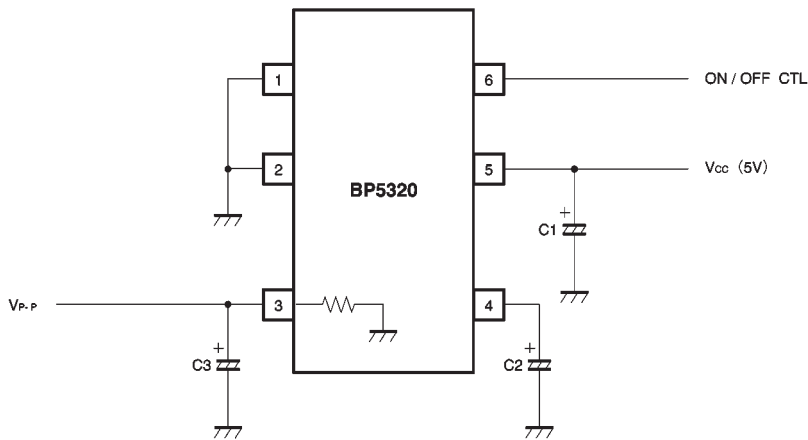


Fig.3

The OFF output is pulled down through an effective resistance of 30k $\Omega$ .

● 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 35 $\mu$ m thick.

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

● Electrical characteristics curve

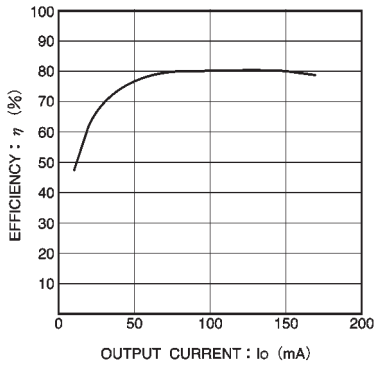
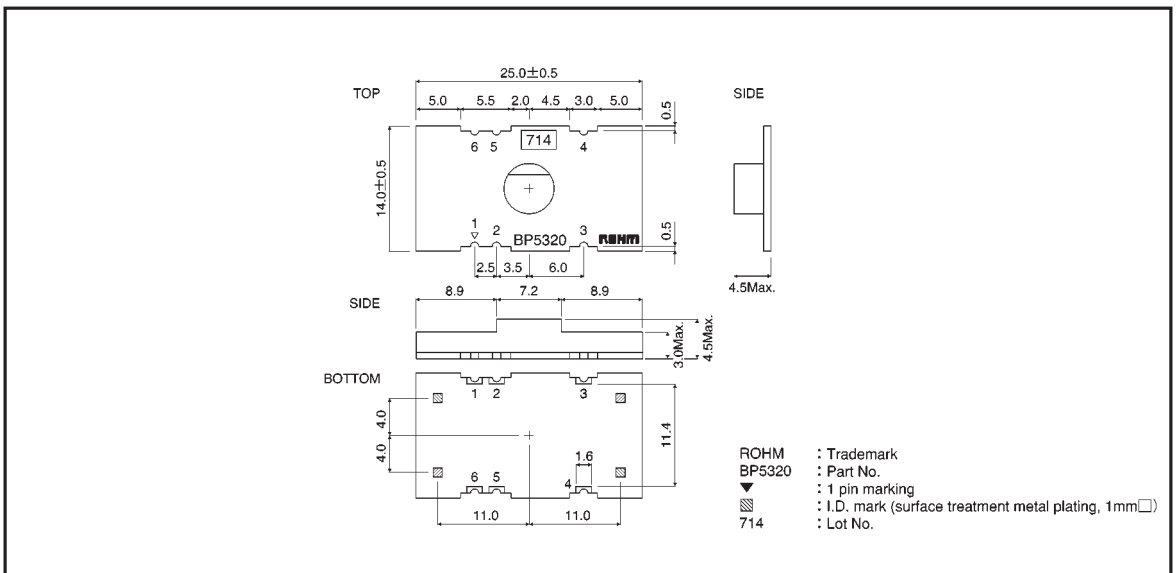


Fig. 4 Efficiency

● 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.