



## ● Pin descriptions

Pin No.	Pin name	Function
1	Co	Output smoothing capacitor connection ; connect a low-impedance capacitor with a recommended capacitance of 47 $\mu$ F between this pin and GND
2	V <sub>OUT</sub>	Output
3	V <sub>ref</sub>	Output voltage pin for contrast adjustment; output voltage is adjusted by connecting a resistor between pins 2 and 3 or pins 3 and 4
4, 7	GND	Ground
8	V <sub>CTL</sub>	Output ON/OFF control ; output starts when the pin is HIGH level, and stops when the pin is LOW or OPEN
9	V <sub>IN</sub>	Input ; connect a low-impedance capacitor with a recommended capacitance of 100 $\mu$ F between this pin and GND

## ● Electrical characteristics

(unless otherwise noted, Ta = 25°C, V<sub>CTL</sub> = 5V, and R1 and R2 resistors are disconnected)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V <sub>IN</sub>	4.5	5.0	5.5	V	—
Output current	I <sub>OUT</sub>	—	—	25	mA	—
Output voltage	V <sub>OUT1</sub>	28.0	29.5	31.0	V	V <sub>IN</sub> =4.5~5.5V, I <sub>OUT</sub> =0~25mA
Output voltage when OFF	V <sub>OUT2</sub>	—	—	0.3	V	V <sub>IN</sub> =4.5~5.5V, V <sub>CTL</sub> =0V
Ripple noise voltage	v <sub>1</sub>	—	100	200	mV <sub>P-P</sub>	V <sub>IN</sub> =5V, I <sub>OUT</sub> =20mA *
Efficiency	$\eta$	67	77	—	%	V <sub>IN</sub> =5V, I <sub>OUT</sub> =20mA
ON/OFF CTL voltage when ON	V <sub>CTL</sub>	1.5	—	—	V	V <sub>IN</sub> =5V, V <sub>O</sub> >28V
ON/OFF CTL voltage when OFF	V <sub>CTL</sub>	—	—	0.5	V	V <sub>IN</sub> =5V, V <sub>O</sub> <0.3V (Alternatively, when OPEN)
ON/OFF CTL CTL current	I <sub>CTL</sub>	—	—	500	$\mu$ A	V <sub>IN</sub> =5V, V <sub>CTL</sub> =1.5V
Current dissipation when OFF	I <sub>OFF</sub>	—	—	50	$\mu$ A	V <sub>IN</sub> =5V, V <sub>CTL</sub> =0V

\* Measured with a band width of 20 MHz.

● Measurement circuit and application example

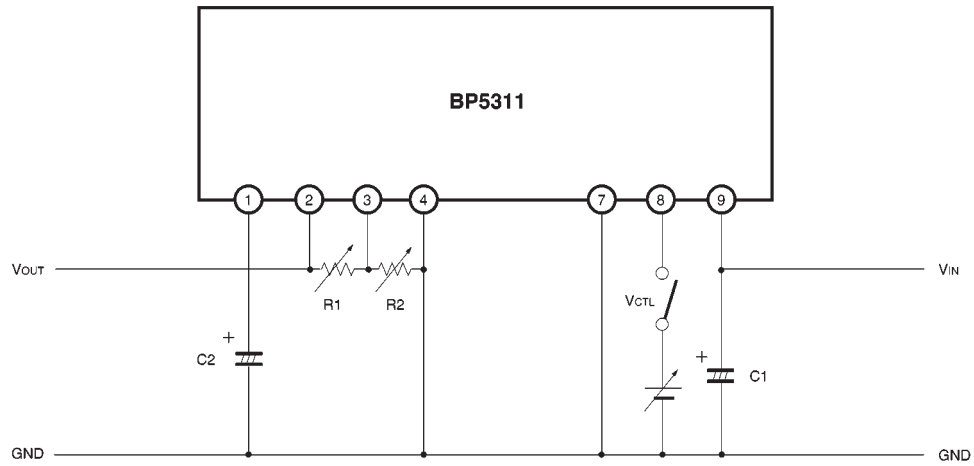


Fig. 1

C1: 100  $\mu$ F / 16 V (NICHICON PL-series or equivalent)  
 C2: 47  $\mu$ F / 35 V (NICHICON PL-series or equivalent)  
 R1, 2: Resistors for adjusting output voltage (contrast adjustment)

● 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 9. A length less than 50 mm is recommended for a copper foil of 1.0 mm wide and 35  $\mu$ m thick.
- (2) Avoid frequent switching using the ON/OFF CTL pin (four times per second at the maximum).
- (3) R1 and R2 resistors, which are used for changing the output voltage, are usually not required.

● Electrical characteristic curves

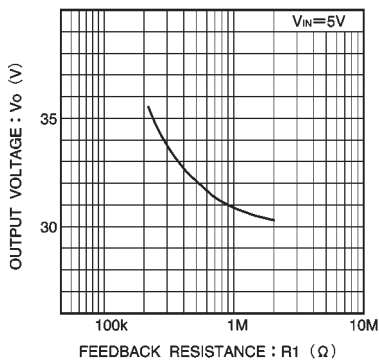


Fig. 2 Output voltage vs. feedback resistance (R1)

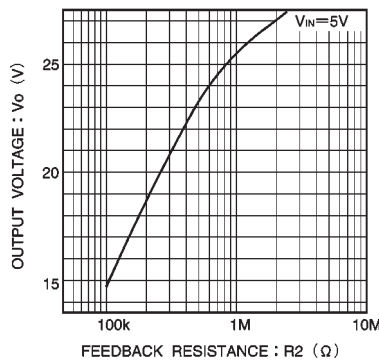


Fig. 3 Output voltage and feedback resistance (R2)

● External dimensions (Units: mm)

