Regulator ICs

Power supply unit for LCD drives BP5311

The BP5311 is a DC-DC converter unit for supplying power to liquid crystal display (LCD) panels. The unit supplies a positive voltage for LCDs from a logic circuit power supply (+5V)

Applications

LCD panels in personal computers and word processors

Features

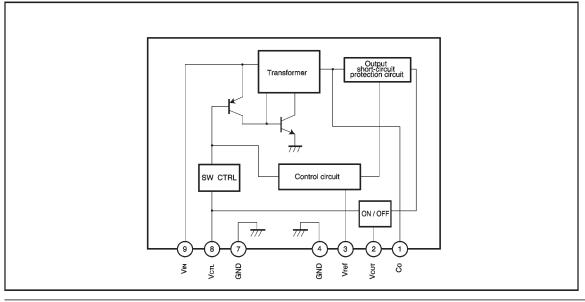
- 1) High conversion efficiency.
- 2) Built-in protection circuit.
- 3) Built-in ON / OFF switch.

- 4) Compact and light.
- 5) Surface mounting is possible because parts are concentrated on one side.

•Absolute maximum ratings (Ta = 25° C)

Parameter	Symbol	Limits	Unit
Power supply voltage	Vin	7	V
Operating temperature	Topr	0~+60	Ĉ
Storage temperature	Tstg	-30~+85	Ĉ

Block diagram



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Pin deso	criptions			
Pin No.	Pin name	Function		
1	Со	Output smoothing capacitor connectionn ; connect a low-impedance capacitor with a recommended capacitance of 47 μ F between this pin and GND		
2	Vout	Output		
3	Vref	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	Vctl	Output ON/OFF control ; output starts when the pin is HIGH level, and stops when the pin is LOW or OPEN		
9	Vin	Input ; connect a low-impedance capacitor with a recommended capacitance of 100 μF between this pin and GND		

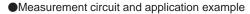
•Electrical characteristics

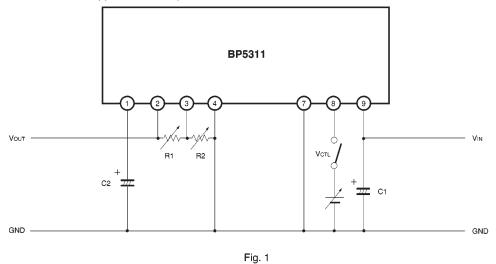
(unless otherwise noted, Ta = 25°C, VcTL = 5V, and R1 and R2 resistors are disconnected)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Input voltage	Vin	4.5	5.0	5.5	V	_
Output current	Іоит	-	_	25	mA	_
Output voltage	Vout1	28.0	29.5	31.0	V	VIN=4.5~5.5V, IOUT=0~25mA
Output voltage when OFF	Vout2	-	_	0.3	V	VIN=4.5~5.5V, VCTL=0V
Ripple noise voltage	<i>u</i> 1	-	100	200	тV _{P-P}	VIN=5V, IOUT=20mA *
Efficiency	η	67	77	_	%	VIN=5V, IOUT=20mA
ON/OFF CTL voltage when ON	Vctl	1.5	_	_	V	V1N=5V, Vo>28V
ON/OFF CTL voltage when OFF	VctL	— — 0.5 (Alternatively, when OPEN)		V	VIN=5V, Vo<0.3V	
ON/OFF CTL CTL current	Іст∟	-	_	500	μA	VIN=5V, VCTL=1.5V
Current dissipation when OFF	IOFF	-	_	50	μA	VIN=5V, VCTL=0V

* Measured with a band width of 20 MHz.

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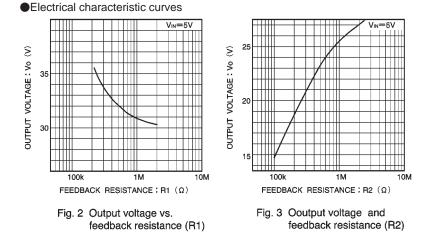




C1: 100 µ F / 16 V (NICHICON PL-series or equivalent) C2: 47 µ F / 35 V (NICHICON PL-series or equivalent) R1, 2: Resistors for adjusting output voltage (contrast adjustment)

Operation notes

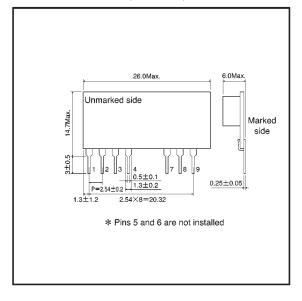
- (1) Place I/O external capacitors as near as possible to the connection pins. In particular, make sure to minimize the impedance between the input-side capacitor (C1) and pin 9. A length less than 50 mm is recommended for a copper foil of 1.0 mm wide and 35 μ m thick.
- (2) Avoid frequent switching 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.



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•External dimensions (Units: mm)



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