

# Power supply unit for LCD drives

## BP5313

The BP5313 is a power supply unit designed to drive LCD panels. Using this unit makes it easy to create a +40V power supply from a logic circuit (+12V) to drive an LCD.

### ●Applications

LCD panels for personal computers, word processors, and other equipment; LCD display units

### ●Features

- 1) High efficient power conversion (83%).
- 2) Internal short-circuit protection.
- 3) Low height makes this product ideal for thin-panel sets.

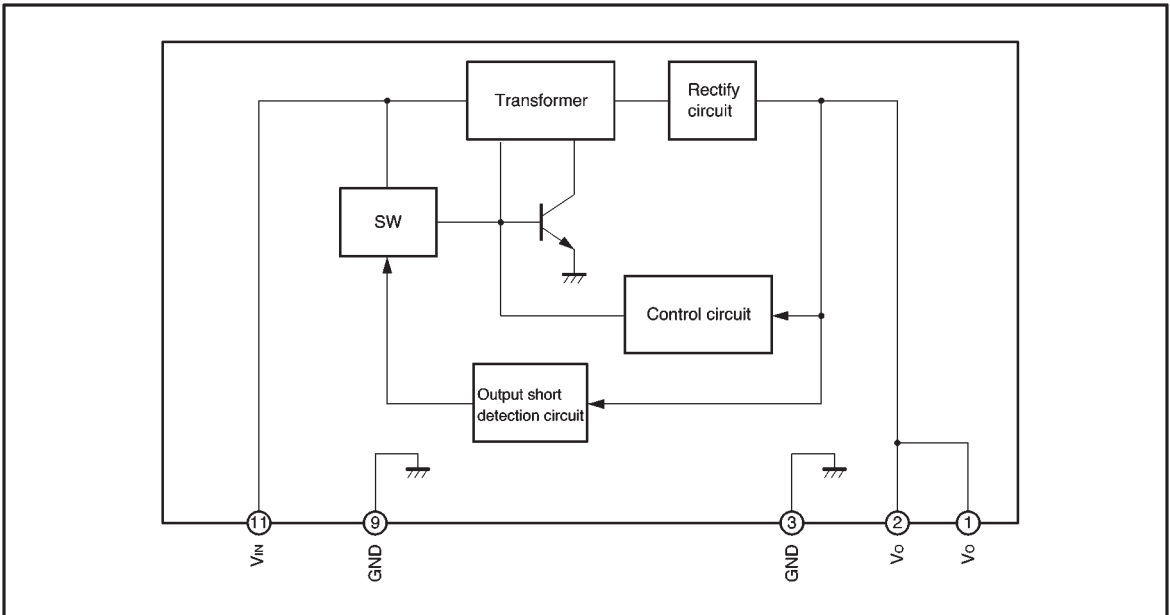
### ●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V <sub>IN</sub>	15	V
Operating temperature	T <sub>opr</sub>	0~+60	°C
Storage temperature	T <sub>stg</sub>	-30~+85	°C

### ●Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V <sub>IN</sub>	11.4	12.0	12.6	V

## ● Block diagram



## ● Pin descriptions

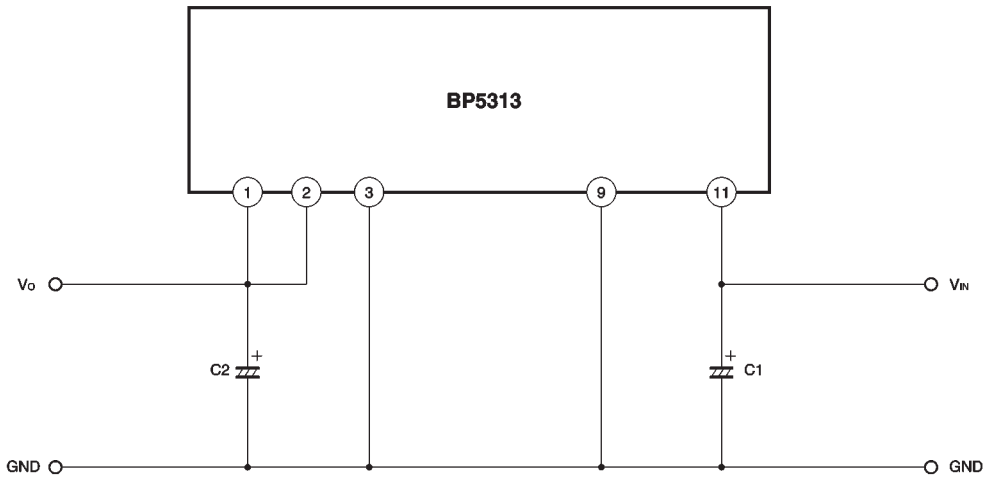
Pin No.	Pin name	Function
1, 2	$V_o$	Output ; A capacitor should be installed between this pin and GND (Recommended: $47 \mu\text{F}$ low-impedance capacitor)
3, 9	GND	Ground.
11	$V_{IN}$	Input ; A capacitor should be installed between this pin and GND. (Recommended: $100 \mu\text{F}$ low-impedance capacitor)

● Electrical characteristics ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{IN}$	11.4	12.0	12.6	V	
Output current	$I_o$	—	—	60	mA	
Output voltage	$V_o$	38.0	40.0	42.0	V	$V_{IN}=11.4\sim 12.6\text{V}$ , $I_{OUT}=0\sim 60\text{mA}$
Ripple noise voltage	$v_1$	—	60	150	mV <sub>P-P</sub>	$V_{IN}=12\text{V}$ , $I_{OUT}=60\text{mA}^*$
Efficiency	$\eta$	75	83	—	%	$V_{IN}=12\text{V}$ , $I_{OUT}=60\text{mA}$

\* Spike noise not included

● Measurement circuit



C1 : 100  $\mu$ F/16V (Nichicon, PL series or equivalent)  
 C2 : 47  $\mu$ F/50V (Nichicon, PL series or equivalent)

Fig. 1

● Operation notes

- (1) External input/output capacitors should be positioned as close as possible to pins, and the impedance, particularly between capacitor C1 and Pin 11 on the output side, should be kept as low as possible. (Reference value : approx. 50 mm or less for a width of 1.0 mm and thickness of 35  $\mu$ m)
- (2) The power supply should not be turned on and off repeatedly (more than 5 times/second).

● Electrical characteristics curves

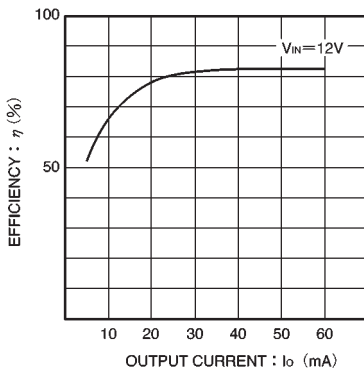


Fig. 2 Efficiency

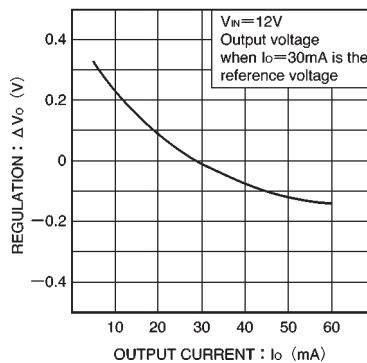


Fig. 3 Load regulation

● External dimensions (Units: mm)

