DC / DC converter for LCD

BP5313A

The BP5313A is a DC/DC converter designed to drive LCD panels. Using this module it easy to supply a +40V power supply from a 12V power supply to drive an LCD.

● Applications

LCD panels for copier, facsimile, instrument, 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.

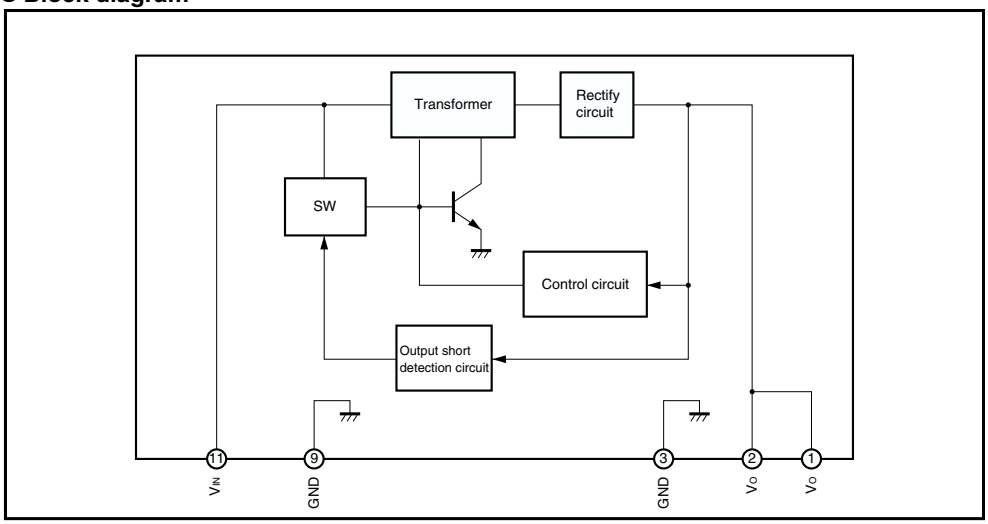
● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V_{IN}	15	V
Operating temperature range	Topr	0~60	°C
Storage temperature range	Tstg	−30~+85	°C

● Recommended operating conditions (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V_{IN}	11.4	12.0	12.6	V

● Block diagram



● Pin descriptions

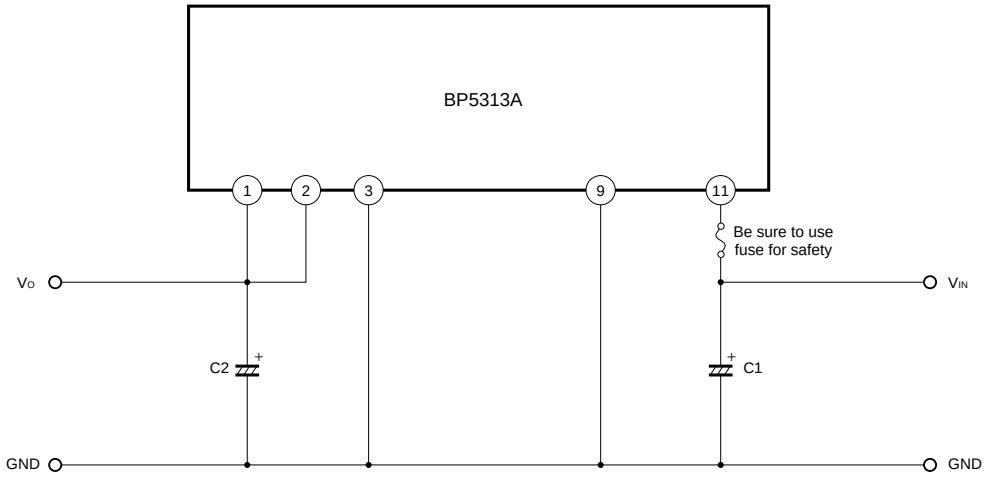
Pin No.	Pin name	Function
1, 2	V_O	Output pin; A capacitor should be installed between this pin and GND (Recommended : 47μF low-Impedance capacitor)
3, 9	GND	Ground pin.
11	V_{IN}	Input pin; A capacitor should be installed between this pin and GND (Recommended : 100μF low-Impedance capacitor)

● Electrical characteristics (Ta=25°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}=11.4~12.6V, I_{OUT}=0~60mA
Ripple noise voltage	υ1	–	60	150	mV_{PP}	V_{IN}=12V, I_{OUT}=60mA ＊
Efficiency	η	75	83	–	%	V_{IN}=12V, I_{OUT}=60mA

＊Spike noise not Included.

● Measurement circuit



C1 : 100μF/16V(Low impedance)
C2 : 47μF/50V(Low impedance)

Fig.1

● Operation notes

(1) External I/O tors 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. 50mm or less for a width of 1.0 mm and thickness of 35µm)

(2) The power supply should not be turned on and off repeatedly (more than 5 times / second.)

● Electrical characteristics curves

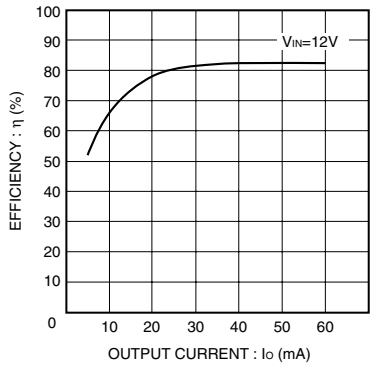


Fig.2 Efficiency

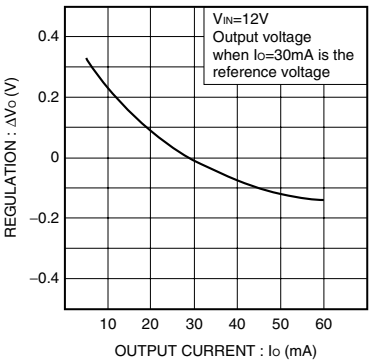
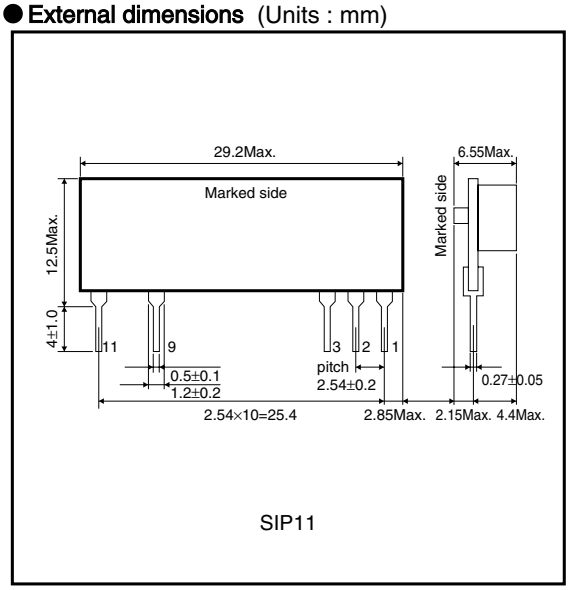


Fig.3 Load regulation

● External dimensions (Units : mm)



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   [e] Use in proximity to heat-producing components, plastic cords, or othe 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
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