

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.

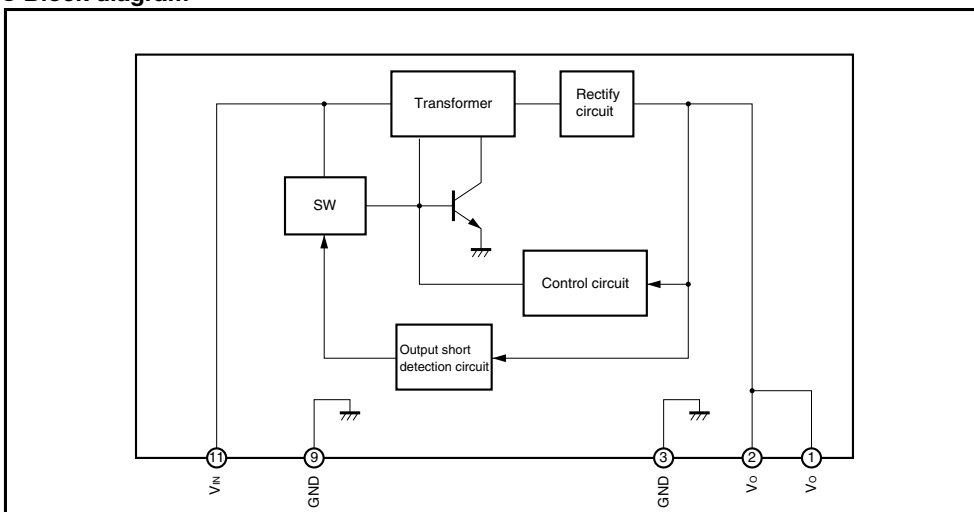
● Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|------------------|---------|------|
| Power supply voltage | V _{IN} | 15 | V |
| Operating temperature range | T _{opr} | 0~60 | °C |
| Storage temperature range | T _{stg} | -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

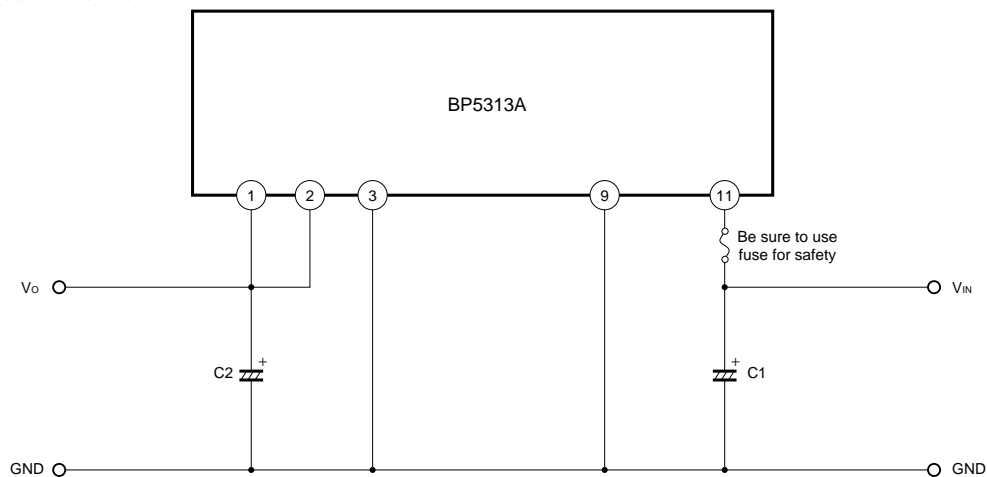
| Pin No. | Pin name | Function |
|---------|-----------------|--|
| 1, 2 | V _O | Output pin; A capacitor should be installed between this pin and GND (Recommended : 47μF low-Impedance capacitor) |
| 3, 9 | GND | Ground pin. |
| 11 | V _{IN} | Input pin; A capacitor should be installed between this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

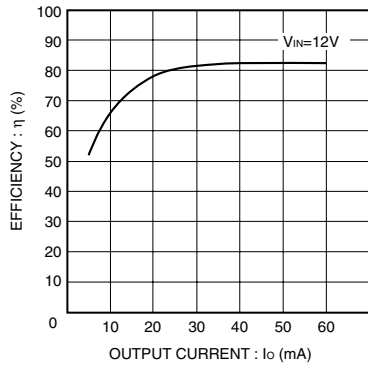


Fig.2 Efficiency

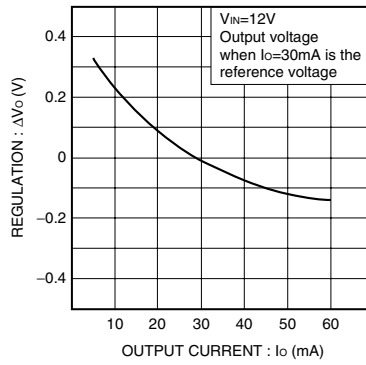
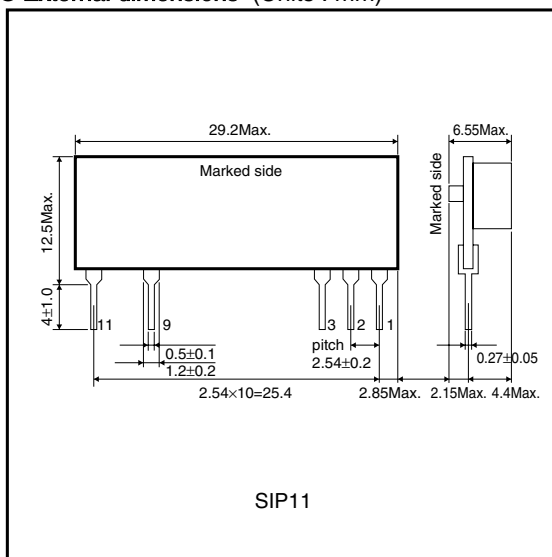


Fig.3 Load regulation

● External dimensions (Units : mm)



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