

Surface-mount power supply unit for LCD drivers

BP5317

The BP5317 is a DC / DC converter unit designed for driving liquid crystal displays (LCDs). The unit supplies a positive voltage for LCDs from a logic circuit power supply (+5V). Being in a compact and light surface-mount package, the IC can be built into an LCD panel.

●Applications

LCD panels of personal computers, word processors, and copiers

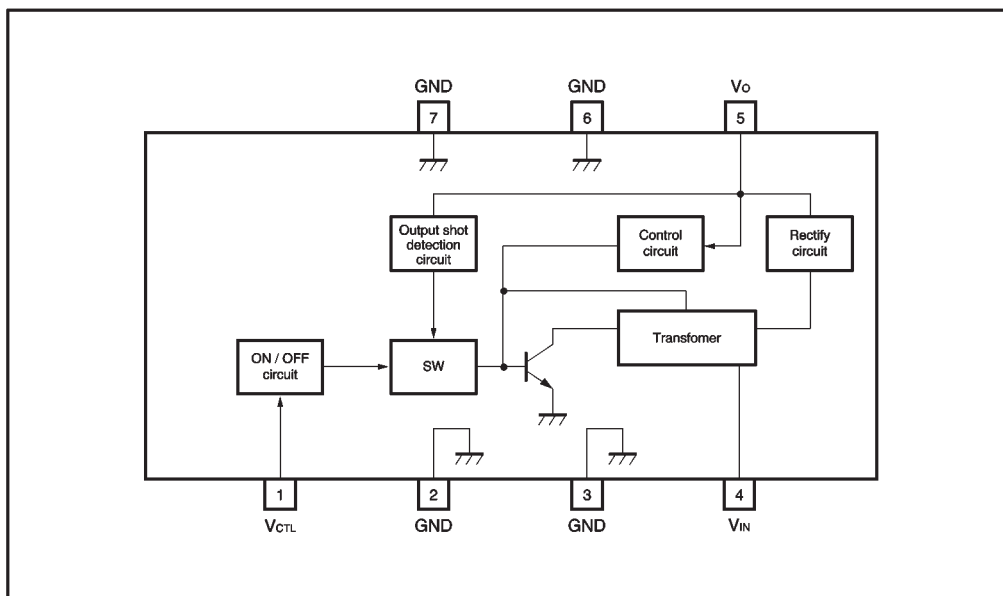
●Features

- 1) Automatic mounting and reflow soldering supported.
- 2) Compact size and thin design enable internal installation in LCD panels.
- 3) Internal short-circuit protection.

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V _{IN}	7.0	V
Operating temperature	Topr	0~+60	°C
Storage temperature	Tstg	-20~+85	°C

● Block diagram



● Pin descriptions

Pin No.	Pin name	Function
1	V _{CTL}	Output ON / OFF control ; output starts when the pin is HIGH level, and stops at LOW level
2,3,6,7	GND	Ground
4	V _{IN}	Input ; connect a low-impedance capacitor with a recommended capacitance of 100 μ F between this pin and GND
5	V _O	Output ; connect a low-impedance capacitor with a recommended capacitance of 47 μ F between this pin and GND

●Electrical characteristics (unless otherwise noted, $T_a = 25^\circ\text{C}$ and $V_{\text{CTL}} = 5\text{V}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V_{IN}	4.5	5.0	5.5	V	
Output current	I_{OUT}	—	—	30	mA	
Output voltage	V_{OUT}	28.0	30.0	32.0	V	$V_{\text{IN}}=4.5\sim 5.5\text{V}$, $I_{\text{OUT}}=0\sim 30\text{mA}$
Ripple noise voltage	ν	—	100	200	mV _{P-P}	$V_{\text{IN}}=5\text{V}$, $I_{\text{OUT}}=30\text{mA}^*$
Efficiency	η	65	73	—	%	$V_{\text{IN}}=5\text{V}$, $I_{\text{OUT}}=30\text{mA}$
ON / OFF CTL voltage when ON	V_{CTL}	2.5	—	5.5	V	$V_{\text{IN}}=5\text{V}$, $V_{\text{O}}>28\text{V}$
ON/OFF CTL voltage when OFF	V_{CTL}	—	—	1.0	V	$V_{\text{IN}}=5\text{V}$, $V_{\text{O}}<0.3\text{V}$

* Output ripple voltage does not include spike noise.

●Measurement circuit

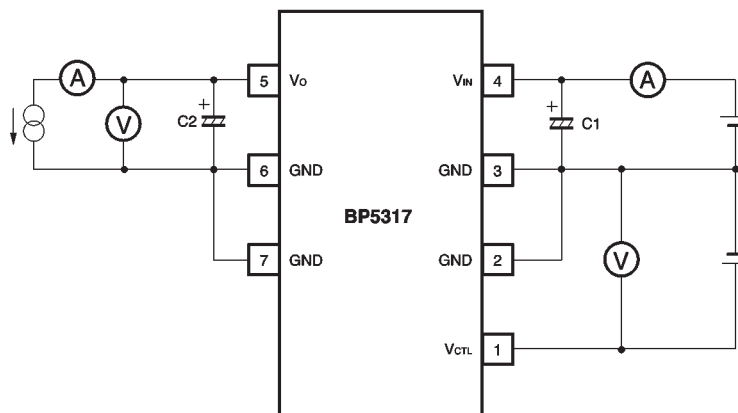


Fig.1

C1: $100\ \mu\text{F} / 16\ \text{V}$ (NICHICON PL-series or equivalent)
 C2: $47\ \mu\text{F} / 35\ \text{V}$ (NICHICON PL-series or equivalent)

●Electrical characteristic curve

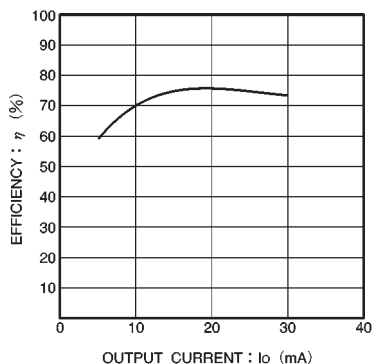


Fig. 2 Efficiency

● Recommended pad dimensions

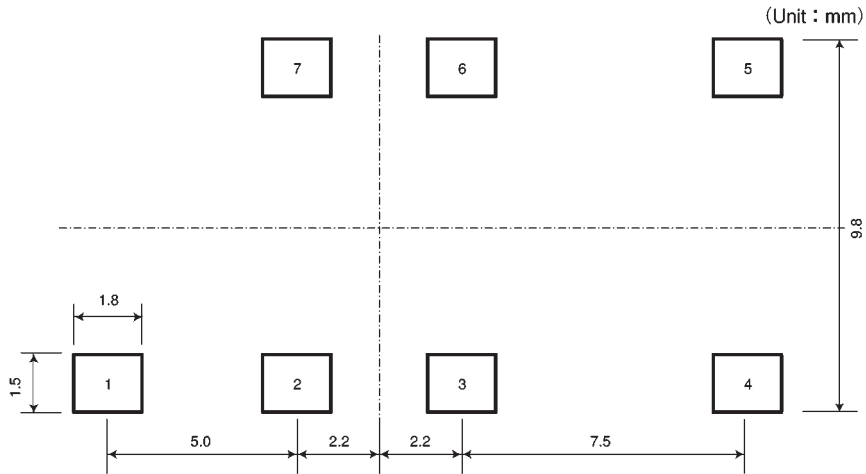


Fig.3

● Operation notes

The soldering used inside the unit is equivalent to H63 solder, so it will remelt during reflow.

● External dimensions (Units: mm)

