28V 3.0A 500KHz ECOT PSM Synchronous Step-Down Regulator

PRELIMINARY DATASHEET

General Description

The FH3330 is a high frequency, synchronous, rectified, buck(step-down), switch-mode converter with internal power MOSFETs. It offers a very compact solution to provide a 3.0A continuous output current over a wide input supply range, with excellent load and line regulation.

ECOT PSM control operation provides very fast transient response and easy loop design as well as very tight output regulation.

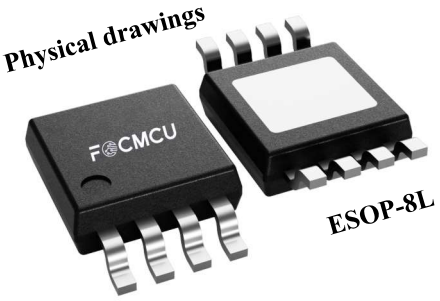
The FH3330 requires a minimal number of readily available, external components and is available in a space saving ESOP-8L package.

Device Information (1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
FH3330AS8	ESOP-8L	4.89mm x 3.90mm
FH3330BS8	ESOP-8L	4.89mm x 3.90mm

(1) For all available packages, see the orderable addendum at the end of the datasheet.

Physical drawings



Features

- Wide 4.5V to 28V Operating Input Range
- 3A Continuous Output Current
- 500KHz Switching Frequency
- ECOT PSM Mode Control with Fast Transient Response
- Built-in Over Current Limit
- Built-in Over Voltage Protection
- PFM Mode for High Efficiency in Light Load
- Internal Soft-Start
- 100mΩ/50mΩ Low $R_{DS(ON)}$ Internal Power MOSFETs
- Output Adjustable from 0.60V / 0.80V
- No Schottky Diode Required
- Short Protection with Hiccup-Mode
- Integrated internal compensation
- Thermal Shutdown
- Available in ESOP-8L Package
- Temperature Range: -40°C to +85°C

Applications

- Digital Set-top Box (STB)
- HD Blu-ray Disc Player
- Security Monitoring
- Digital TV Power
- General Purposes
- Network home terminal equipment

Typical Application Circuit

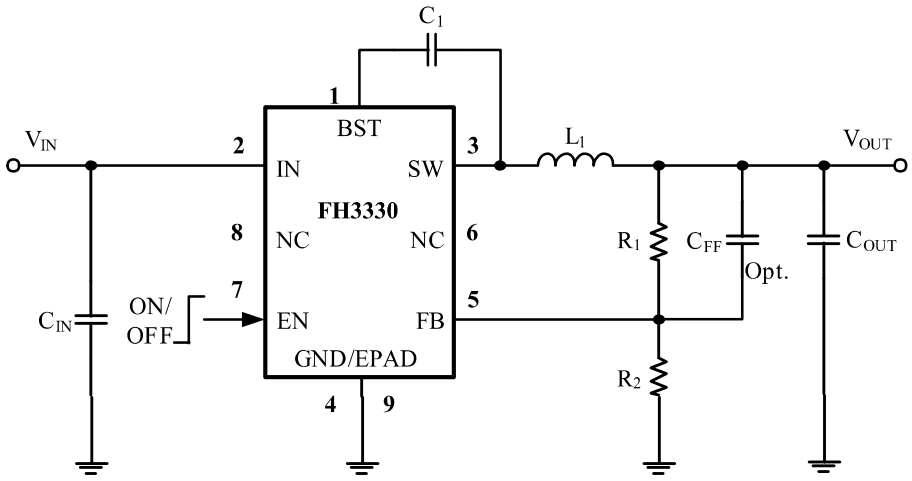
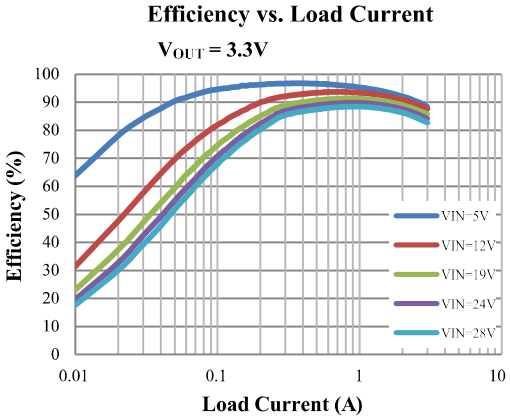
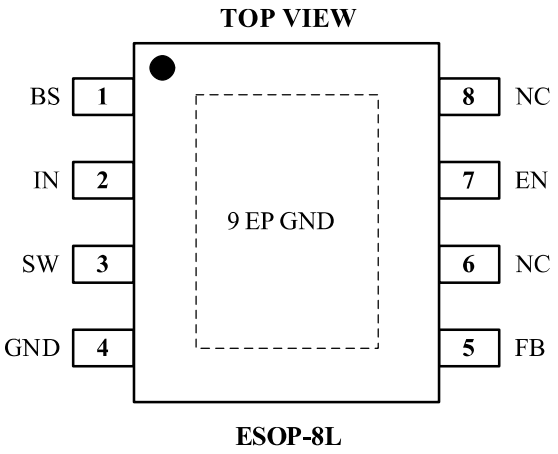


Figure 1. FH3330 Basic Application Circuit



Pin Configuration



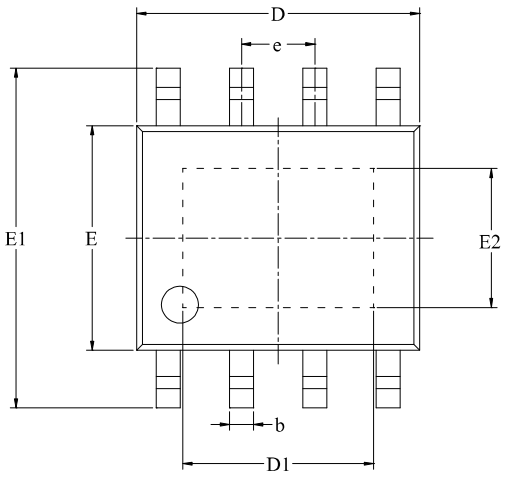
ESOP-8L

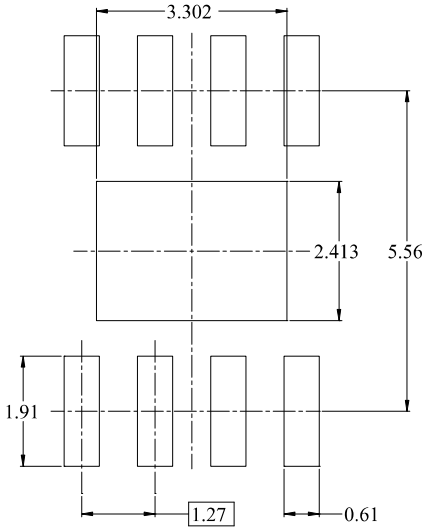
Pin Description

Pin	Name	Function
1	BS	Bootstrap. A capacitor connected between SW and BS pins is required to form a floating supply across the high-side switch driver.
2	IN	Power Supply Pin
3	SW	Switching Pin
4/9	GND/EPAD	Ground Pin
5	FB	Adjustable Version Feedback input. Connect FB to the center point of the external resistor divider
6	NC	No Connection
7	EN	Drive this pin to a logic-high to enable the IC. Drive to a logic-low to disable the IC and enter micro-power shutdown mode.
8	NC	No Connection

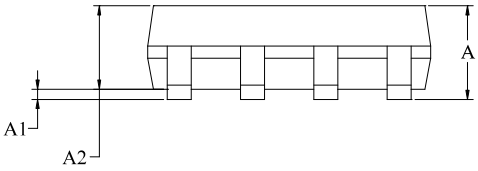
PACKAGE OUTLINE DIMENSIONS

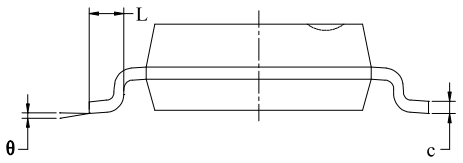
- **ESOP-8L (Exposed Pad)**





RECOMMENDED LAND PATTERN (Unit: mm)





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A		1.700		0.067
A1	0.000	0.100	0.000	0.004
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
D1	3.202	3.402	0.126	0.134
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
E2	2.313	2.513	0.091	0.099
e	1.27 BSC		0.050 BSC	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

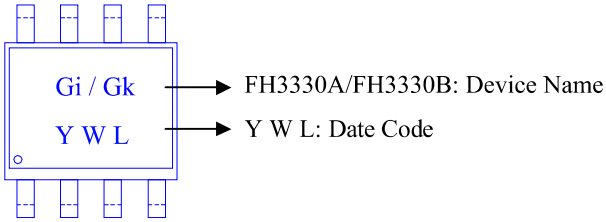
ORDERING INFORMATION

Part Number	Input Voltage	Features	Operating Temperature	Package Type	Top Mark	SPQ
FH3330AS8	4.5V ~ 28.0V	● DC-DC buck (step-down) ● VFB: 0.6V(FH3330A) | 0.8V(FH3330B) (±2%) ● Frequency: 500kHz ● Output Current: 3.0A ● Duty cycle: 87%	-40°C to +85°C	ESOP-8L	Gi Y W L	3000EA/Reel
FH3330BS8	4.5V ~ 28.0V		-40°C to +85°C	ESOP-8L	Gk Y W L	3000EA/Reel

Note:

- **FH3330A | FH3330B** devices are Pb-free and RoHs compliant.
- The surface prints of our semiconductor devices are subject to change during the production process and do not involve changes in electrical parameters, and we will not separately state the notice.
- If you have any other custom purchase needs, please contact our sales department.
- ForDevices reserves the right to amend and legally interpret the electrical parameters of this chip device. (http://www.fordevices.com)

Device Name: ESOP-8L



ESD SENSITIVITY CAUTION

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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▲ Update by Oct.2020