Fixed 5.0V/1.5A Output, Synchronous Boost(Step-up) Converter

PRELIMINARY DATASHEET

DESCRIPTION

The FH4105 is a high efficiency synchronous boost (step-up) converter that can provide up to 1.5A to a fixed 5.0V output from a low voltage source. Unlike most boost converter, it incorporates circuits that disconnect the input from output, during shutdown, short-circuit, output current overloading, or other events when output is higher than the input.

This eliminates the need for an external MOSFET and its control circuitry to disconnect the input from output, and provides robust output overload protection.

A switching frequency of 1.0MHz minimizes solution footprint by allowing the use of tiny and low profile inductors and ceramic capacitors.

An internal synchronous MOSFET provides highest efficiency and with a current mode control that is internally compensated, external parts count is reduced to minimal.

FH4105 is housed in a tiny SOT-23-5L package.

FEATURES

- Output Disconnect
- Short-circuit Protection
- Fixed 5.0V/1.5A Output Power
- Output to Input Reversed Current Protection
- Up to 96% Efficiency
- 40uA No load I_Q and light load PFM Mode
- Internal Synchronous Rectifier
- Current Mode control
- Logic Control Shutdown and Thermal shutdown
- SOT-23-5L Package

APPLICATIONS

- USB OTG for MIDs, Smartphones
- Mobile back-up Battery Chargers
- Alkaline, NiCd, and NiMh batteries applications
- USB powered devices

Device Information (1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
FH4105M5	SOT-23 (5L)	2.90mm x 1.60mm

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

TYPICAL APPLICATION

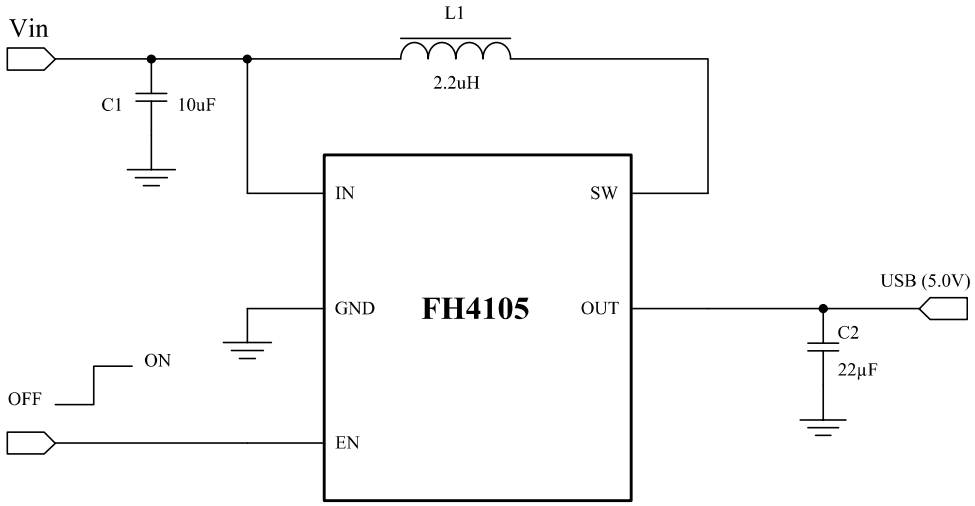
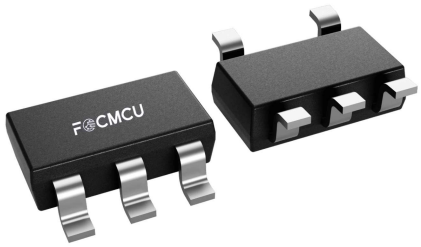


Figure 1. FH4105 Typical Application Circuit



BLOCK DIAGRAM

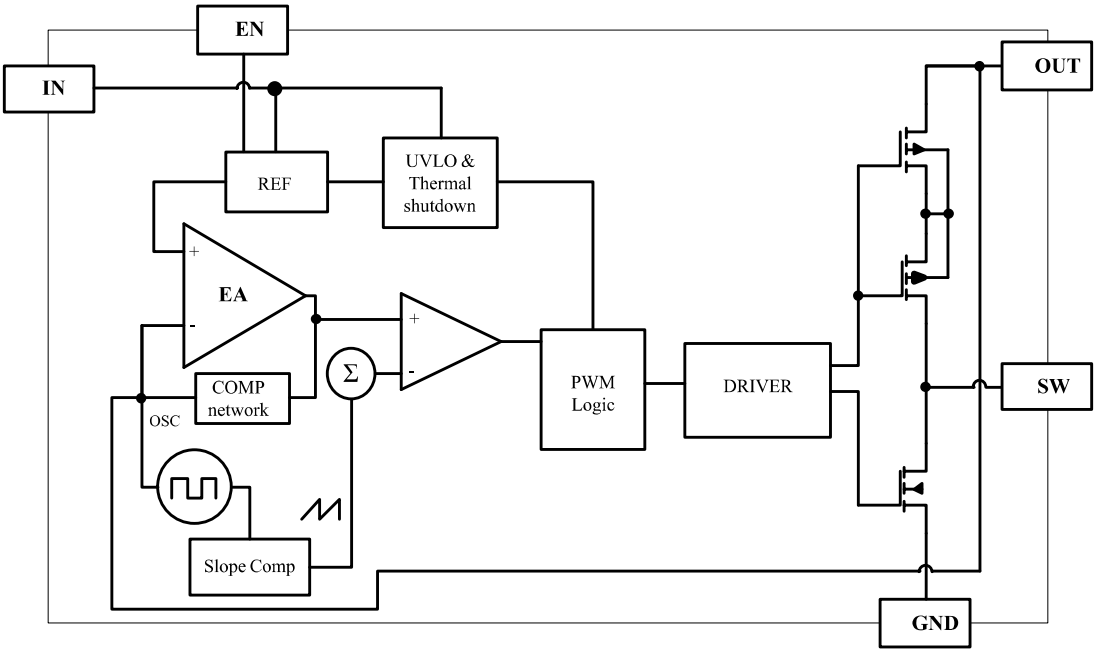
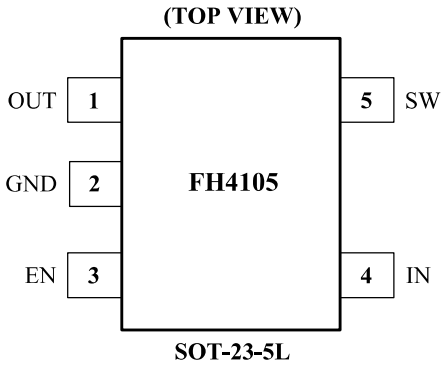


Figure 2. FH4105 Block diagram

PIN CONFIGURATION

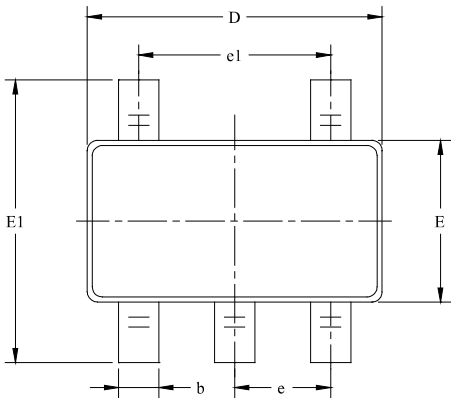


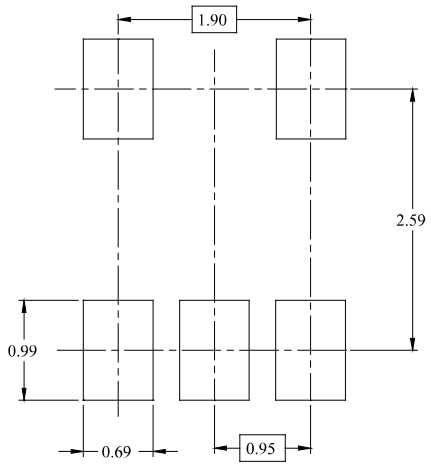
PIN DESCRIPTION

PIN #	NAME	DESCRIPTION
1	OUT	Output pin. Bypass with a 22uF or larger ceramic capacitor closely between pin and GND
2	GND	Ground Pin
3	EN	Enable pin for the IC. Drive this pin high to enable the part, low to disable.
4	IN	Input Supply Voltage. Bypass with a 4.7uF ceramic capacitor to GND.
5	SW	Inductor Connection. Connect an inductor Between SW and the regulator output.

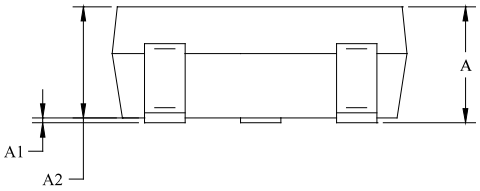
PACKAGE OUTLINE

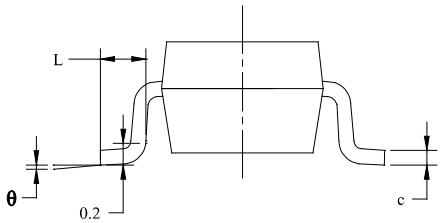
SOT-23-5L





RECOMMENDED LAND PATTERN (Unit: mm)





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

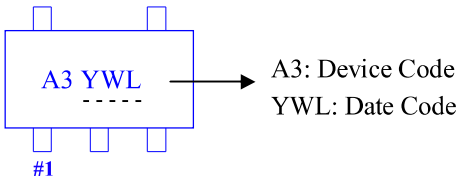
ORDERING INFORMATION

Part Number	Input Voltage	Features	Operating Temperature	Package Type	Top Mark	SPQ
FH4105M5	~ 5.0V	● DC-DC Synchronous Boost ● Voltage outpu: 5.0V (fixed) ● Switch Frequency: 1.0MHz (typ.) ● Output Current: 1.5A ● Output Disconnect	-40°C to +85°C	SOT-23-5L	A3 Y W L	3000EA/Reel

Note:

- **FH4105** 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.
- FOCMCU Inc. reserves the right to amend and legally interpret the electrical parameters of this chip device. (http://www.fordevices.com)

Device Name: SOT-23-5L



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 Sep.2022