

## 400mA Ultra Low Current Consumption, CMOS, Voltage Regulator

PRELIMINARY DATASHEET

### General Description

*Datasheet Brief*

The FH6128 is a high accuracy, low noise, high speed CMOS Linear regulator with low power consumption and low dropout voltage, which provide large output currents even when the difference of the input-output voltage is small.

The devices offer a new level of cost effective performance in cellular phones, laptop and notebook computers, and other portable devices.

The current limiter's fold-back circuit also operates as a short circuit protection and an output current limiter at the output pin.

The FH6128 regulators are available in standard 3-pin/5-pin SOT-23 and 4-pin FBP1\*1 packages. Standard products are Pb-free and Halogen-free.

Device Information (1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
FH6128	SOT-23 (5)	2.90mm x 1.60mm
	SOT-23 (3)	2.92mm x 1.30mm
	FBP (4)	1.00mm x 1.00mm

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

### Key Features

- Input voltage: 1.5V ~ 8.0V
- Output range: 1.2V ~ 5.0V (customized on command in 0.1V steps)
- Maximum output current: 400mA@V<sub>OUT</sub> = 3.3V
- PSRR: 60dB@1KHz
- Dropout voltage: 180mV@ I<sub>OUT</sub> = 100mA
- Highly Accuracy: 2% (±1% customized)
- Quiescent current: 0.1uA (Typ.)
- Shutdown current: < 1.0uA
- Recommend capacitor: 1.0uF
- Built-in Short-Circuit Protection, Current Limiter
- Operating Ambient Temperature: -40 ~ 85°C
- RoHS Compliant and Lead (Pb)-Free Halogen-Free

### Package Type

- 3-pin SOT-23-3L
- 4-pin FBP1\*1-4L
- 5-pin SOT-23-5L

### Applications

- Radio control systems
- Cellphones, radiophone, digital cameras
- Bluetooth, wireless handsets
- Others portable consumer equipments

### Typical Application Circuit

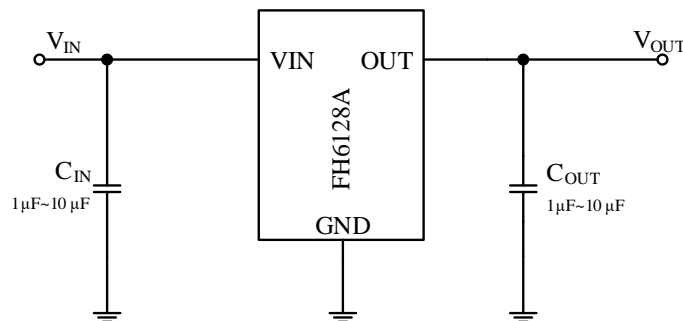


Figure 1. SOT-23-3L Typical Application Circuit

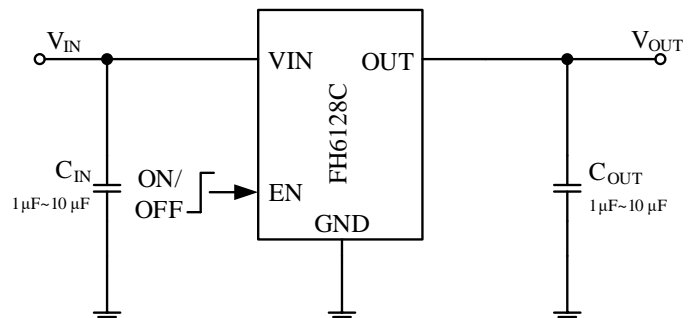
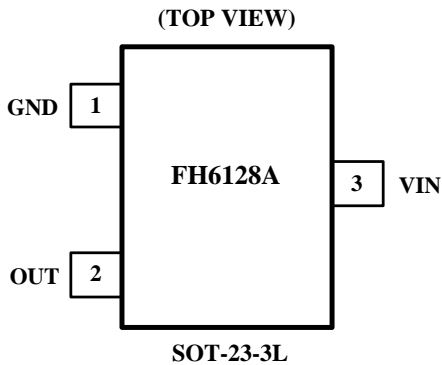


Figure 2. SOT-23-5L/4-pin FBP1\*1-4L Typical Application Circuit

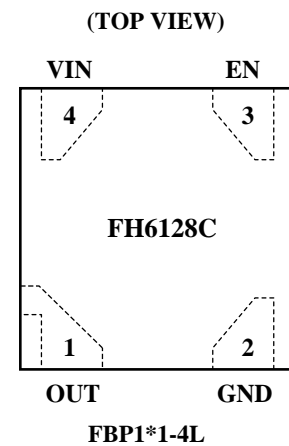
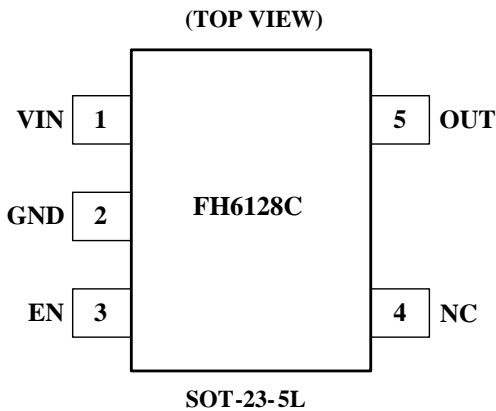
## PIN CONFIGURATION



## PIN DESCRIPTION

PIN	NAME	FUNCTION
1	GND	Ground.
2	OUT	Regulator Output.
3	VIN	Regulator Input. Supply voltage can range from 2.5V to 5.5V. Bypass with a 1.0 $\mu$ F capacitor to GND.

## PIN CONFIGURATIONS

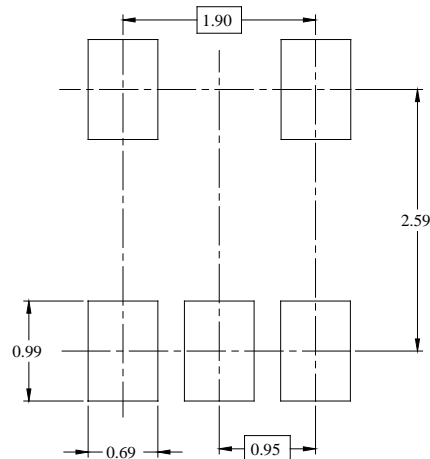
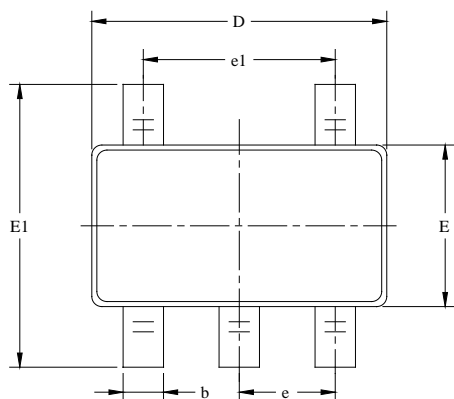


## PIN DESCRIPTION

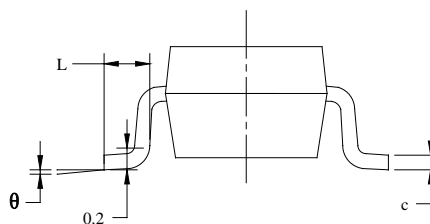
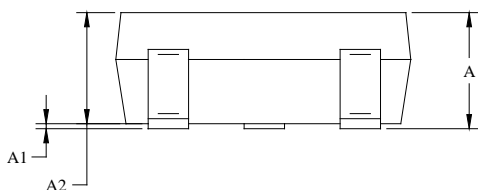
PIN#		NAME	FUNCTION
SOT-23-5L	FBP1*1-4L		
1	4	VIN	Input Supply Voltage Pin. It is recommended to use a 1 $\mu$ F or larger ceramic capacitor from IN pin to ground. This ceramic capacitor should be placed as close as possible to IN pin.
2	2	GND	Ground Pin.
3	3	EN	Enable Pin. Drive EN high to turn on the regulator. Drive EN low to turn off the regulator. The EN pin has an internal pull-down current source which ensures that the device is turned off when the EN pin is floated.
4	–	NC	Not Connection.
5	1	OUT	Regulator Output Pin. It is recommended to use a ceramic capacitor with effective capacitance in the range of 0.1 $\mu$ F to 10 $\mu$ F to get good power supply decoupling. This ceramic capacitor should be placed as close as possible to OUT pin.

## PACKAGE OUTLINE DIMENSIONS

### SOT-23-5L



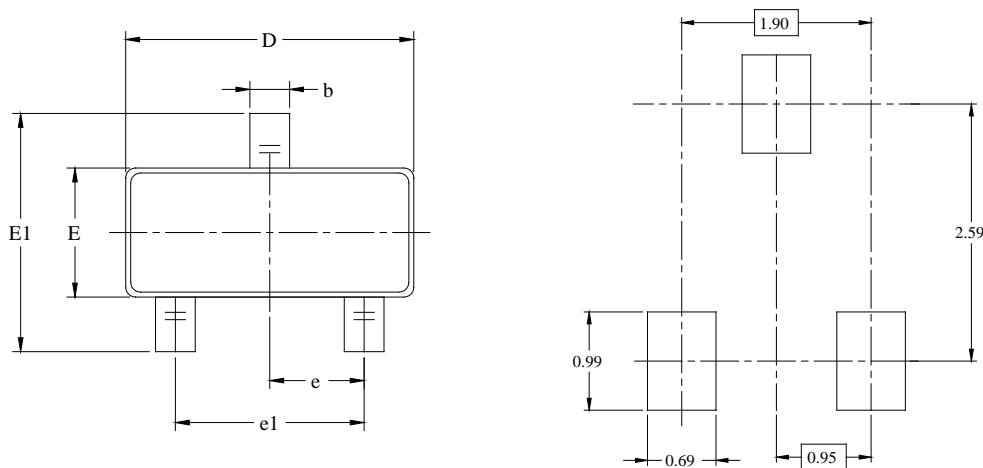
RECOMMENDED LAND PATTERN(Unit: mm)



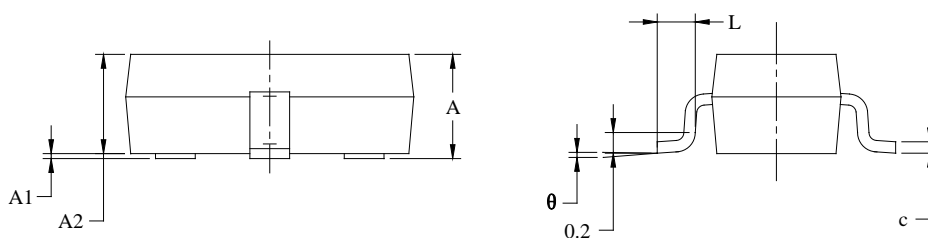
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037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

## PACKAGE OUTLINE DIMENSIONS

### SOT-23-3L



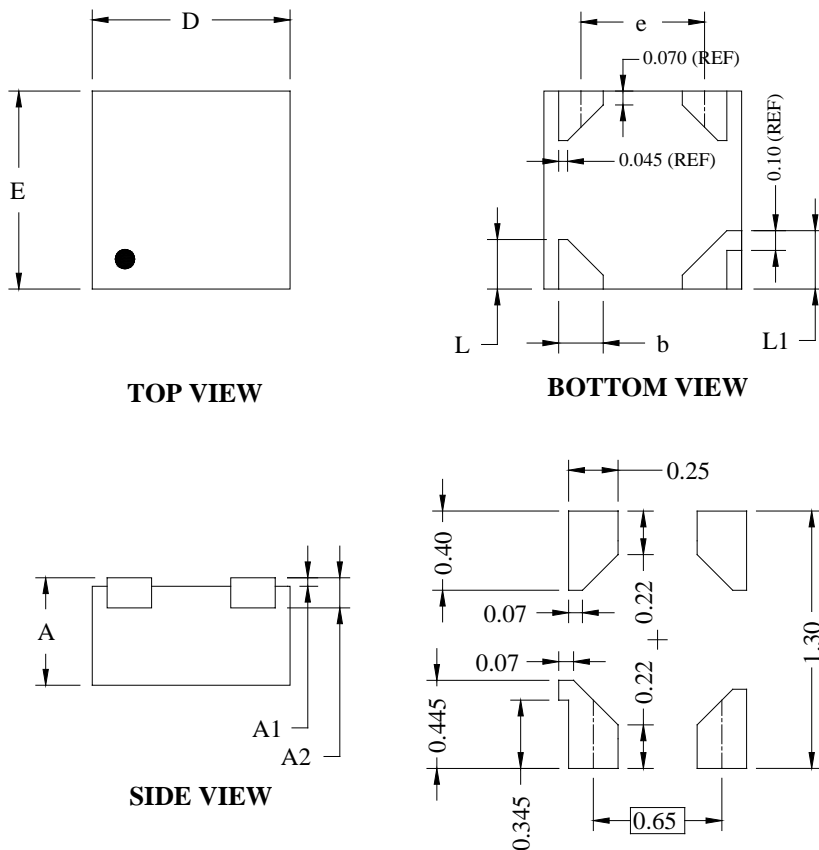
RECOMMENDED LAND PATTERN(Unit: mm)



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°

## PACKAGE OUTLINE DIMENSIONS

FBP-1\*1-4L



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	0.500	0.550	0.600
A1	0.000		0.050
A2	0.152 REF		
e	0.625 BSC		
D	0.950	1.000	1.050
E	0.950	1.000	1.050
b	0.175	0.225	0.275
L	0.200	0.250	0.300
L1	0.245	0.295	0.345

## ORDERING INFORMATION

Part Number	Input Voltage	Output Function	Operating Temperature	Package Type	Top Mark	SPQ
FH6128A**M3	~ 8.0V	<ul style="list-style-type: none"> <li>** → Output voltage e.g., 15 = 1.5V 18 = 1.8V 40 = 4.0V</li> </ul>	-40°C to +85°C	SOT-23-3L	* ** *	3000EA/Reel
FH6128C**M5	~ 8.0V	<ul style="list-style-type: none"> <li>The selectable voltage values are: 1.2V / 1.5V / 1.8V / 2.5V / 2.8V / 3.0V / 3.3V / 3.6V / 4.0V</li> </ul>	-40°C to +85°C	SOT-23-5L	* ** *	3000EA/Reel
FH6128C**U4	~ 8.0V	<ul style="list-style-type: none"> <li>FH6128A**: Enable the internal connection of high</li> <li>FH6128C**: Enable can be set</li> </ul>	-40°C to +85°C	FBP1*1-4L (0.37)	* *	10000EA/Reel

**Note:**

- **FH6128A | FH6128C** 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>)



### 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.



Product Folder



Order Now



Technical Documents



Tools & Software



Support & Community

### Important Notice:

- The information described herein is subject to change without notice.
- FOCMCU Inc. is not responsible for any problems caused by circuits or diagrams described herein whose related industrial properties, patents, or other rights belong to third parties. The application circuit examples explain typical applications of the products, and do not guarantee the success of any specific mass-production design.
- Use of the information described herein for other purposes and/or reproduction or copying without the express permission of FOCMCU Inc. is strictly prohibited.
- The products described herein cannot be used as part of any device or equipment affecting the human body, such as exercise equipment, medical equipment, security systems, gas equipment, or any apparatus installed in airplanes and other vehicles, without prior written permission of FOCMCU Inc.
- Although FOCMCU Inc. exerts the greatest possible effort to ensure high quality and reliability, the failure or malfunction of semiconductor products may occur. The user of these products should therefore give thorough consideration to safety design, including redundancy, fire-prevention measures, and malfunction prevention, to prevent any accidents, fires, or community damage that may ensue.

