500kHz / 18V / 2.0A Synchronous Step-Down Converter

Datasheet Brierf

DESCRIPTION

The FH4630 is a fully integrated, high-efficiency 2.0A synchronous rectified step-down converter. The FH4630 operates at high efficiency over a wide output current load range.

This device offers two operation modes, PWM control and PFM Mode switching control, which allows a high efficiency over the wider range of the load.

The FH4630 requires a minimum number of readily available standard external components and is available in a 6-pin SOT23 ROHS compliant package.

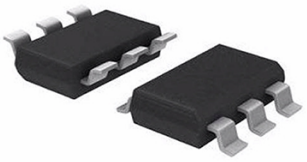
APPLICATIONS

- Distributed Power Systems
- Digital Set Top Boxes(STB)
- Flat Panel Television and Monitors
- Notebook computer
- Wireless and DSL Modems
- General Purposes

FEATURES

- High Efficiency: Up to 94% (@5V)
- Frequency Operation 500kHz
- 2.0A Continuous Output Current
- No Schottky Diode Required
- Input Voltage Range: 4.0V to 18.0V
- 0.6V Reference | Output Adjustable from 0.6V
- Slope Compensated Current Mode Control for Excellent Line and Load Transient Response
- Integrated Internal Compensation
- Stable with Low ESR Ceramic Output Capacitors
- Over Current Protection with Hiccup-Mode
- Input overvoltage protection (OVP)
- Thermal Shutdown
- Inrush Current Limit and Soft Start
- Available in SOT-23-6L Package
- Operation Temperature Range: -40°C to +85°C

(Physical Diagram)



SOT-23-6L

TYPICAL APPILCATION

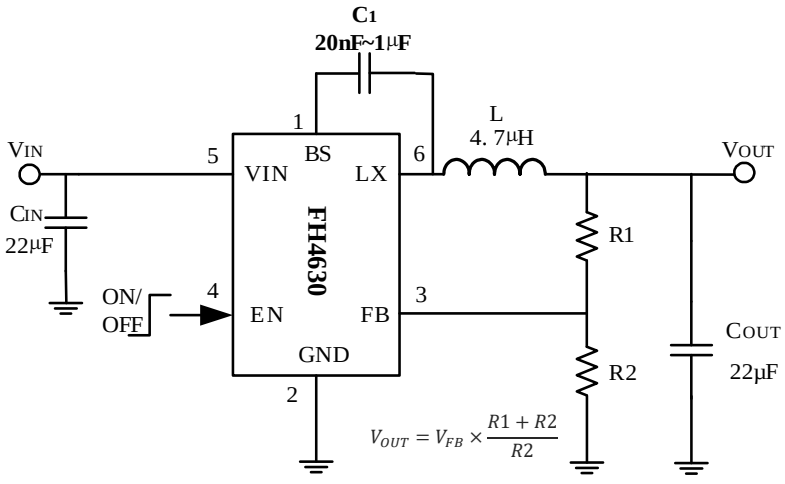


Figure 1. Basic Application Circuit

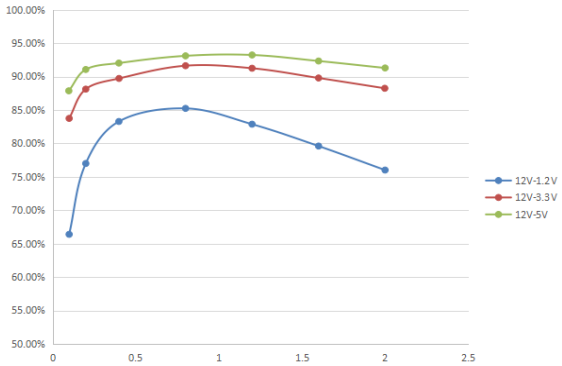
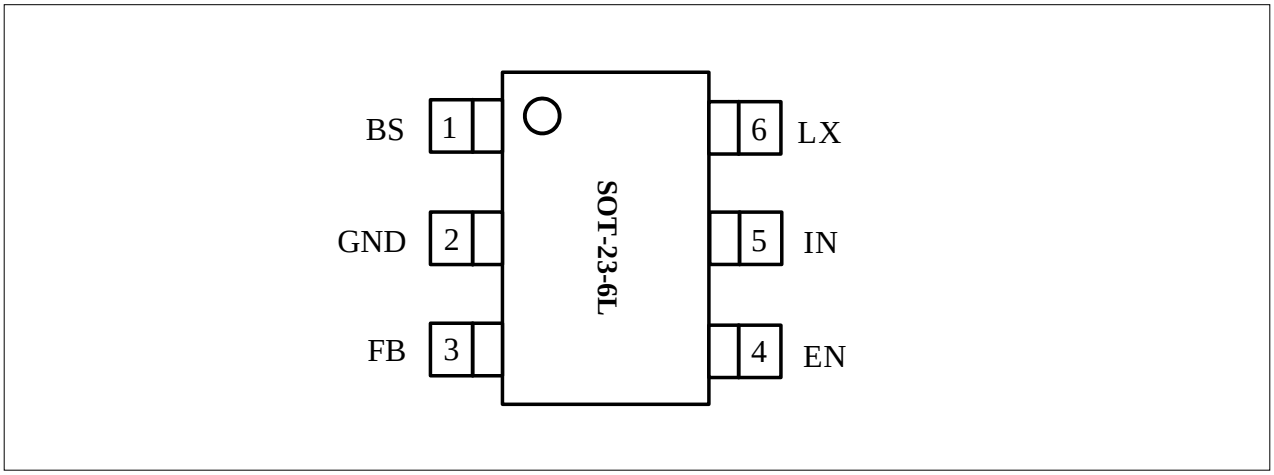


Figure 2. Efficiency (%) vs. Load Current (A)

PACKAGE

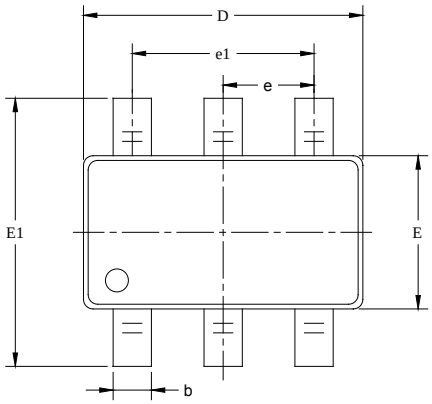


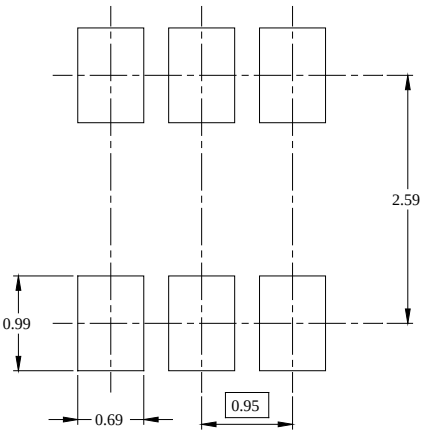
PIN FUNCTIONS

Pin	Name	Function
1	BS	Bootstrap. A capacitor connected between LX and BST pins is required to form a floating supply across the high-side switch driver.
2	GND	Ground
3	FB	Adjustable version feedback input. Connect FB to the center point of the external resistor divider.
4	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.
5	IN	Power supply Pin
6	LX	Switching Pin

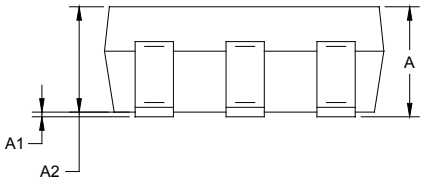
PACKAGE INFORMATION

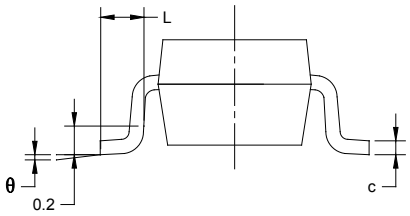
- **Type: SOT-23-6L**





RECOMMENDED LAND PATTERN(Unit: mm)



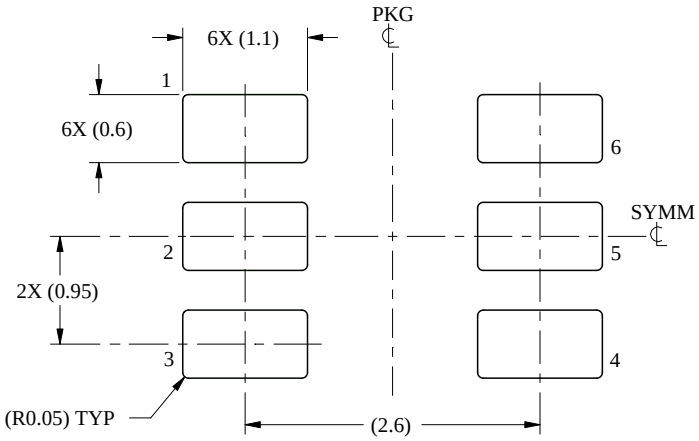


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037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

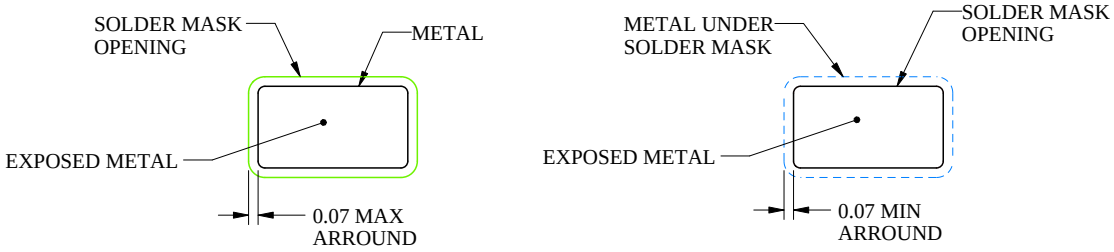
Note:

1) All dimensions are in millimeters.
2) Package length does not include mold flash, protrusion or gate burr.
3) Package width does not include inter lead flash or protrusion.
4) Lead popularity (bottom of leads after forming) shall be 0.10 millimeters max.
5) Pin 1 is lower left pin when reading top mark from left to right.

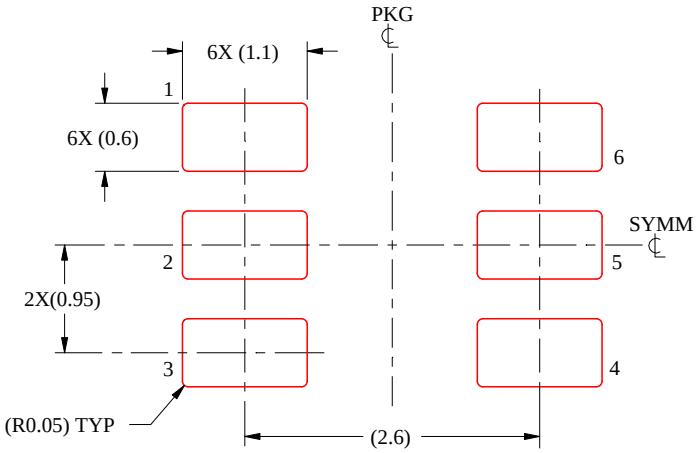
PAD LAYOUT



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE:15X



SOLDER MASK DETAILS



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE:15X

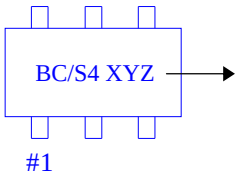
ORDER INFORMATION

Part Number	Voltage Range	Features	Operating Temperature	Package Type	Top Mark	SPQ
FH4630M6	4.0V ~ 18.0V	● Synchronous Buck(Step-down) ● 94% Efficiency ● Voltage reference: 0.6V ● Iout: 2.0A(Continuous)	-40℃ to 85℃	SOT-23-6L	BC X Y Z S4 X Y Z	3000PCS/Reel

Note:

- **FH4630** 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.

Device Name: SOT-23-6L



BC/S4: Device Code
XYZ: Date Code

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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Note:

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▲ Update by Jan.2022