600KHz, 16V，2A Synchronous Step-Down Converter

FEATURES

- High Efficiency: Up to 96%
- 600KHz Frequency Operation
- 2A Output Current
- No Schottky Diode Required
- 4.5V to 16V Input Voltage Range
- 0.6V Reference
- 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
- Thermal Shutdown
- Inrush Current Limit and Soft Start
- Available in SOT23-6 Package
- -40°C to +85°C Temperature Range

APPLICATIONS

- Distributed Power Systems
- Digital Set Top Boxes
- Flat Panel Television and Monitors
- Wireless and DSL Modems
- Notebook Computer

GENERAL DESCRIPTION

The STI3470 is a fully integrated, high–efficiency 2A synchronous rectified step-down converter. The STI3470 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 STI3470 requires a minimum number of readily available standard external components and is available in an 6-pin SOT23 ROHS compliant package.

TYPICAL APPLICATION

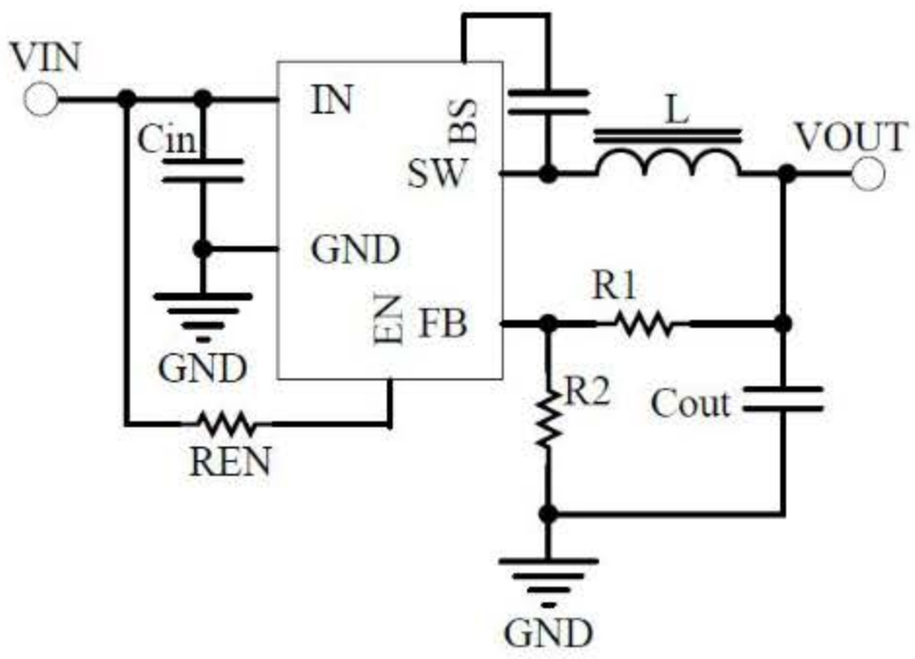
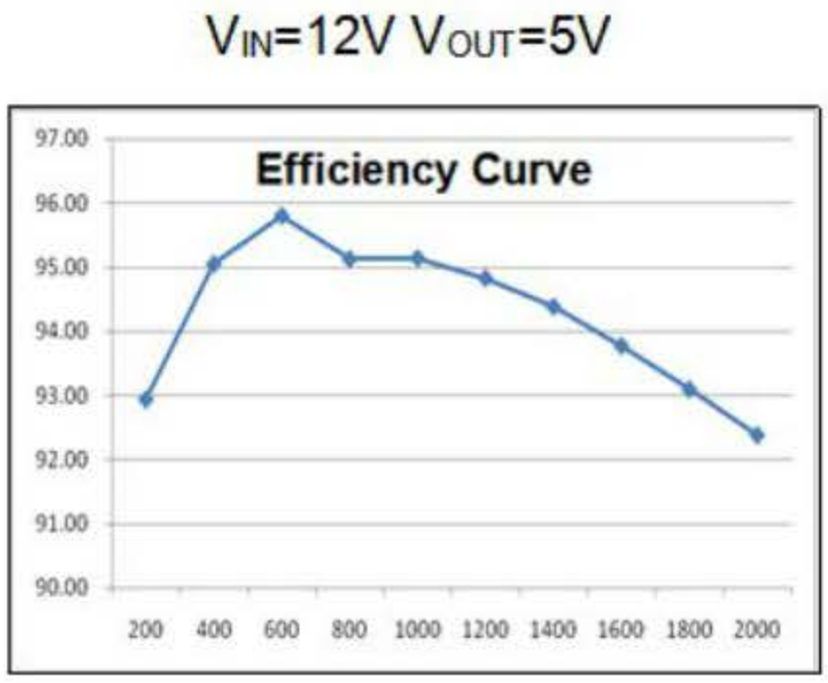


Figure 1. Basic Application Circuit

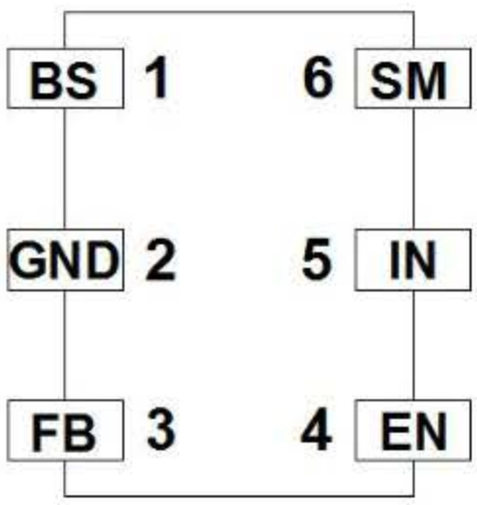


Efficiency vs Load Current

ABSOLUTE MAXIMUM RATINGS (Note 1)

Input Supply Voltage … -0.3V to 17V
EN,FB Voltage ……. …-0.3 to 6V
SW Voltage ……-0.3V to (Vin+0.5V)
BS Voltage …. (Vsw-0.3) to (Vsw+5V)
Operating Temperature Range … -40°C to +85°C
Lead Temperature(Soldering,10s) ……..+300°C
Storage Temperature Range …….-65°C to 150°C

PIN DESCRIPTION



STI3470/SOT23-6

PIN	NAME	FUNCTION
1	BS	Bootstrap. A capacitor connected between SW 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	VIN	Power supply Pin
6	SW	Switching Pin

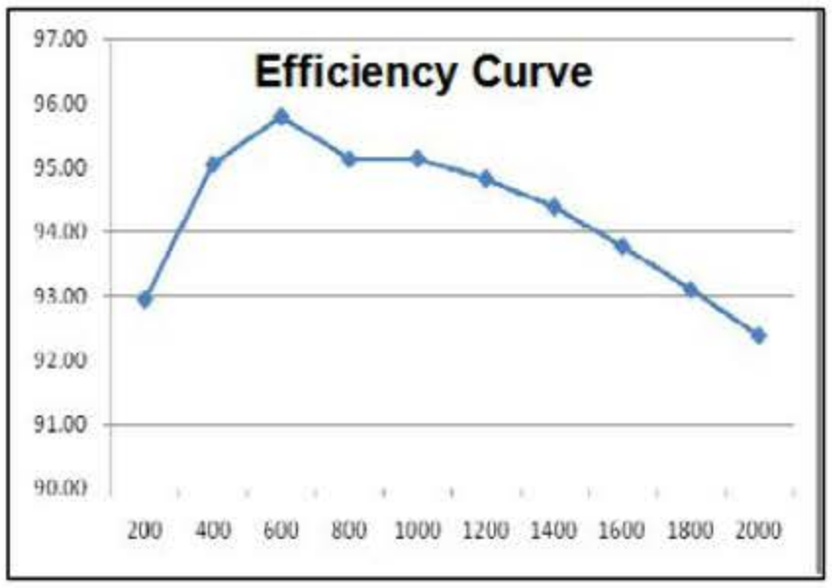
ELECTRICAL CHARACTERISTICS (Note 3)

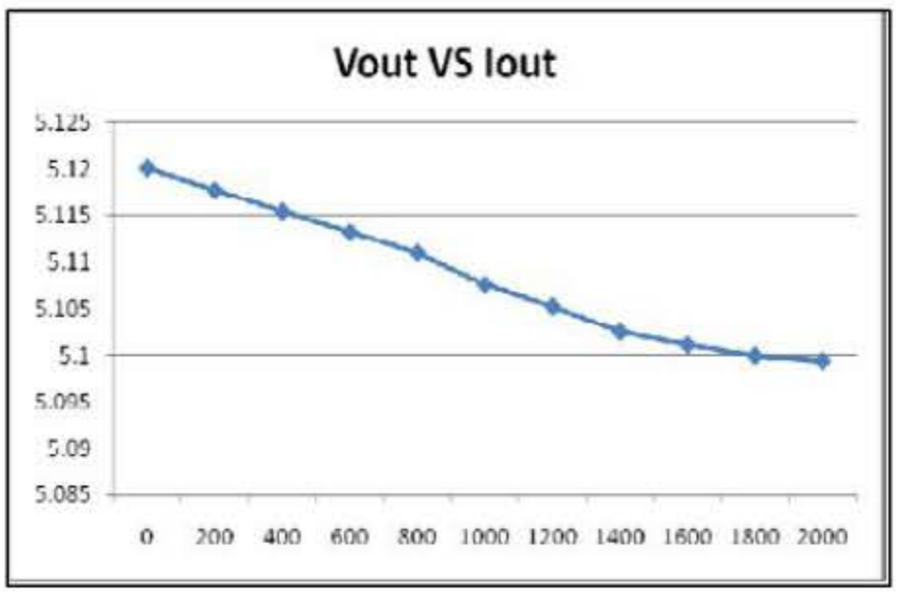
(V_{IN}=12V ,V_{OUT}=5V , T_A = 25°C, unless otherwise noted.)

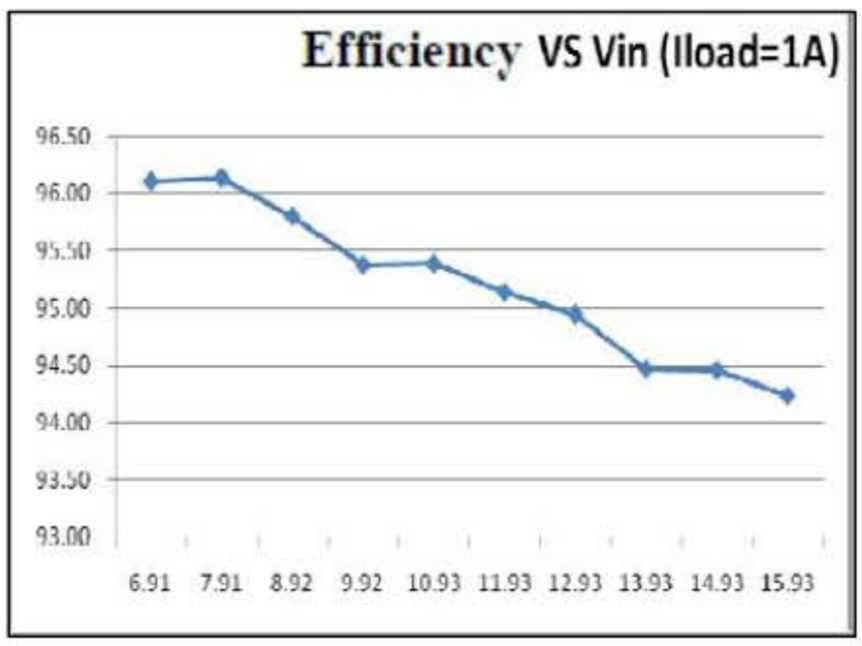
Parameter	Conditions	MIN	TYP	MAX	unit
Input Voltage Range		4.5		16	V
UVLO Threshold				4.4	V
Supply Current in Operation	VEN=2.0V, VFB=1.1V		0.4	0.6	mA
Supply Current in Shutdown	VEN =0 or EN = GND		1		uA
Regulated Feedback Voltage	T_A = 25°C, 4.5V≤VIN ≤18V	0.588	0.6	0.612	V
High-Side Switch On-Resistance			90		m Ω
Low-Side Switch On-Resistance			70		m Ω
High-Side Switch Leakage Current	VEN=0V, VSW=0V		0	10	uA
Upper Switch Current Limit	Minimum Duty Cycle		3		A
Oscillation Frequency			0.6		MHz
Maximum Duty Cycle	VFB=0.6V		92		%
Minimum On-Time			60		nS
Thermal Shutdown			160		℃

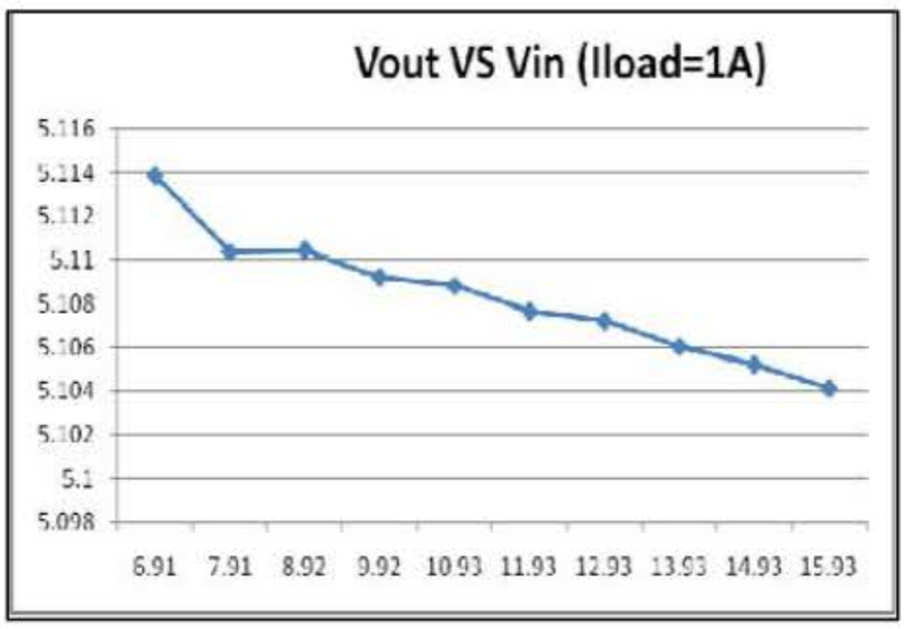
TYPICAL PERFORMANCE CHARACTERISTICS

VIN = 12V, VOUT = 5V, L = 10μH, TA = 25ºC, unless otherwise noted.









FUNCTIONAL BLOCK DIAGRAM

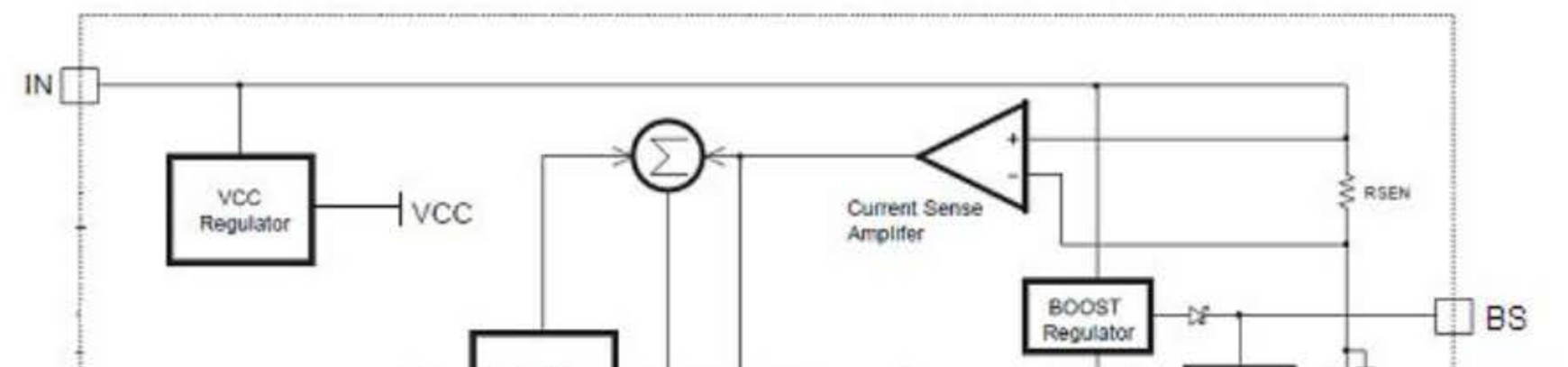
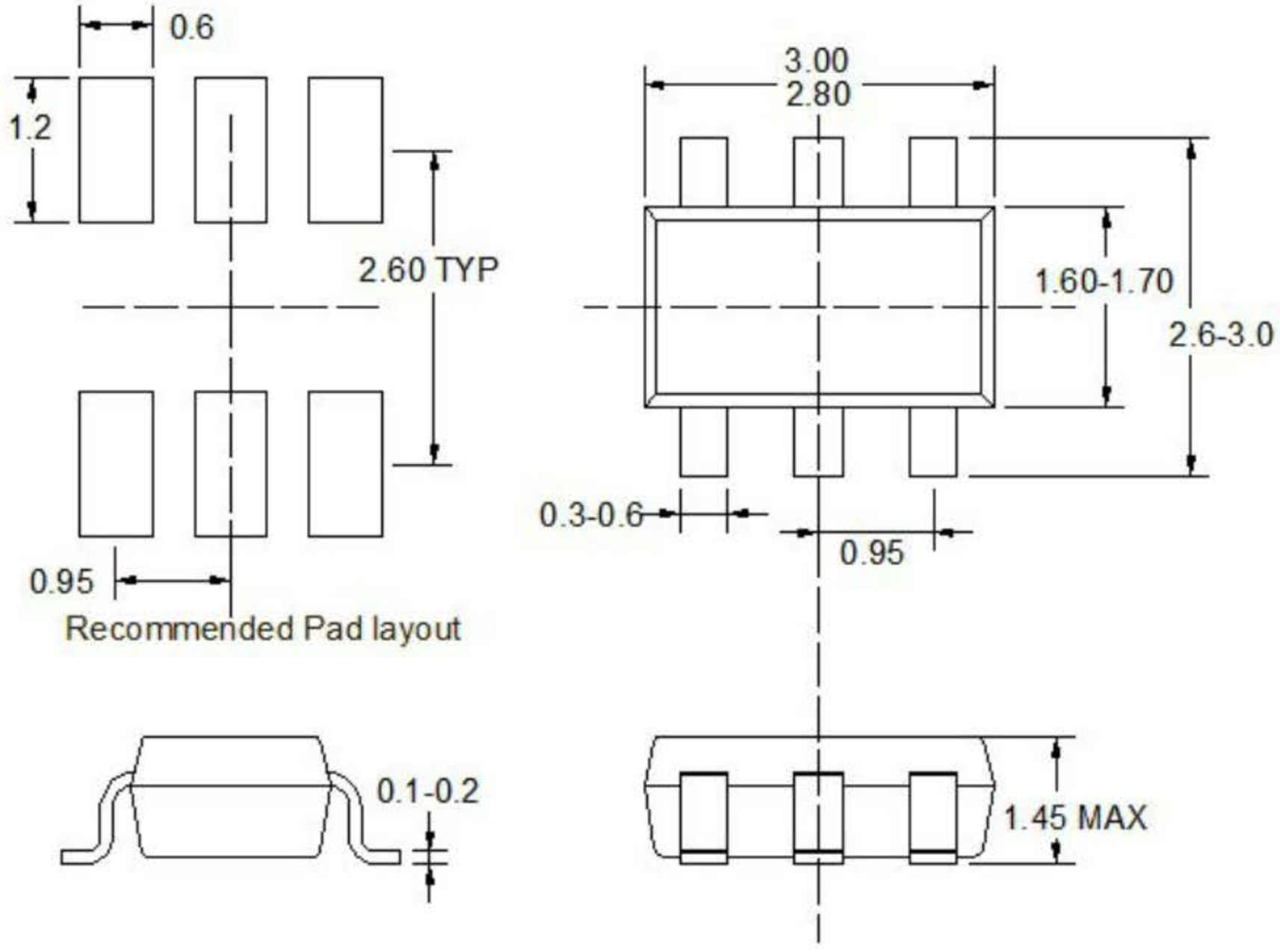


Figure 2. STI3470 Block Diagram

PACKAGE INFORMATION

SOT23-6



Notes: All dimensions are in millimeters.
All dimensions don't include mold flash & metal burr.