



## DESCRIPTION

The AMS1027 is a 5-pin thin SOT23 current mode step up converter intended for small, low power applications. The AMS1027 switches at 1.3MHz and allows the use of tiny, low cost capacitors and inductors 2mm or less in height. Internal soft start results in small inrush current and extends battery life. The AMS1027 operates from an input voltage as low as 2.5V and can generate 12V at up to 200mA from a 5V supply.

The AMS1027 includes under-voltage lockout, current limiting, and thermal overload protection to prevent damage in the event of an output overload. The AMS1027 is available in a small 5-pin SOT23 package.

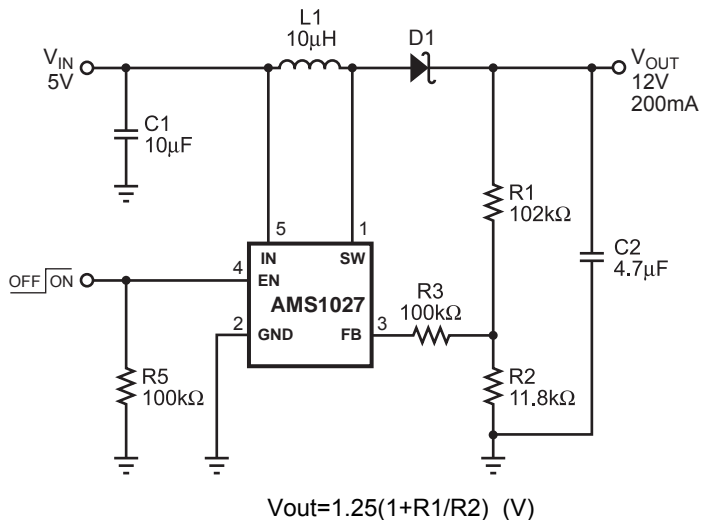
## FEATURES

- On Board Power MOSFET
- Uses Tiny Capacitors and Inductors
- 1.3MHz Fixed Switching Frequency
- Internally Compensated
- Internal Soft-Start
- Operates with Input Voltage as Low as 2.5V and Output Voltage as High as 22V
- 12V at 200mA from 5V Input
- UVLO, Thermal Shutdown
- Internal Current Limit
- Available in a SOT23-5 Package

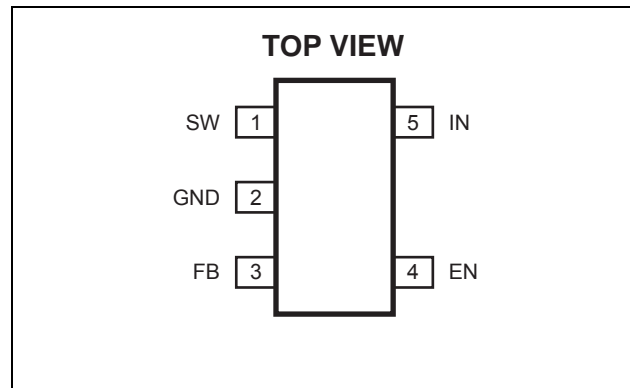
## APPLICATIONS

- Camera Phone Flash
- Handheld Computers and PDAs
- Digital Still and Video Cameras
- External Modems
- Small LCD Displays
- White LED Driver

## TYPICAL APPLICATION



## PACKAGE REFERENCE



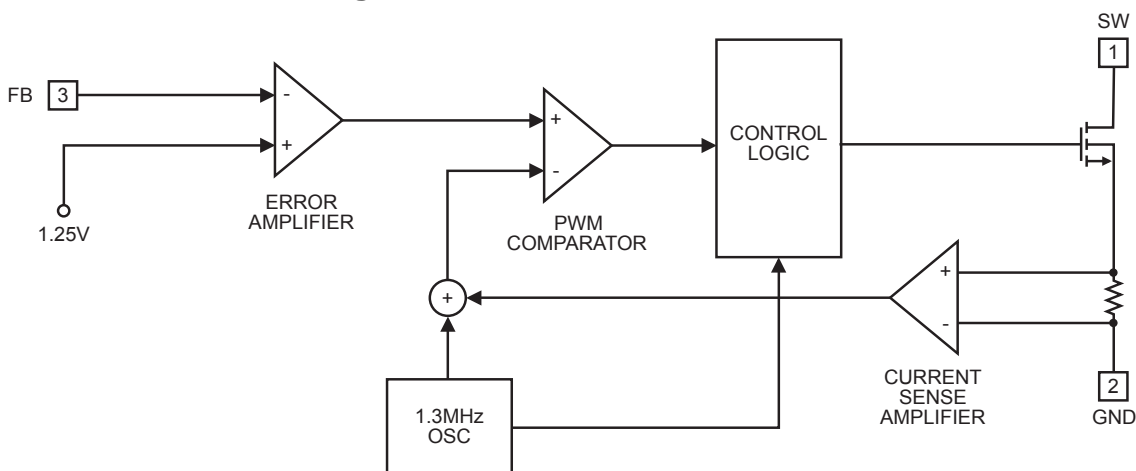
### ABSOLUTE MAXIMUM RATINGS

SW Pin ..... -0.5V to 25V  
 All Other Pins ..... -0.3V to 6.5V  
 Lead Temperature ..... 260°C  
 Storage Temperature ..... -65°C to +150°C

### Recommended Operating Conditions

Supply Voltage  $V_{IN}$  ..... 2.5V to 6V  
 Output Voltage  $V_{OUT}$  .....  $V_{in}$  to 22V  
 Operating Temperature ..... -40°C to +85°C

### Functional Block Diagram





## PIN FUNCTIONS

Pin #	Name	Function
1	SW	Power Switch Output. SW is the drain of the internal MOSFET switch. Connect the power inductor and output rectifier to SW. SW can swing between GND and 22V.
2	GND	Ground.
3	FB	Feedback Input. FB voltage is 1.25V. Connect a resistor divider to FB.
4	EN	Regulator On/Off Control Input. A high input at EN turns on the converter, and a low input turns it off. When not used, connect EN to the input source for automatic startup. <b>The EN pin cannot be left floating.</b>
5	IN	Input Supply Pin. Must be locally bypassed.

## ELECTRICAL CHARACTERISTICS

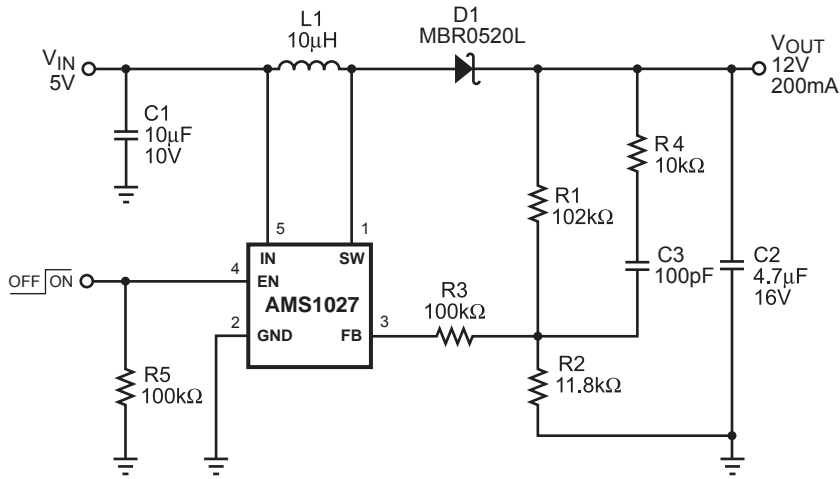
$V_{IN} = V_{EN} = 5V$ ,  $T_A = +25^\circ C$  unless otherwise specified.

Parameters	Symbol	Condition	Min	Typ	Max	Units
Operating Input Voltage	$V_{IN}$		2.5		6	V
Undervoltage Lockout				2.25	2.45	V
Undervoltage Lockout Hysteresis				92		mV
Supply Current (Shutdown)		$V_{EN} = 0V$		0.1	1	$\mu A$
Supply Current (Quiescent)		$V_{FB} = 1.3V$		635	850	$\mu A$
Switching Frequency	$f_{SW}$		1.0	1.3	1.5	MHz
Maximum Duty Cycle		$V_{FB} = 0V$	85	92		%
EN Threshold		$V_{EN}$ Rising	1.1	1.35	1.6	V
EN Threshold		$V_{EN}$ Rising, $V_{IN} = 2.5V$	0.8			V
EN Hysteresis				90		mV
EN Input Bias Current		$V_{EN} = 0V, 5V$		1		$\mu A$
FB Voltage	$V_{FB}$		1.21	1.25	1.29	V
FB Input Bias Current		$V_{FB} = 1.25V$	-100	-30		nA
SW On-Resistance	$R_{DS(ON)}$			0.5		$\Omega$
SW Current Limit				1.9		A
SW Leakage		$V_{SW} = 15V$			1	$\mu A$
Thermal Shutdown				160		$^\circ C$



## TYPICAL APPLICATION CIRCUITS

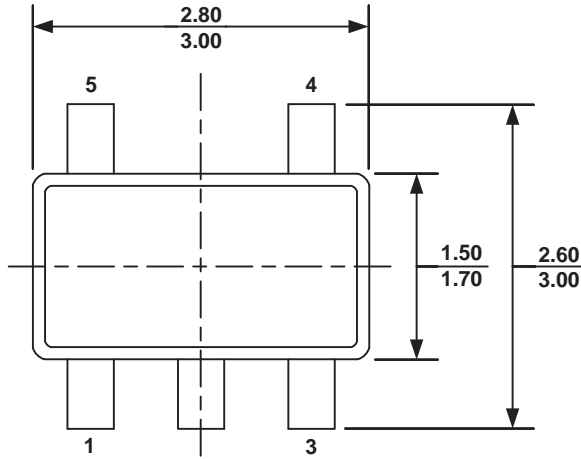
$V_{IN} = 5V$ ,  $V_{OUT} = 12V$ ,  $I_{OUT} = 200mA$  Boost Circuit



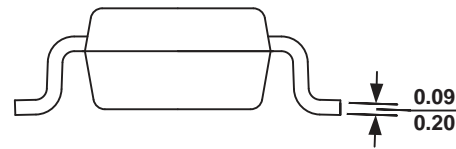


PACKAGE INFORMATION

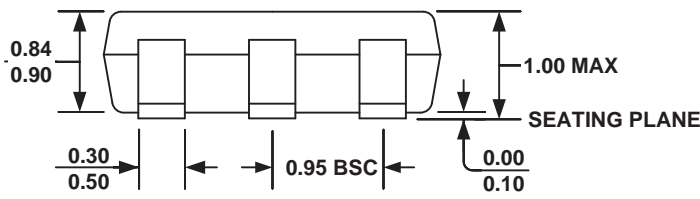
SOT23-5



TOP VIEW



SIDE VIEW



FRONT VIEW

NOTE:  
ALL DIMENSIONS ARE IN MILLIMETERS.