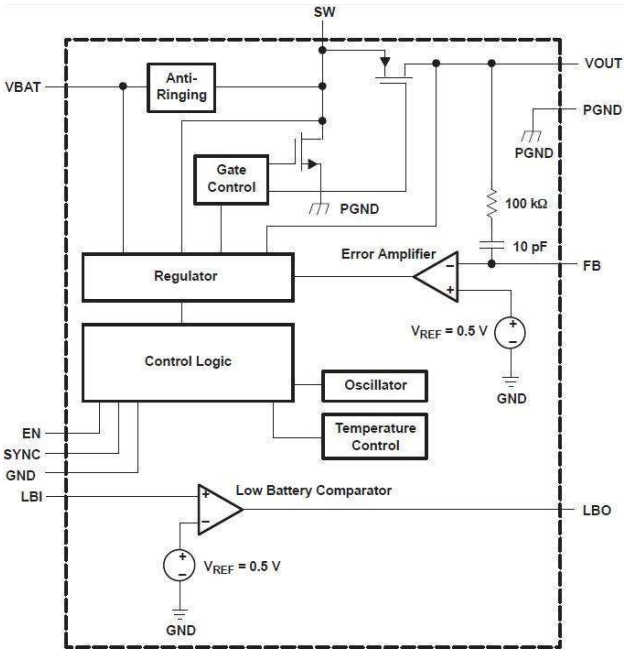
5.0V 2.1A 1.2MHz Synchronous Boost Converter

General Description

The **FH4203** devices provide a power supply solution for products powered by either a one-cell Li-Ion or Li-polymer, or a two to three-cell alkaline, NiCd or NiMH battery. The converter generates a stable output voltage that is adjusted by an external resistor divider or fixed internally on the chip. It provides high efficient power conversion and is capable of delivering output currents up to 1A at 5.0V at a supply voltage down to 1.8V. The implemented boost converter is based on a fixed frequency, pulse-width- modulation (PWM) controller using a synchronous rectifier to obtain maximum efficiency. At low load currents the converter enters Power Save mode to maintain a high efficiency over a wide load current range. The Power Save mode can be disabled, forcing the converter to operate at a fixed switching frequency. It can also operate synchronized to an external clock signal that is applied to the SYNC pin. the maximum peak current in the boost switch is limited to a value of 5000 mA.

The converter can be disabled to minimize battery drain. During shutdown, the load is completely disconnected from the battery. A low-EMI mode is implemented to reduce ringing and, in effect, lower radiated electromagnetic energy when the converter enters the discontinuous conduction mode. The device is packaged in a 16-pin QFN package measuring 4mm x4mm(RSA) or in a 16-pin TSSOP16.or in a DFN3x3-12 packages.

Functional Block Diagram



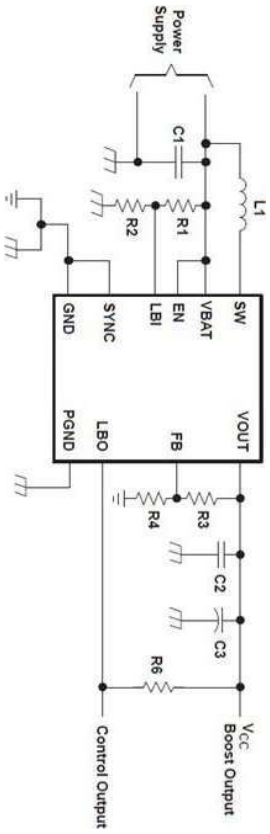
Features

- 92% Efficient Synchronous Boost Converter With 1000-mA Output Current From 1.8V Input
- Device Quiescent Current: 20μA (Typ)
- Input Voltage Range: 1.8V to 5.5-V
- Adjustable Output Voltage Options Up to 5.5V
- Power Save Mode for Improved Efficiency at Low Output Power
- Low Battery Comparator
- Low EMI-Converter (Integrated Antiringing Switch)
- Load Disconnect During Shutdown
- Over-Temperature Protection
- Available in a Small 4 mm x 4 mm QFN-16 or in a TSSOP-16 or in a DFN3*3-12 package

Applications

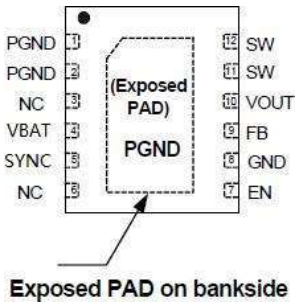
- Power Bank
- Tablet
- Portable Equiment

Type Application Circuit

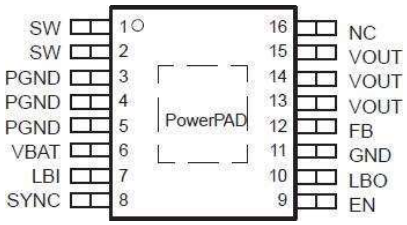


FH4203 (TSSOP16/QFN-16)

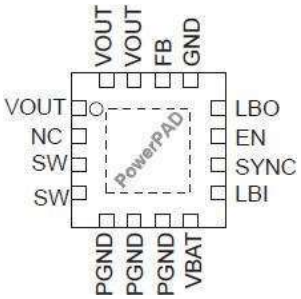
Pin Configurations



DFN3*3-12



TSSOP-16



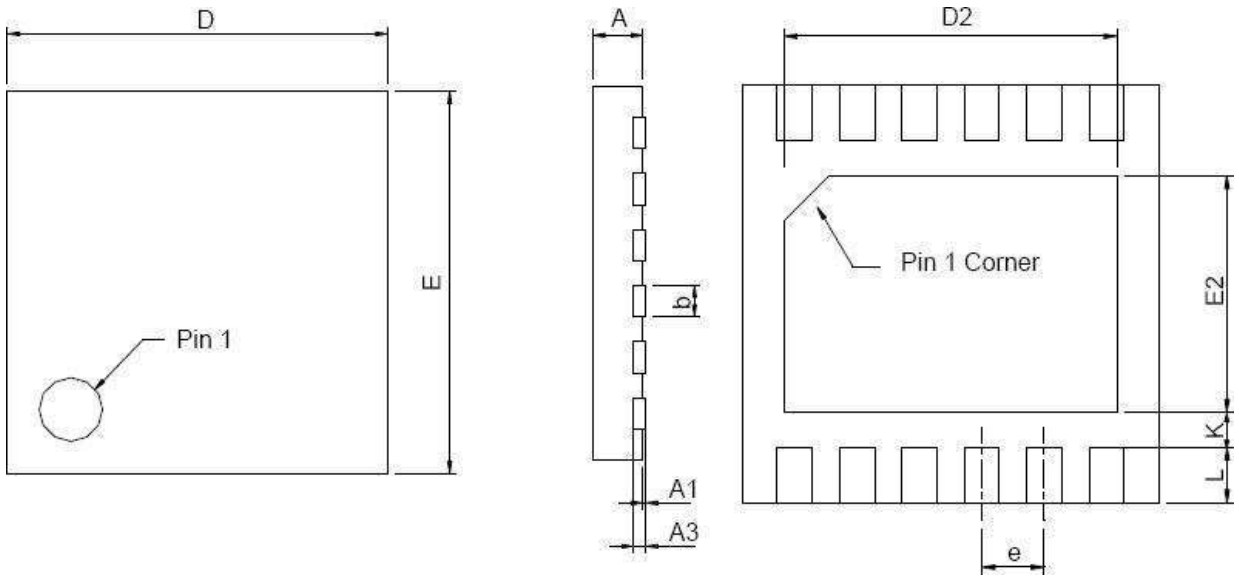
QFN-16

Pin Description

NO.			NAME	FUNCTION
DFN-12	TSSOP-16	QFN-16		
11,12	1,2	3,4	SW	Boost and rectifying switch input
1,2	3,4,5	5,6,7	PGND	Power ground
4	6	8	VBAT	Supply voltage
-	7	9	LBI	Low battery comparator input (comparator enabled with EN)
5	8	10	SYNC	Enable/disable power save mode (1/VBAT disabled, 0/GND enabled,clock signal for synchronization)
7	9	11	EN	Enable input. (1/VBAT enabled, 0/GND disabled)
-	10	12	LBO	Low battery comparator output (open drain)
8	11	13	GND	Control/logic ground
9	12	14	FB	Voltage feedback
10	13,14,15	1,15,16	VOUT	DC-DC output
3,6	16	2	NC	Not connected

Package Information

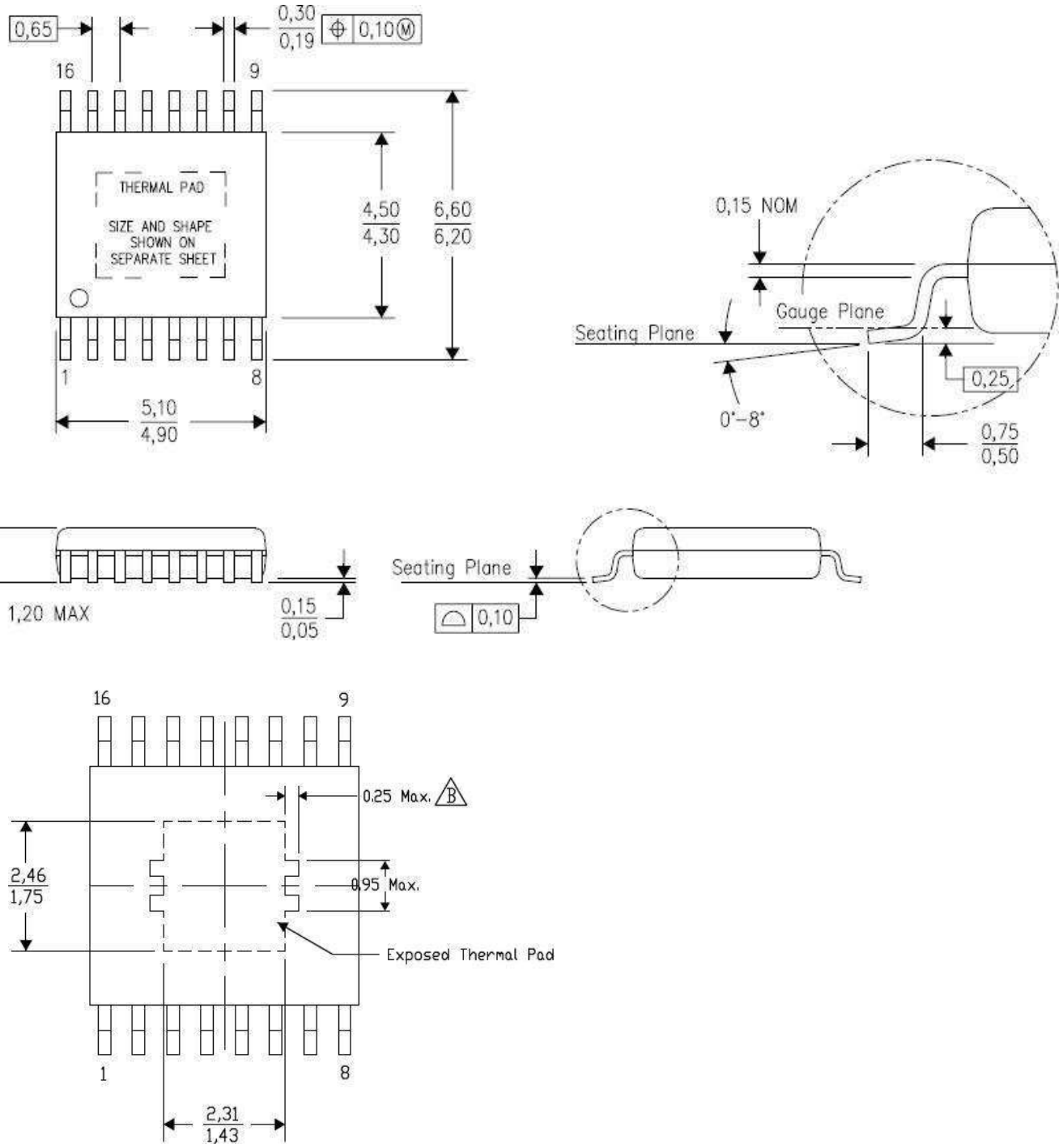
- **DFN3x3-12**



SYMBOL	DFN3x3-12			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.80	1.00	0.031	0.039
A1	0.00	0.05	0.000	0.002
A3	0.20 REF		0.008 REF	
b	0.18	0.30	0.007	0.012
D	2.90	3.10	0.114	0.122
D2	2.20	2.70	0.087	0.106
E	2.90	3.10	0.114	0.122
E2	1.40	1.75	0.055	0.069
e	0.45 BSC		0.018 BSC	
L	0.30	0.50	0.012	0.020
K	0.20		0.008	

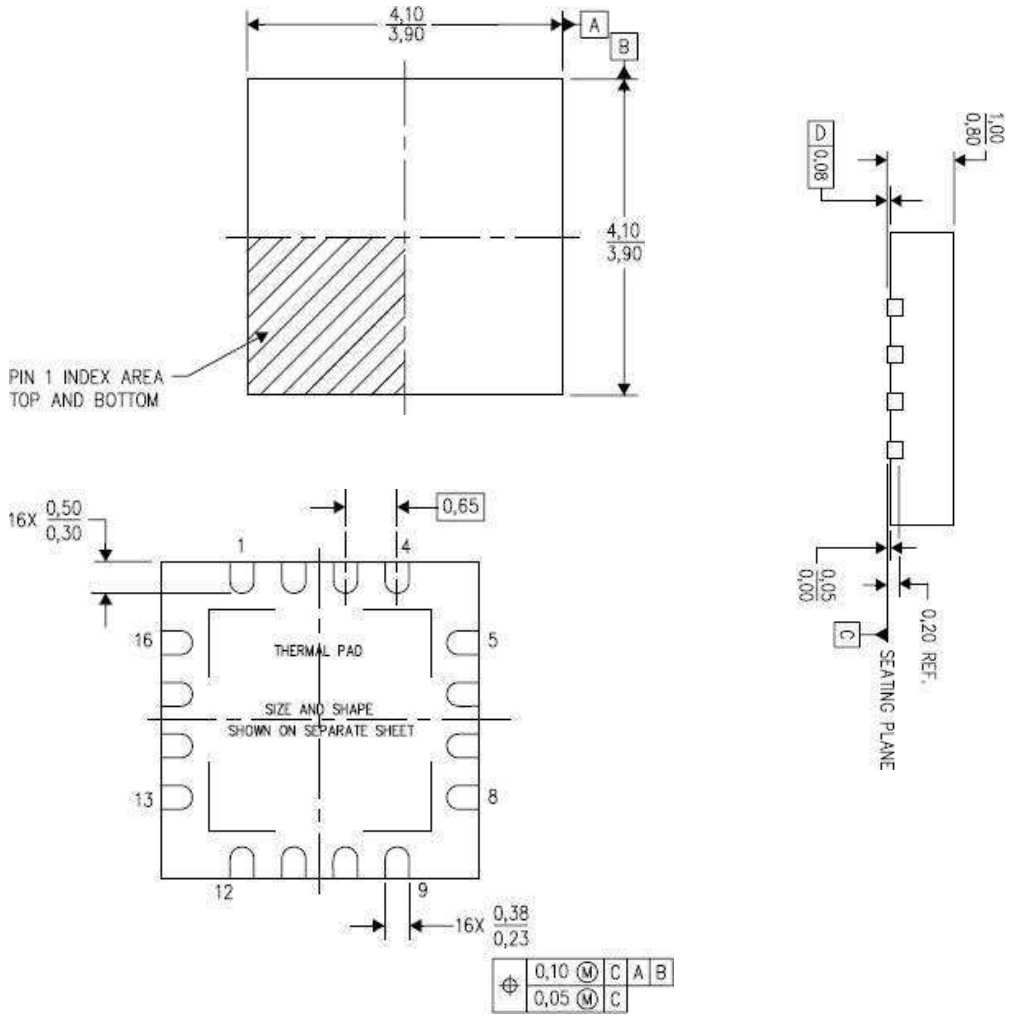
Package Information(Cont.)

- **TSSOP-16L**

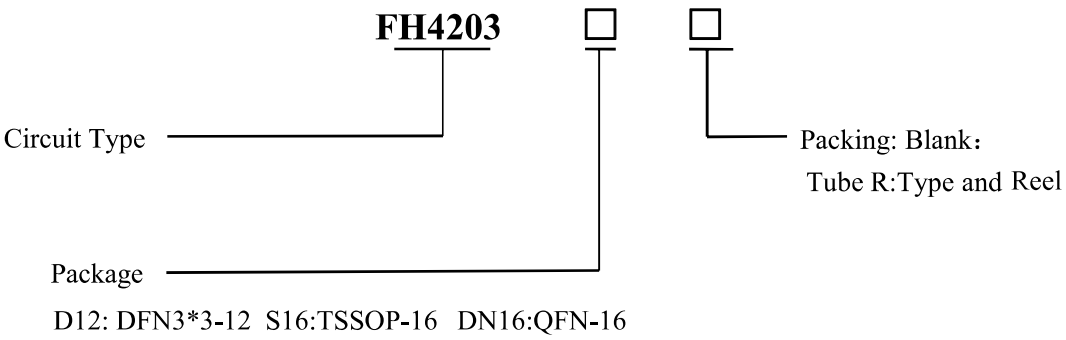


Package Information(Cont.)

- **QFN-16L**



Ordering Information



Update by Oct-2017