Low Noise, Iout: 0.25A Regulated Charge Pump DC-DC Converter

Description

The FH3200 is a low noise, constant frequency (1.2MHz) switched capacitor voltage doubler. It produces a regulated output voltage from 2.7V to 5.0V input with up to 250mA of output current. Low external parts count (one flying capacitor and two small bypass capacitors at VIN and VOUT) make the FH3200 ideally suited for small, battery-powered applications.

The new charge-pump architecture maintains constant switching frequency to no load and reduces both output and input ripple. The FH3200 have thermal shutdown capability and can survive a continuous short circuit from VOUT to GND. Built-in soft-start circuitry prevents excessive inrush current during start-up.

The FH3200 is available in the 6-pin SOT-23 package.

Features

- Fixed 5.0V± 4% Output
- VIN Range: 2.7V ~ 5.0V
- Output Current: up to 250mA (V_{IN} =4.5V)
- Low Noise Constant Frequency Operation
- Shutdown Current: <1.0μA
- Short-Circuit Protection
- Soft-start
- No Inductors
- Available in Low Profile 6-Lead SOT-23 Package

Applications

- White LED Backlighting
- Li-Ion Battery Backup Supplies
- Local 3.0V to 5.0V Conversion
- Smart Card Readers
- PCMCIA Local 5.0V Supplies

Device Information (1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
FH3200	SOT-23 (6L)	2.90mm x 1.60mm

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

TYPICAL APPLICATION

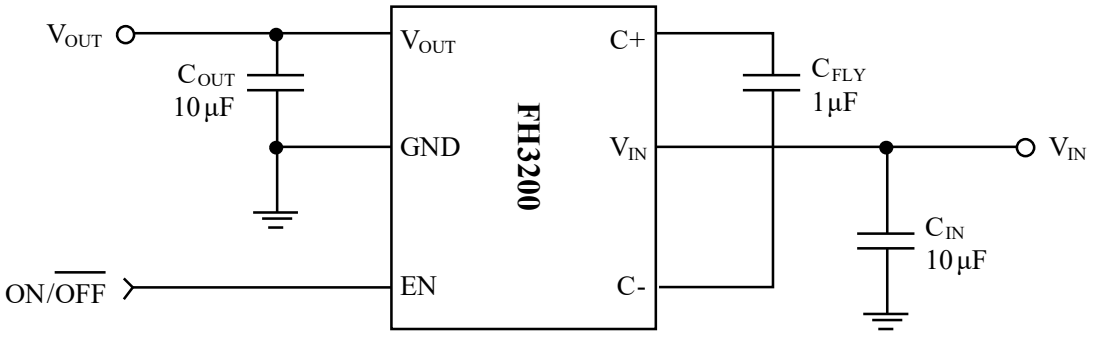
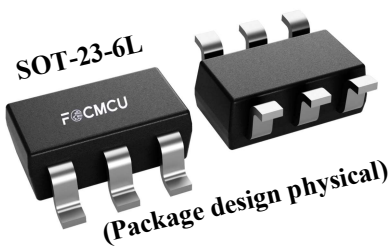
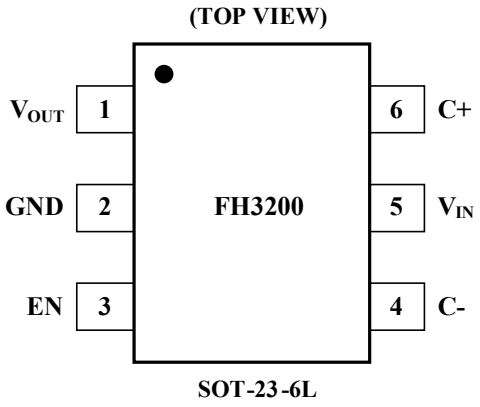


Figure 1. FH3200 Typical Application



■ Pin Assignment and Description



PIN	NAME	DESCRIPTION
1	VOUT	Output
2	GND	Ground
3	EN	ON/OFF Control (High Enable)
4	C-	Flying Capacitor Negative Terminal.
5	VIN	Input
6	C+	Flying Capacitor Positive Terminal.

■ Pin Functions

VOUT (Pin 1): Regulated Output Voltage. VOUT should be bypassed with a low ESR ceramic capacitor providing at least 10μF of capacitance as close to the pin as possible for best performance.

GND (Pin 2): Ground. These pins should be tied to a ground plane for best performance. The exposed pad must be soldered to PCB ground to provide electrical contact and optimum thermal performance.

EN (Pin 3): Active Low Shutdown Input. This pin must not be allowed to float.

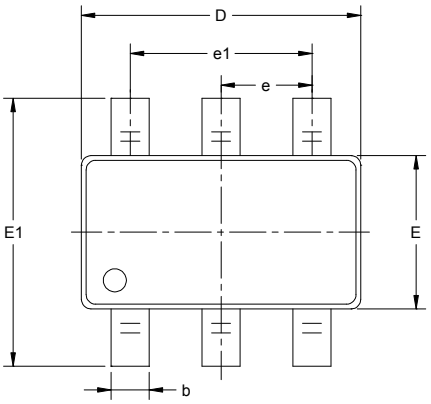
C- (Pin 4): Flying Capacitor Negative Terminal.

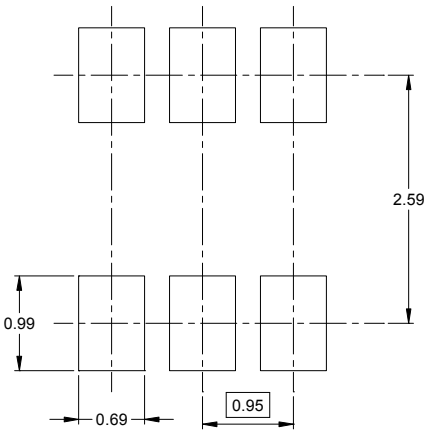
VIN (Pin 5): Input Supply Voltage. VIN should be bypassed with a low ESR ceramic capacitor providing at least 10μF of capacitance as close to the pin as possible for best performance.

C+ (Pin 6): Flying Capacitor Positive Terminal.

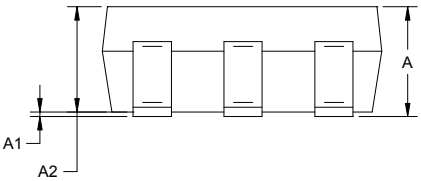
■ Packaging Information

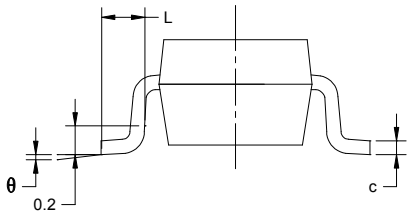
- SOT-23-6L Package Outline Dimension





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	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

■ Ordering Information

Part Number	Input Voltage	Features	Operating Temperature	Package Type	Top Mark	SPQ
FH3200C50M6	2.7V ~ 5.0V	● DC-DC charge pump ● Output Voltage: 5.0 (±4%) ● Output current: 250mA ● Switch frequency: 1.2MHz (typ.)	-40℃ to +85℃	SOT-23-6L	HX Y W L	3000EA/Reel

Note:

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RoHS Compliant

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