Super Charge Pump DC-DC Switched Capacitor Voltage Converter

PRELIMINARY DATASHEET

Datasheet Brierf

Description

FH7660C is a charge pump dc-dc voltage converter using AL-gate CMOS technology and optimization design. It converters a +2.5V to +10V input to a corresponding -2.5V to -10V output using only two external capacitors, eliminating inductors and their associated cost, size and EMI.

The on-board oscillator operates at a nominal frequency of 10KHz. Operation below 10KHz (for lower supply current applications) is possible by connecting an external capacitor from OSC to ground.

The FH7660C is available 8-Pin Small Outline (SOP) packages in commercial and extended temperature ranges.

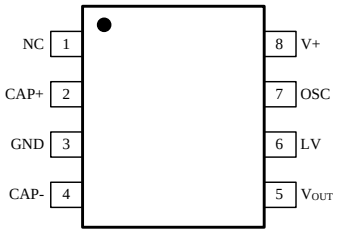
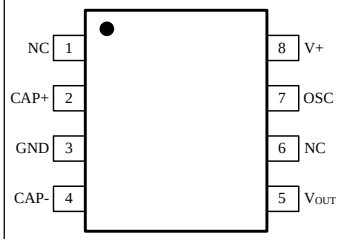
Key Features

- Wide input voltage range: 2.5V ~ 10V
- Converts +5V Logic supply to ±5V
- Efficient voltage conversion: 99.9%
- Good power efficiency: 98%
- Low power supply: 40uA @5V input
- Easy to use: only two external capacitors required
- Compatible with RS232 negative power supply standard
- High ESD protection: up to 3kV
- No Dx diode needed for high voltage operation
- Package : SOP-8L
- Commercial Device Guaranteed Over -40°C to 85°C Temperature Range

Applications

- RS-232 Negative Power Supply
- Conversion of 5V to ±5V Supplies
- Voltage Multiplication: VOUT = ±nVIN
- Supply Splitter: VOUT = ±VS/2
- Automotive Applications
- Battery Systems with 9V Wall Adapters/Chargers

Pin Configuration

FH7660CS8	FH7660CS8A
	
SOP-8L	SOP-8L

TEST CIRCUITS

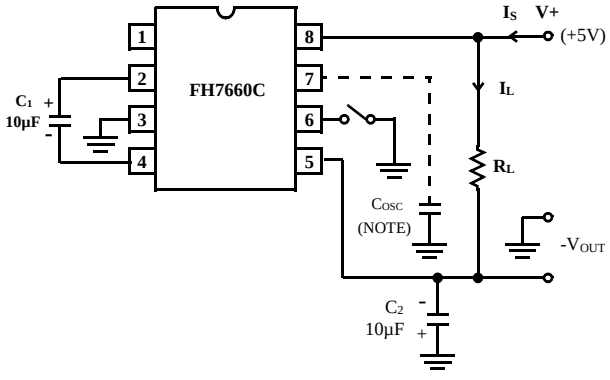
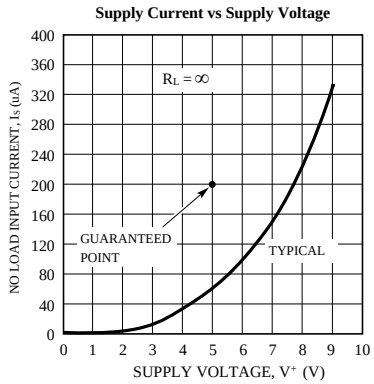


Figure 1. Typical Operating Circuit



Pin Assigment

Pin Number		Pin Name	Function
FH7660CS8	FH7660CS8A		
1	1	NC	No connection 无连接
2	2	CAP^+	Connecting external capacitor(+) pin 连接到外部电容器 C1 的正端
3	3	GND	Ground pin 连接到电源负极 GND
4	4	CAP-	Connecting external capacitor(-) pin 连接到外部电容 C1 的负端
5	5	V_{OUT}	Voltage output pin 连接到外部电容 C2 的负端，输出电压通过这个引脚
6		Low Voltage(LV)	Low voltage selection pin 悬空可启动稳压器,连接到 VSS 可以绕过稳压器并改善低电压的应用
	6	NC	No connection 无连接
7	7	OSC	Connecting oscillation capacitor pin 外部频率输入脚,也可以连接到外部电容来降低开关频率
8	6	V^+	Power supply pin 连接到电源正极

Block Diagram

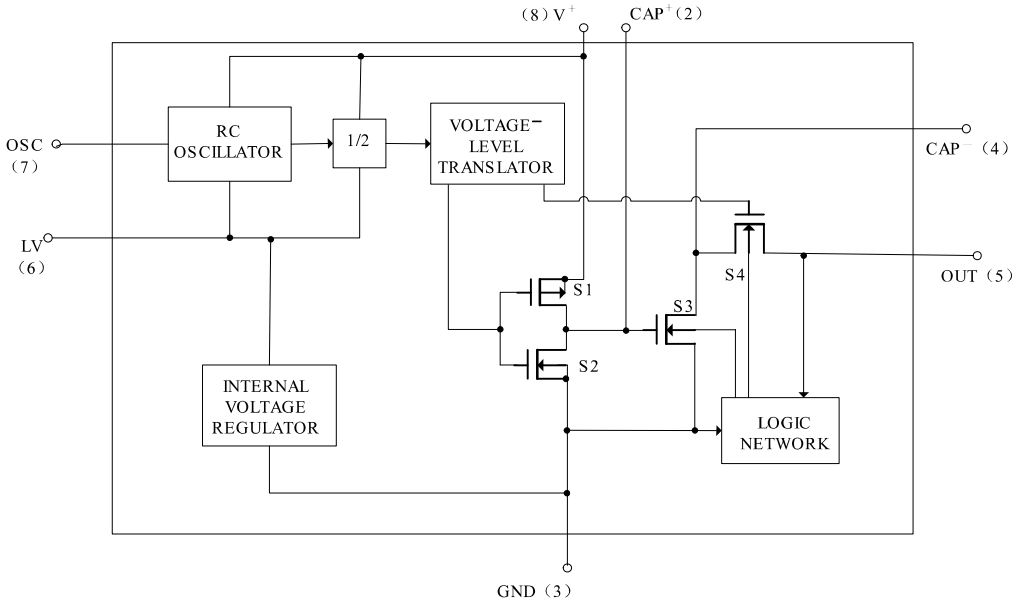
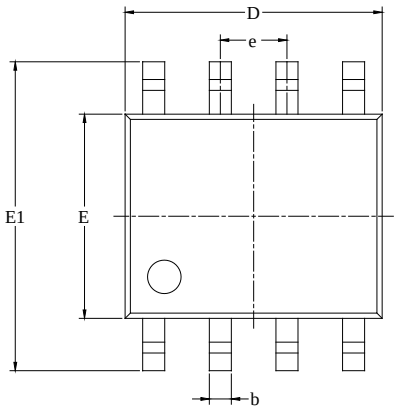
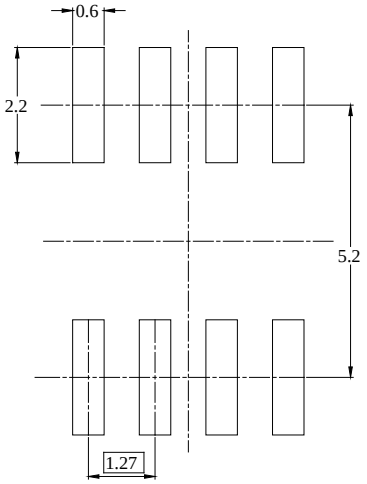


Figure 2. FH7660C Block diagram

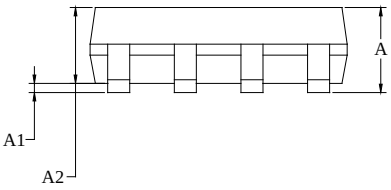
PACKAGE OUTLINE DIMENSIONS

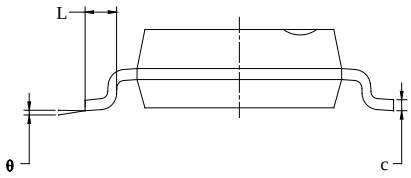
Type: SOP-8L





RECOMMENDED LAND PATTERN (Unit: mm)





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.27 BSC		0.050 BSC	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

ORDERING INFORMATION

Part Number	Input Voltage	Function	Operating Temperature	Package Type	Top Mark	SPQ
FH7660CS8	2.5 ~ 10.0V	● Charge pump ● +5V logic supply to ±5V ● Efficient voltage: 99.9% ● F_{OSC}: 10kHz	-40°C to +85°C	SOP-8L	FH7660C YY MM LL	3000EA/Reel
FH7660CS8A	2.5 ~ 10.0V		-40°C to +85°C	SOP-8L	FH7660CA YY MM LL	3000EA/Reel

Note:

- **FH7660CS8 | FH7660CS8A** 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.
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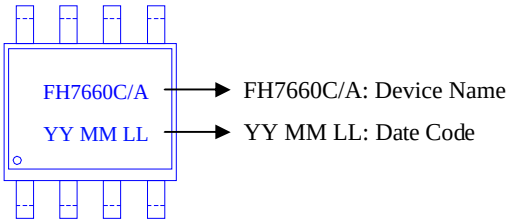
Device Name: SOP-8L



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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▲ Update by Sep.2024