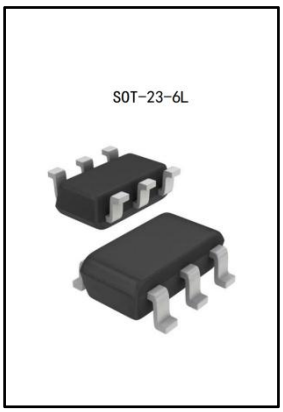
Super-Small Package VFM Control Step-up

Switching Regulator SSP8711

General Description

The SSP8711 is a constant frequency, 6-pin SOT23 current mode step-up converter intended for small, low power applications. The SSP8711 switches at 1.2MHz and allows the use of tiny, low cost capacitors and inductors. Internal soft-start results in small inrush current and extends battery life.

The SSP8711 features automatic shifting to pulse frequency modulation mode at light loads. The SSP8711 includes under-voltage lockout, current limiting, and thermal overload protection to prevent damage in the event of an output overload.



Features

- Integrated 80mΩ Power MOSFET
- 2V to 24V Input Voltage
- 1.2MHz Fixed Switching Frequency
- Internal 4A Switch Current Limit
- Adjustable Output Voltage
- Internal Compensation
- Up to 24V Output Voltage
- Automatic Pulse Frequency Modulation Mode
- 20/80mΩ Low RDS(ON) Internal MOSFETs
- At Light Loads
- Up to 91% Efficiency

Applications

- Battery-Powered Equipment
- Set-Top Boxed
- LCD Bais Supply
- DSL and Cable Modems and Routers
- Networking cards powered from PCI or PCI express slots

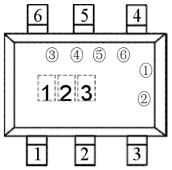
Order specification

SSP8711P ①②③

Designator	Symbol	Description
①	A	Feedback voltage 0.6V
②	M	Package SOT23-6L
③	R	Embossed Tape: Standard Feed
	L	Embossed Tape: Reverse Feed

Part No	Package	Manner of Packing	Devices per bag/reel
SSP8711	SOT23-6L	Reel	3000PCS/reel

Marking Rule



1. **Represents the feedback voltage**

Symbol	Product Name
A	Feedback voltage 0.6V

2. **Represents the package types**

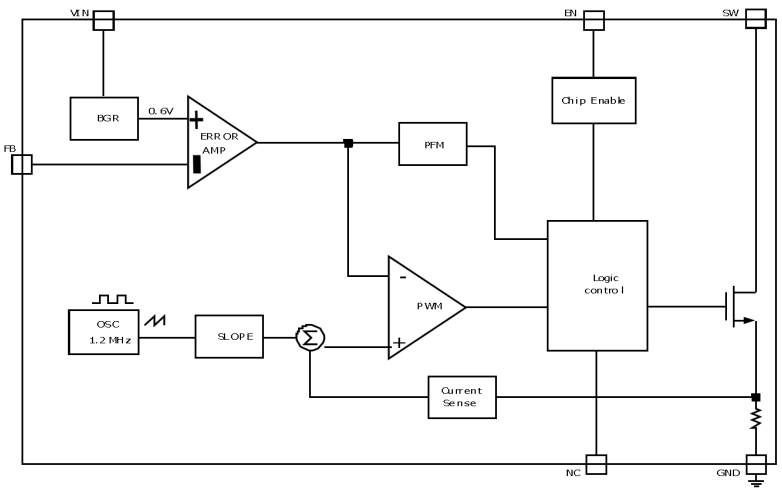
Symbol	Description
M	Package SOT23-6L

3. **Represents the technological processes change**

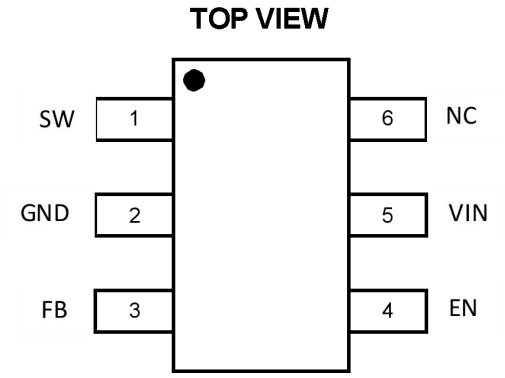
0-9，A-Z; 0-9，A-Z mirror writing，repeated（G，I，J，O，Q，W exception）

①②③④⑤⑥ **Represents the assembly lot No.**

Block Diagram and Pin Arrangement Diagram



Pin Assignment



Pin No.	Pin Name	Function
1	SW	Switching Output
2	GND	Common Ground
3	FB	Feedback
4	EN	Enable Control，“H”: Active High “L”: Step-up stopped
5	VIN	Power Input
6	NC	No Connect

Absolute Maximum Ratings

Parameter	Symbol	Maximum Rating	Unit
Input voltage	VIN	Vss-0.3～Vss+24	V
Output voltage	VOUT	Vss-0.3～Vss+24	V
	VSW	Vss-0.3～Vss+24	V
Output Current	ISW	4	A
Power Dissipation	PD	250	mW
Operating ambient temperature	Topr	-40～＋80	°C
Storage ambient temperature	Tstg	-40～＋125	°C

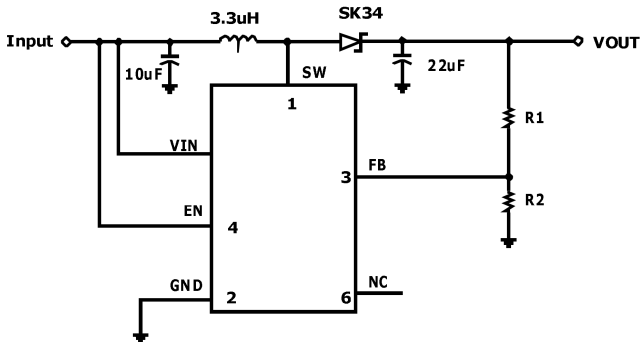
Note: The absolute maximum ratings are rated values exceeding which the product could suffer physical damage. These values must therefore not be exceeded under any conditions.

Electrical Characteristics

VIN=3.6V， VOUT=5V , Ta=25°C,unless specified otherwise.

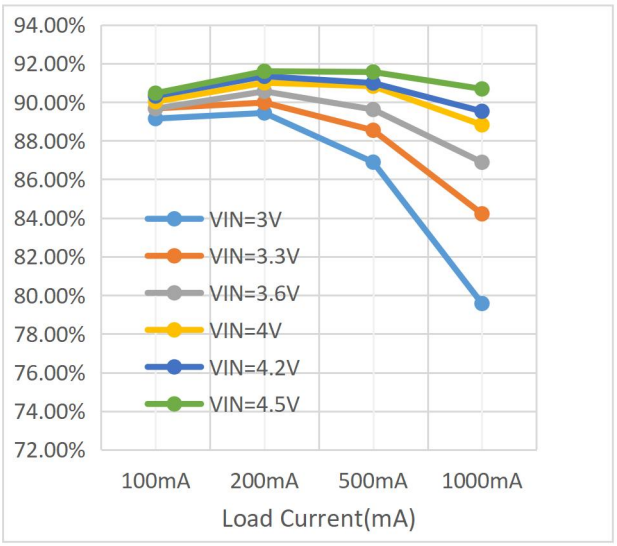
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output voltage	VOUT	-	2.5	-	24	V
Input voltage	VIN	-	2	-	24	V
VIN under voltage lockout threshold	UVLO_F	-	1.7	-	2	V
VIN under voltage lockout hysteresis	UVLO_HYS	-	-	100	-	mV
Shutdown mode	IOFF	VEN<VENL	-	0.01	1	μA
I Quiescent Current (PFM)	I_PFM	VIN=3.6V, VOUT=5V	-	100	-	μA
FB Voltage	VR	VOUT=5V	588	600	612	mV
Switching frequency	FS	IOUT=1.2A	-	1.2	-	MHz
Efficiency	EFFI	VIN=3.6V, VOUT=5V IOUT=200mA	-	90	-	%
Internal power MOFFET resistance	RDSON	VIN=3.6V, ISW=2A	-	80	150	mΩ
SW Current Limit	ISW	VIN=4.2V	-	4	-	A
Line regulation	ΔVLINE	IOUT=1A, VIN=3V~4.2V	-	0.4	-	%
Load regulation	ΔVLOAD	VIN=3.6V, IOUT=10mA~1.2A	-	0.4	-	%
EN Input High Voltage	VENH	VIN=3.6V	1.2	-	-	V
EN Input Low Voltage	VENL	VIN=3.6V	-	-	0.4	V
SW Leakage	ISW_L	VSW=20V			1	μA
Thermal Shutdown	TSHD	VIN=3.6V, IOUT=10mA	-	200	-	℃

Application Circuits

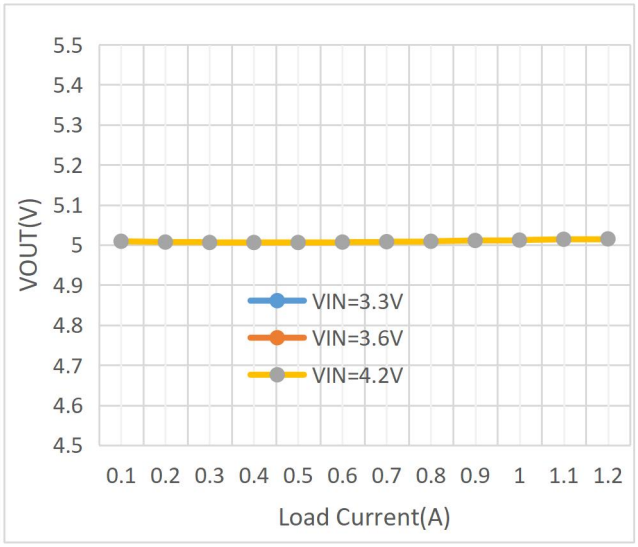


Typical Performance Characteristics

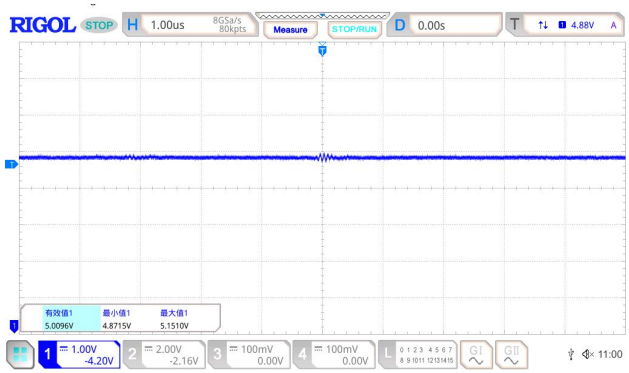
Test Conditions:Vout=5V,Cout=100μF,Cin=47μF,L=4.7μH,Ta=25℃，unless otherwise indicated.



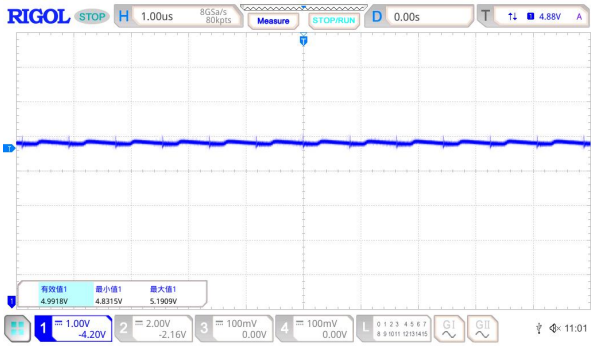
Efficiency vs. Load Current
Vout=5V



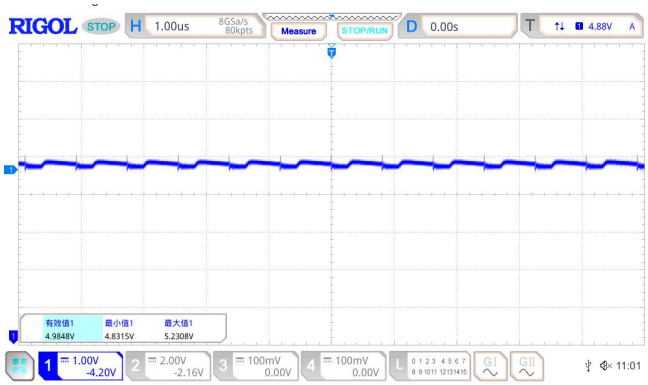
Line/Load Regulation
Vout=5V



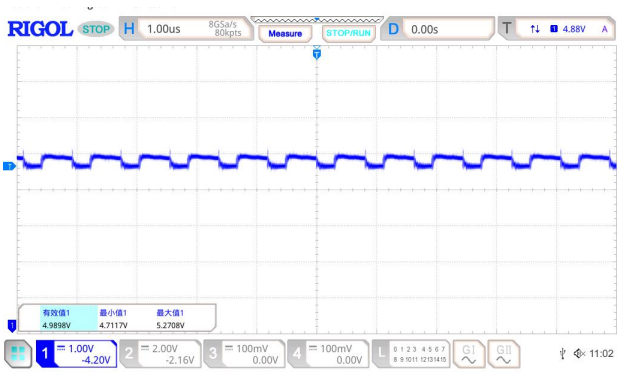
Vout=5V@NO Load (Vin=3.6V)



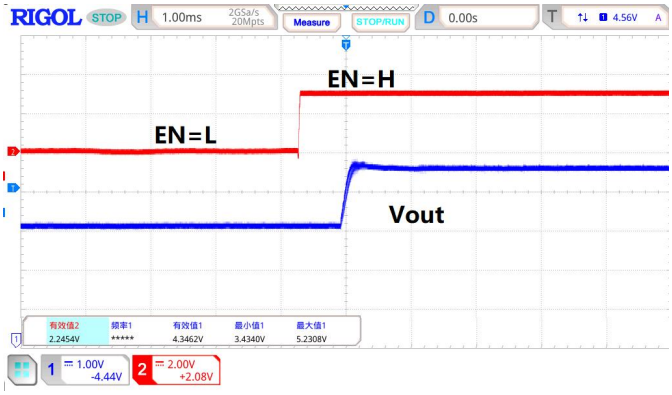
Vout=5V@Io=100mA (Vin=3.6V)



Vout=5V@Io=200mA (Vin=3.6V)

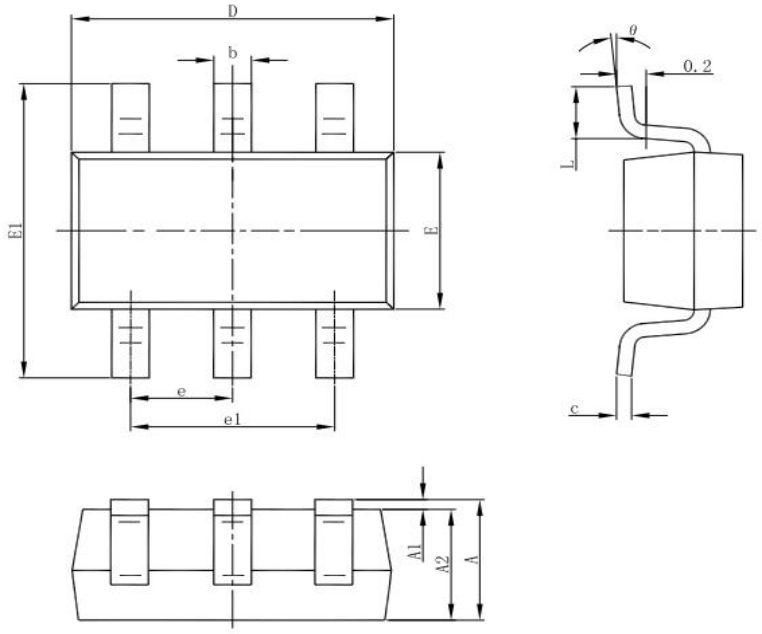


Vout=5V@Io=500mA (Vin=3.6V)



Vin=3.6V,Vout=5V

Package Information（SOT-23-6L）



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°

Special Instructions

The company reserves the right of final interpretation of this specification.

Version Change Description

Version：V1.0	Author：Yang	Time：2022.8.9

Modify the record：

1. Re-typesetting the manual and checking some data

Statement

The information in the usage specification is correct at the time of publication, Shanghai Siproin Microelectronics Co. has the right to change and interpret the specification, and reserves the right to modify the product without prior notice. Users can obtain the latest version information from our official website or other effective channels before confirmation, and verify whether the relevant information is complete and up to date.

With any semiconductor product, there is a certain possibility of failure or failure under certain conditions. The buyer is responsible for complying with safety standards and taking safety measures when using the product for system design and complete machine manufacturing. The product is not authorized to be used as a critical component in life-saving or life-sustaining products or systems, in order to avoid potential failure risks that may cause personal injury or property loss.