Features

- External parts: Coil, capacitor
- Output voltage: Settable to between 2.1V to 5.5V in 0.1V steps
- Maximum Oscillation frequency :350KHz
- Accuracy of ±2%
- High efficiency :95%
- Package:SOT23-5,SOT89

Applications

- Digital cameras
- Electronic notebooks and PDAS
- Portable CD/MD players
- Cameras , video equipment
- Communications equipment
- Power supply for microcomputers

General Description

The HE9118 Series is a Synchronous step-up DC/DC Converter with PFM Control. With the HE9118 Series, a step-up switching DC/DC converter can be configured by using an external coil、capacitor. The built-in MOSFET is turned off by a protection circuit when the voltage at the LX pin exceeds the limit to prevent it from being damaged.

Selection Table

Part No.	Output Voltage	Package	Marking
HE9118Axx	2.7V	SOT23-5 SOT89	
HE9118Axx	3.0V		
HE9118Axx	3.3V		
HE9118Axx	3.6V		
HE9118Axx	5.0V		

Order Information

HE9118①②③④⑤

Designator	Symbol	Description
①	A	Standard
②③	Integer	Output Voltage (2.1~5.5) e.g:3.0V=②：3；③：0
④	P	Package:SOT89
	M5	Package:SOT23-5
⑤	R	RoHS / Pb Free
	G	Halogen Free

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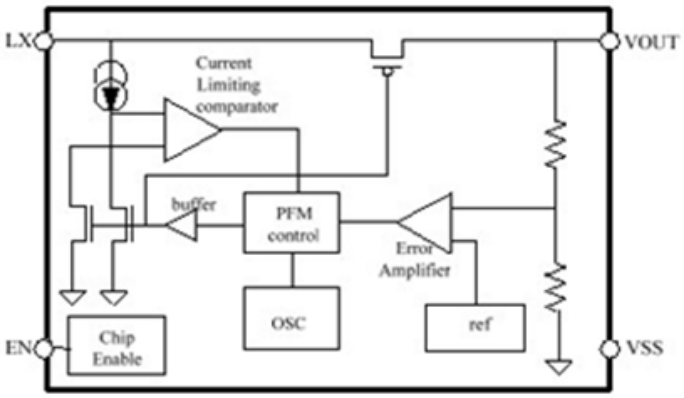
Block Diagram



Pin Assignment

SOT23-5(Top view)

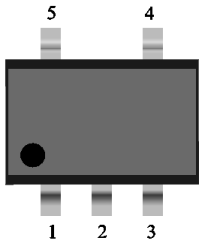


Table2 HE9118 series (SOT23-5 PKG)

PIN NO.	PIN NAME	FUNCTION
1	EN	Shutdown pin "H": Normal operation "L": Step-up stopped
2	VOUT	Output voltage pin
3	NC	(N.C.)
4	GND	GND pin
5	LX	External inductor connection pin

SOT89 (Top view)

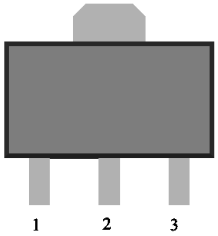


Table3 HE9118 series (SOT89 PKG)

PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VOUT	Output voltage pin
3	LX	External inductor connection pin

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Absolute Maximum Ratings

(Unless otherwise specified, Ta=25℃)

PARAMETER		SYMBOL	RATINGS	UNITS
VOUT Pin Voltage		V_{OUT}	V_{SS}-0.3~V_{SS}+8	V
EN Pin Voltage		EN	V_{SS}-0.3~V_{SS}+8	V
LX Pin Voltage		V_{LX}	V_{SS}-0.3~V_{SS}+8	V
LX Pin Current		I_{LX}	500	mA
Power Dissipation	SOT23-5	PD	250	mW
	SOT-89-3		500	mW
Operating Temperature		T_{OPR}	-40~+85	℃
Storage Temperature		T_{STG}	-40~+125	℃
Soldering Temperature & Time		T_{SOLDER}	260℃，10s	

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Electrical Characteristics

(Unless otherwise specified，Ta = 25℃)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	CONDITION
Output Voltage	V_{OUT}	$V_{OUT(S)}$ X0.98	V_{OUT}	$V_{OUT(S)}$ X1.02	V	-
Input Voltage	V_{IN}	-	-	7.5	V	-
Operation Start Voltage	V_{ST1}	-	-	0.9	V	I_{OUT}=1mA，V_{OUT}=2.2V~4.2V
Operation Start Voltage	V_{ST2}	-	-	1.2	V	I_{OUT}=1mA，V_{OUT}=4.2V~5.5V
Input Current At No Load	I_{SS1}	-	15	-	uA	V_{IN}=1.8V, V_{OUT}=3.0V
Current Consumption 2	I_{SS2}	-	6	10	uA	V_{OUT}=$V_{OUT(S)}$+0.5V
Current Consumption During Shutdown	I_{SSS}	-	-	1.0	uA	V_{EN}=0V
Maximum Oscillation Frequency	fosc		350		KHz	V_{OUT}=0.95x$V_{OUT(S)}$, measure Waveform at LX pin
Duty Ratio1	Duty1	70	78	85	%	V_{OUT}=0.95x$V_{OUT(S)}$
Efficiency	EFF1		90		%	
Shutdown Pin Input Voltage	V_{SH}	0.75	-	-	V	V_{OUT}=0.95x$V_{OUT(S)}$, judge Oscillation at LX pin
	V_{SL}	-	-	0.3	V	V_{OUT}=0.95x$V_{OUT(S)}$, judge stop at LX pin
Shutdown Pin input Current	I_{SH}	-0.1	-	0.1	uA	V_{EN}=6V
	I_{SL}	-0.1	-	0.1	uA	V_{EN}=0V

Remark: VOUT(S) specified above is the set output voltage value,and VOUT is the typical value of the actual output voltage

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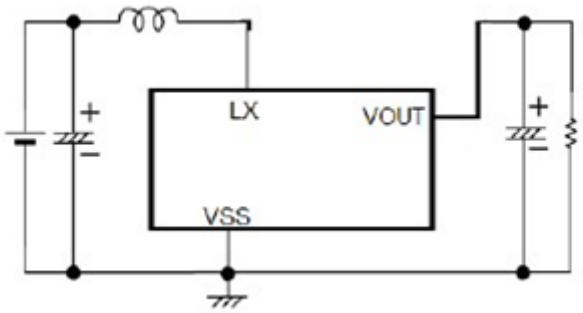
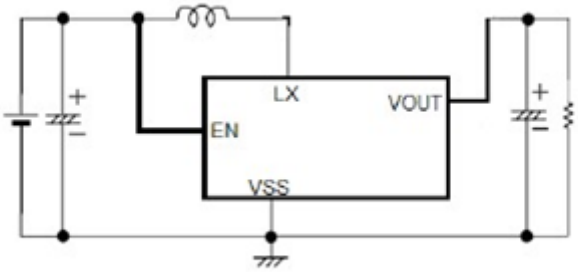
Application Circuits

1) HE9118 without CE



2) HE9118 with CE



Note: External Component Recommendation:

1) L=47uH(Sumida)
2) C_F=22uF/16V(Tantalum)

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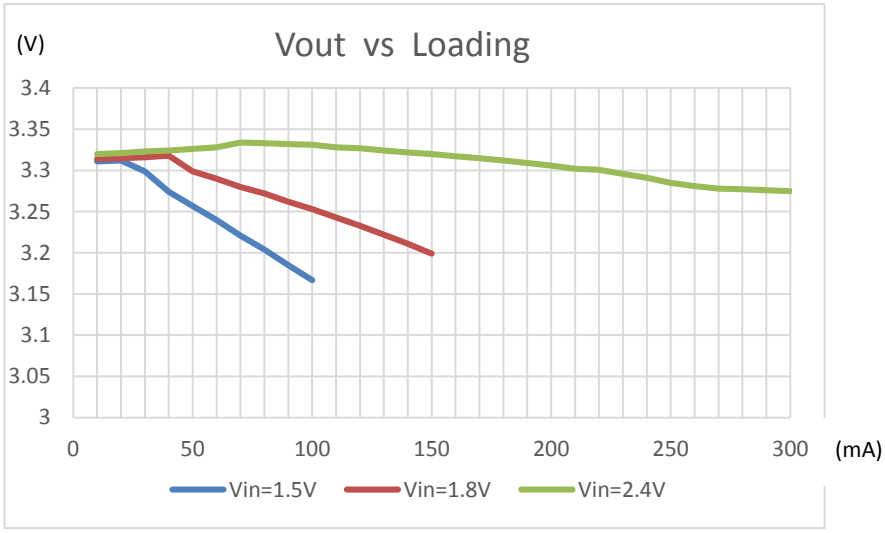
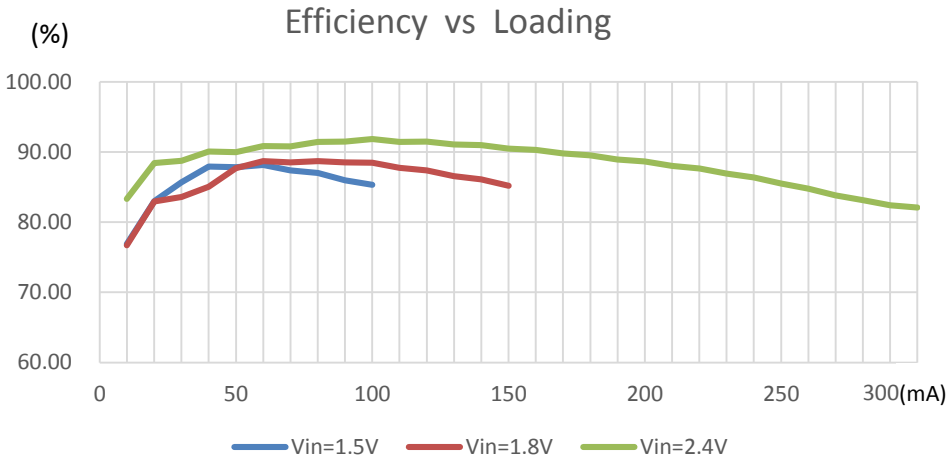
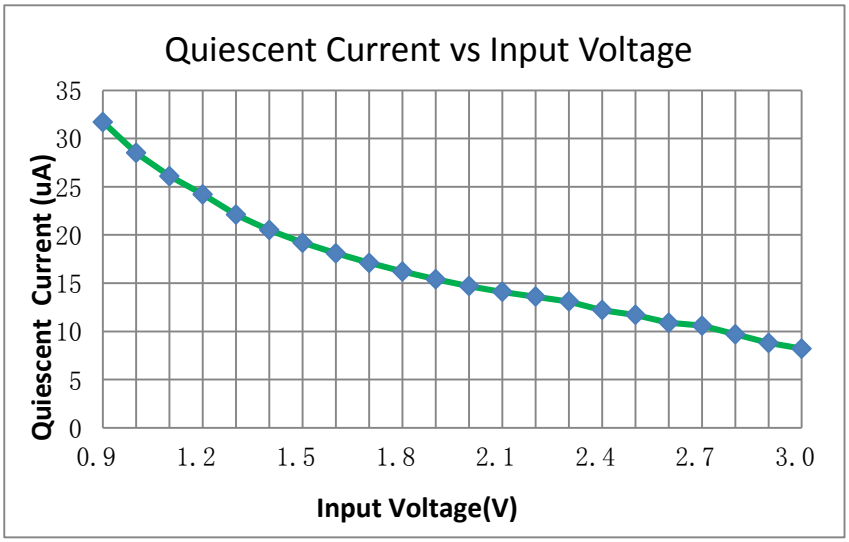
TYPICAL PERFORMANCE CHARACTERISTICS

(Cin=Cout=22uF,L=47uH)







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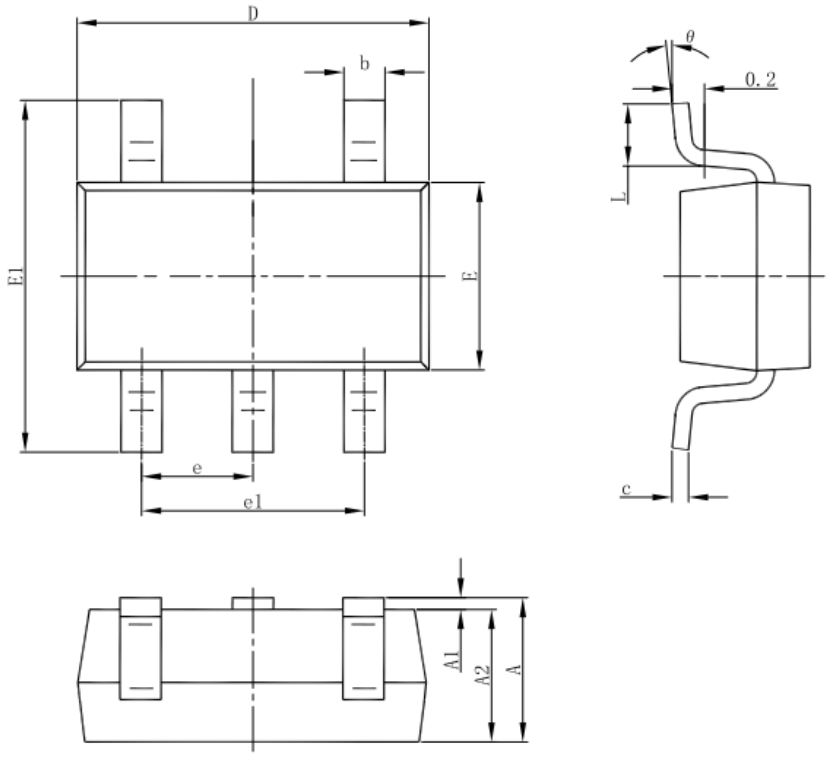
5-pin SOT23-5L Outline Dimensions



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°

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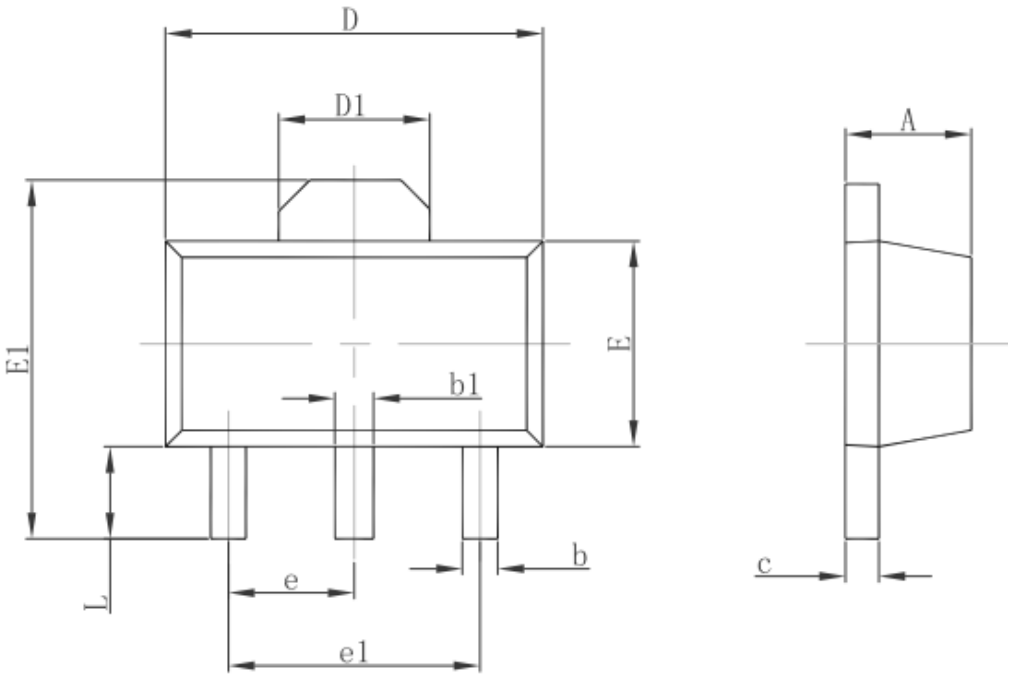
3-pin SOT89-3 Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

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