



Synchronous Step-Up DC-DC Converter with PFM Control

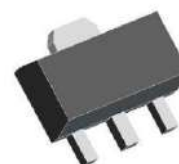
CYH8118

General Description

The CYH8118 Series is a Synchronous step-up DC/DC Converter with PFM Control. With the CYH8118 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.



SOT23-5



SOT89

Features

- External parts: Coil, capacitor
- Output voltage: 2.1V to 5.5V
- Maximum Oscillation frequency :300KHz
- Accuracy of $\pm 2\%$
- High efficiency :95%
- Package: SOT23-5 and SOT89

Applications

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

Order information

Product model	Package	Manner of packing	MPQ
CYH8118 AxxPx	SOT89	Reel	1000
CYH8118 AxxM5x	SOT23-5	Reel	3000

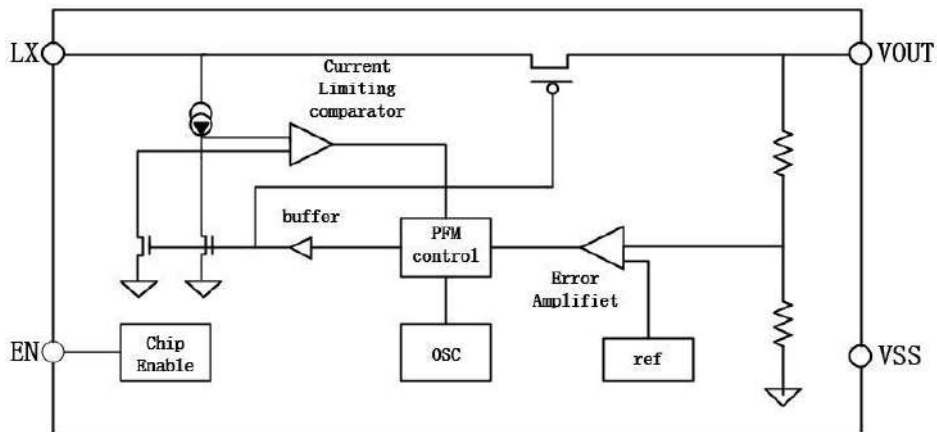
Selection Guide Table

CYH8118 ①②③④⑤

Designator	Symbol	Description
①	A	Standard
②③	Integer	Output Voltage(2.1V~5.5V)e.g:3.3V=②: 3; ③: 3
④	P	Package:SOT89
	M5	Package:SOT23-5
⑤	R	RoHS / Pb Free
	G	Halogen Free

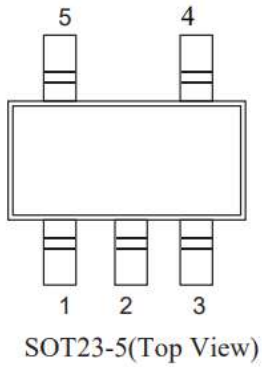
Note: Settable to between 2.1V to 5.5V in 0.1V steps

Functional Block Diagram



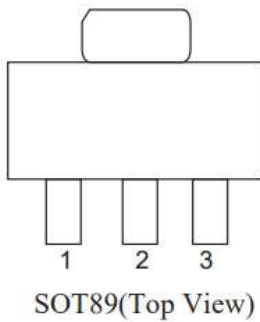
Pin Assignment

Table1 H8118A 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

Table2 H8118A series (SOT89 PKG)



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

Absolute Maximum Ratings

(Unless otherwise specified, Ta=25°C)

PARAMETER		SYMBOL	RATINGS	UNITS
VOUT Pin Voltage		VOUT	VSS-0.3~VSS+8	V
EN Pin Voltage		EN	VSS-0.3~VSS+8	V
LX Pin Voltage		VLX	VSS-0.3~VSS+8	V
LX Pin Current		ILX	1000	mA
Power Dissipation	SOT23-5	PD	250	mW
	SOT-89-3		500	mW
Operating Temperature		TOPR	-40~+85	°C
Storage Temperature		TSTG	-40~+125	°C
Soldering Temperature & Time		TSOLDER	260°C, 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

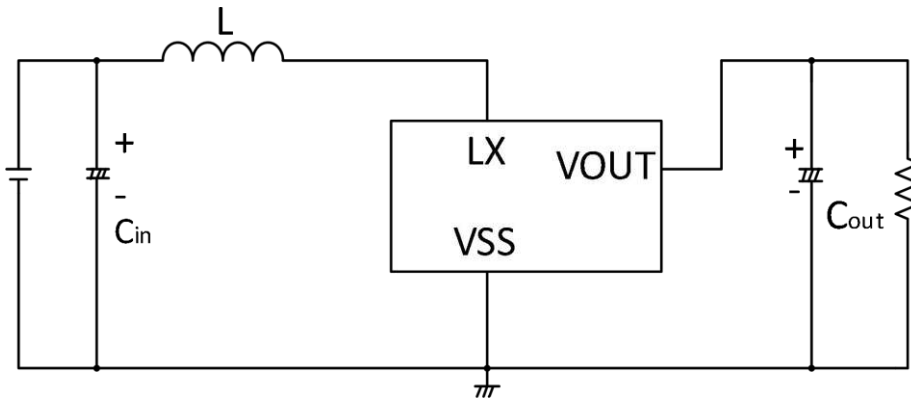
(Unless otherwise specified, Ta = 25°C)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	CONDITION
Output Voltage	VOUT	VOUT(S) ×0.98	VOUT	VOUT(S) ×1.02	V	-
Input Voltage	VIN	-	-	7.5	V	-
Operation Start Voltage	VST1	-	-	0.9	V	IOUT=1mA, VOUT=2.2V~4.2V
Operation Start Voltage	VST1	-	-	1.2	V	IOUT=1mA, VOUT=4.2V~5.5V
Input Current AtNo Load	ISS	-	15	25	uA	VIN=1.8V, VOUT=3.0V
		-	25	35	uA	VIN=0.9V, VOUT=3.0V
Current Consumption 2	ISS2	-	6	10	uA	VOUT=VOUT(s)+ 0.5V
Current Consumption During Shutdown	ISSS	-	-	1.0	uA	VEN=0V
MaximumOscillation Frequency	fosc		300		KHz	VOUT=0.95xVOU T(s), measure Waveform at LXpin
Duty Ratio1	Duty1	70	78	85	%	VOUT=0.95xVOU T(s)
Efficiency	EFF1		90		%	
Shutdown PinInput Voltage	VSH	0.75	-	-	V	VOUT=0.95xVOU T(s), judge Oscillation at LXpin
	VSL1	-	-	0.3	V	VOUT=0.95xVOU T(s), judge stop at LX pin
Shutdown Pininput Current	ISH	-0.1	-	0.1	uA	VEN=6V
	ISL	-0.1	-	0.1	uA	VEN=0V

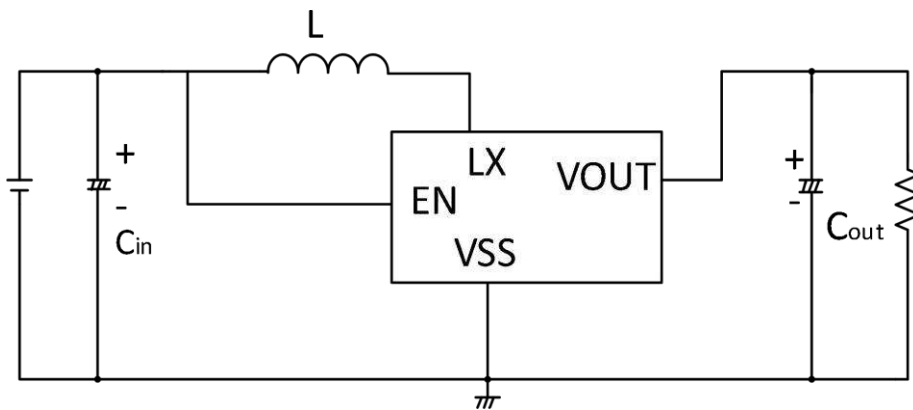
Remark: VOUT(S) specified above is the set output voltage value, and VOUT is the typical value of the actual output voltage

Application Circuits

1) CYH8118 A without CE



2) CYH8118 A with CE



Note: External Component Recommendation:

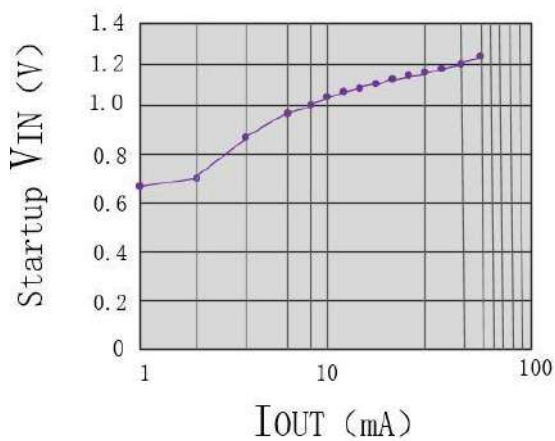
- 1) L=47uH(Sumida)
- 2) Cin=47uF/16V(Tantalum)
- 3) Cout=47uF/16V(Tantalum)



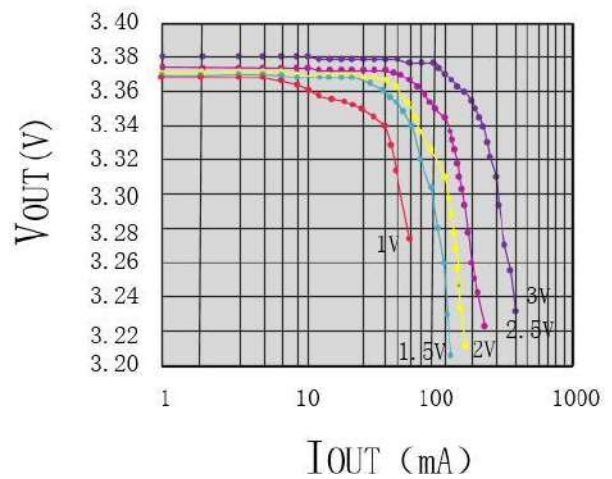
TYPICAL PERFORMANCE CHARACTERISTICS

(C_{in}=C_{out}=100uF,L=47uH)

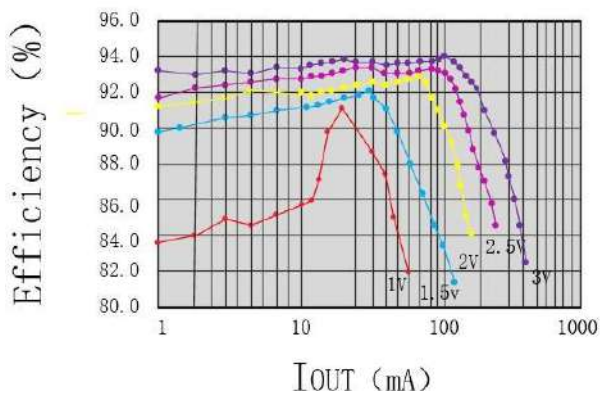
I_{OUT} VS Startup V_{IN}



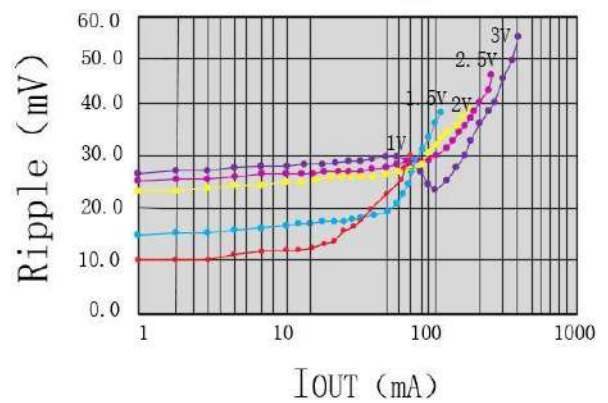
I_{OUT} VS V_{OUT}



I_{OUT} VS Efficiency

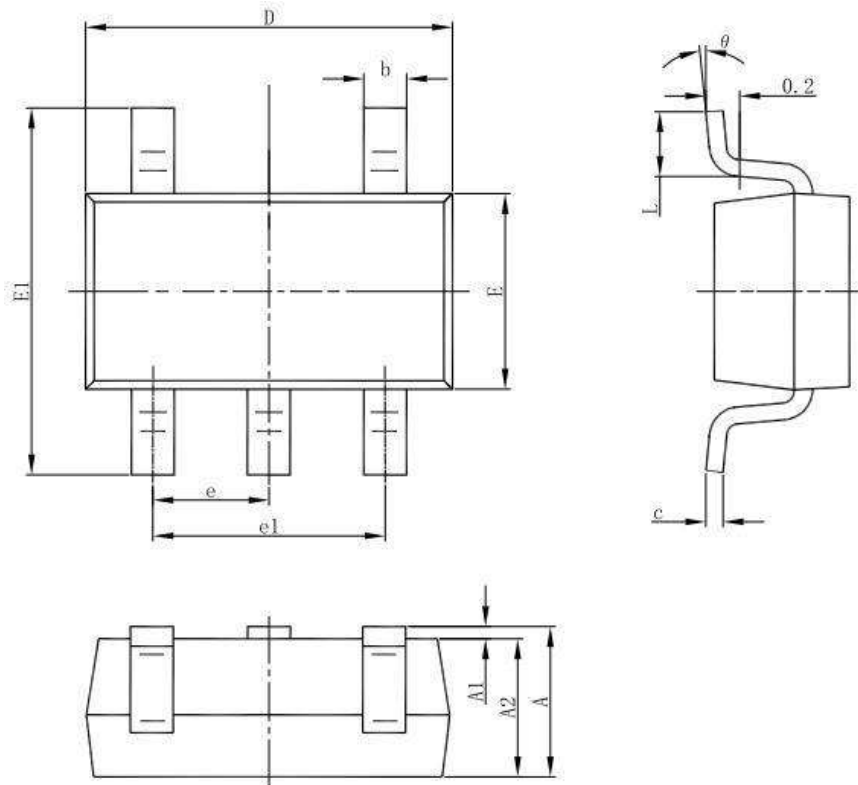


I_{OUT} VS Ripple



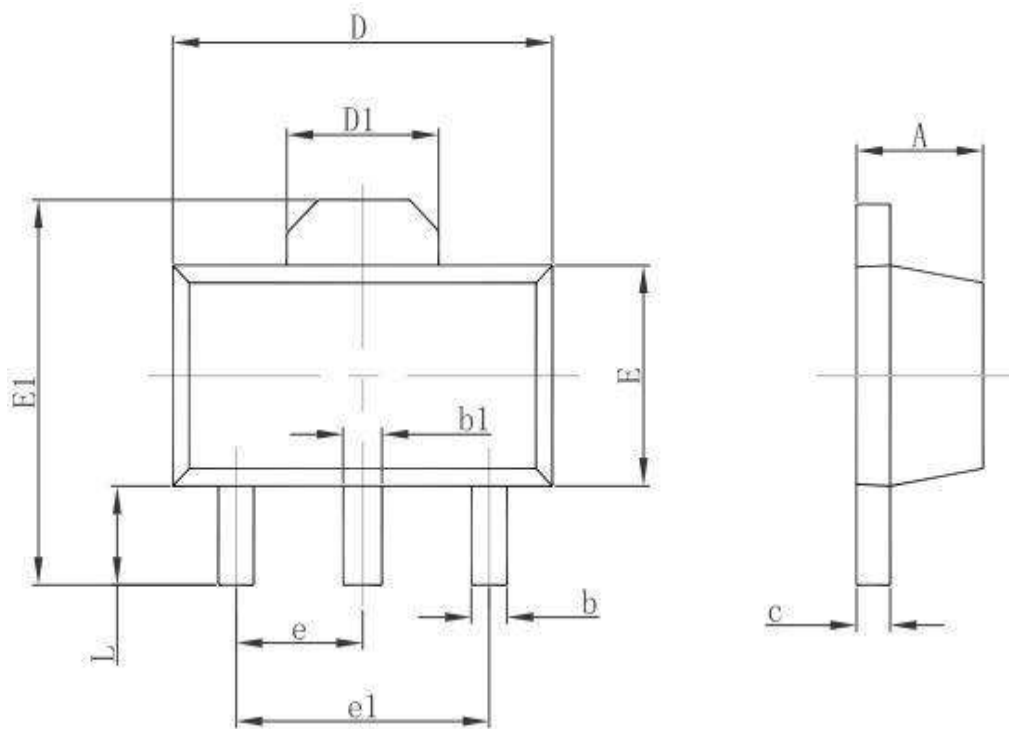
Package Information

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°

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	1.550REF.		0.061REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP.		0.060TYP.	
e1	3.000TYP.		0.118TYP.	
L	0.900	1.200	0.035	0.047



Special Version

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

Version Change Description

Versions: V1.6	Writer: Liu Hang	Time: 2021.09.30
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Amendant record:

1. Re-typesetting the manual and checking some data

Versions: V1.7	Writer: Yangyang	Time: 2022.3.8
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Amendant record:

1. Update order information
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The statement

The information in the usage specification is correct at the time of publication. CY Wireless Technology Limited 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.