Modify Record：

版次	新版本	旧版本	修改单位	修改内容
2023-09-27	1.0	NA	研发部	新文件制成
2025-10-09	1.1	1.0	研发部	增加TO252封装

General Description

SE8118 series is designed for applications where high input voltage up to 40V, and large output current up to 1A, are required. It offers EN pin to disable output when required. SE8118 provides fast transient response when the output load conditions changes rapidly. In addition, SE8118 has soft-start function to eliminate overshoot when starting up, or recovering from short circuit conditions. Internally, SE8118 has short-circuit protection, over temperature protection.

Currently, SE8118 has options for 1.8V，3.3V, 5.0V, and ADJ output voltages.

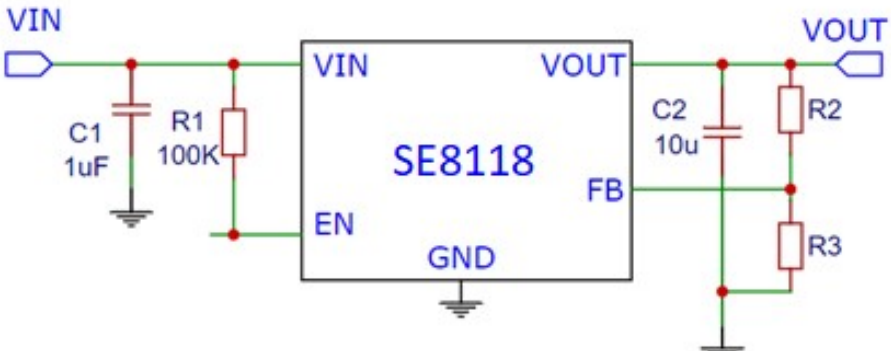
Features

- Wide Operating Voltage: V_{OUT}+1V to 40V
- High output current up to 1A
- Fixed output voltages at 1.8V, 3.3V, 5.0V, and ADJ at 0.6V.
- System startup with no overshoot
- Short circuit protection is designed with no overshoot
- UVLO 2.5V
- Low Dropout Voltage
- High Accuracy Output Voltage: ±1%
- Excellent power / load transient response
- Low temperature coefficient: ±100ppm/℃
- Thermal and Short-Circuit Protection
- PSOP8、TO252 package
- Customer Pin Assignments are available

Applications

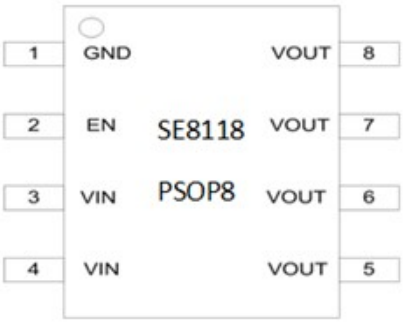
- Servers and Laptops
- Household appliances and instruments

Application Diagram

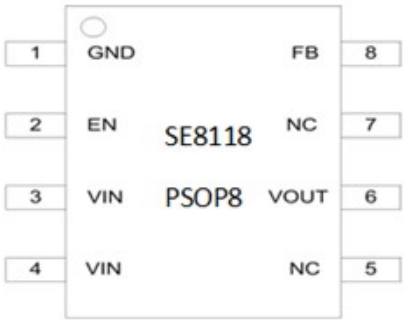


Pin Configuration

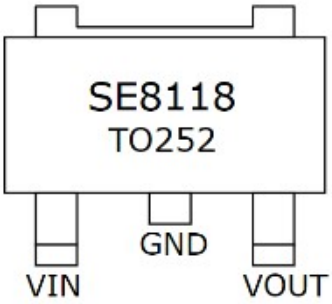
(Customer pin assignments are available)



（1.8V,3.3V.5.0V 版本）



（ADJ版本）



（1.8V,3.3V.5.0V 版本）

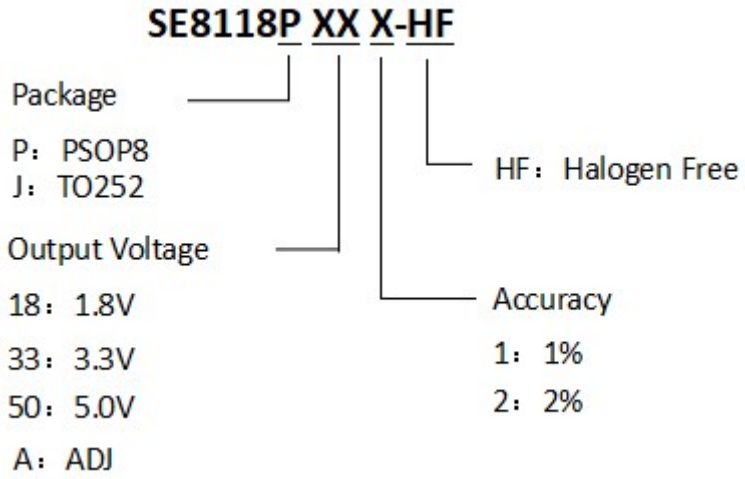
PIN Definitions

Pin Name	Number PSOP8（固定电压）	Number PSOP8（ADJ）	Number TO252（固定电压）	Function Description
GND	1	1	2	Ground
EN	2	2	N/A	Output Voltage
VIN	3，4	3，4	1	Power Supply Input
VOUT	5，6，7，8	6	3	High Enable / Low Disable
NC	N/A	5，7	N/A	Not Connected
FB	N/A	8	N/A	Feedback.The internal Reference input pin. The internal reference voltage is set to 0.6V

Absolute Maximum Rating

Symbol	Parameter	Value	Units
V_{IN}	Input Supply Voltage	40	V
V_{OUT}	Output Voltage	14	
T_A	Operating Temperature	-40---105	°C
T_{STG}	Storage Temperature	-40---150	
T_J	Maximum Junction Temperature	150	
T_{LEAD}	Lead Temperature (Soldering) 10 seconds	260	
θ_{JA}	Thermal Resistance, Junction-to-Ambient	165 (PSOP8)	℃/W
		63（TO252）	
P_D	Power Consumption	800 (PSOP8)	mW
		2000（TO252）	
Electrostatic discharge rating	Human Body Model（HBM）	4	kV
	Charged Device Model（MM）	100	V

Ordering Information

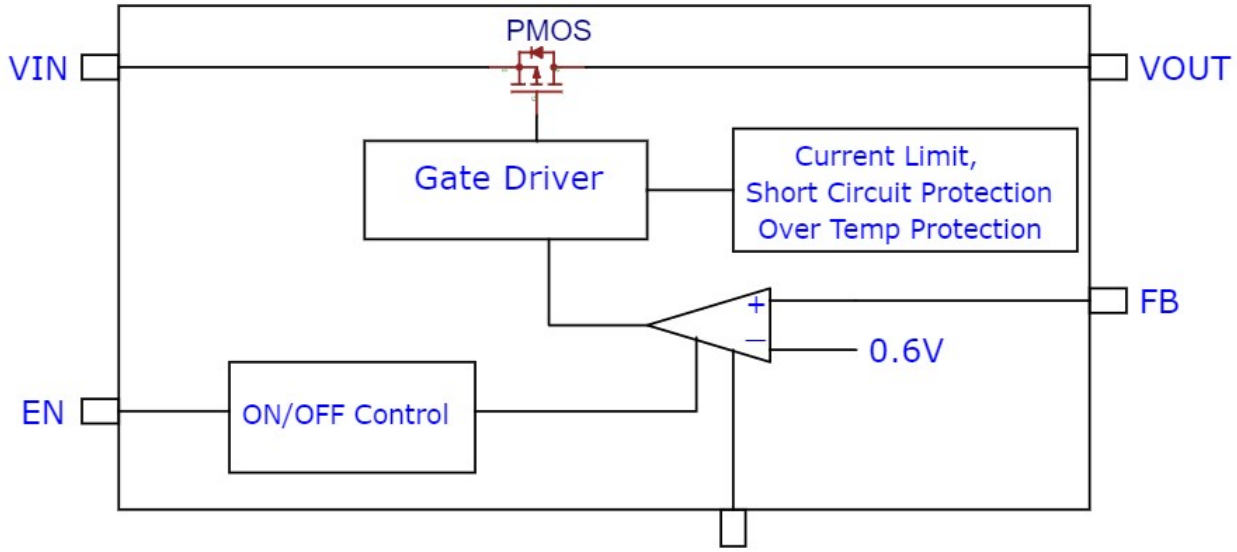


Part Number	Marking Information	Package	Packing	Remarks
SE8118P18 X-HF	S8118P18 EFLx-HF	PSOP8	Tape On Reel 4000	X means Accuracy; F means year; x means week; HF: Halogen Free.
SE8118P33 X-HF	S8118P33 EFLx-HF			
SE8118P50 X-HF	S8118P50 EFLx-HF			
SE8118PA X-HF	S8118PA EFLx-HF			
SE8118J18 X-HF	S8118J18 EFLx-HF	TO252	Tape On Reel 2500	
SE8118J33 X-HF	S8118J33 EFLx-HF			
SE8118J50 X-HF	S8118J50 EFLx-HF			

Operating Rating

Parameter	Value	Units
Operating Temperature	-40℃～85	℃
Storage Temperature	-40℃～125	℃
Lead Temperature (Soldering) 10 seconds	260	℃

Block Diagram



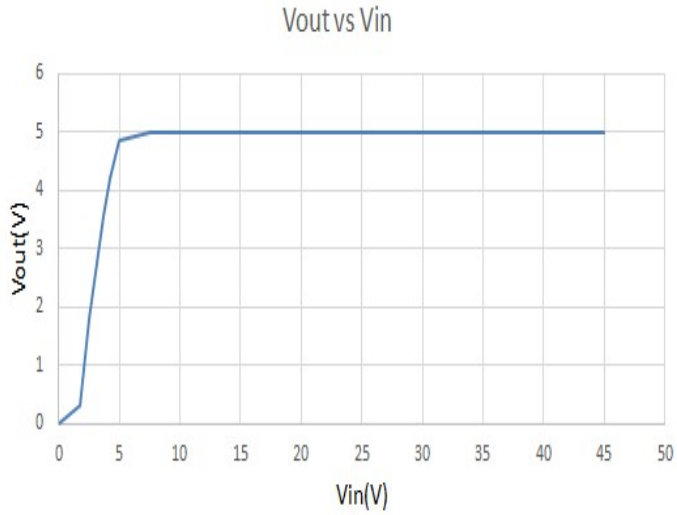
Electrical Characteristics

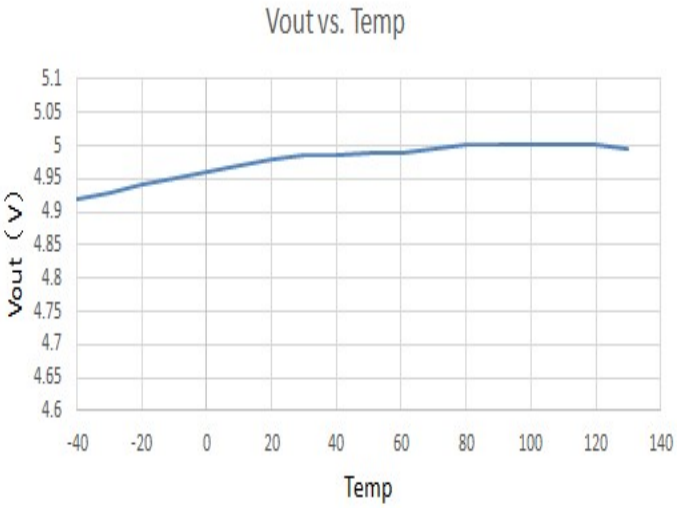
（V_{IN}=V_{OUT}+ 1V ； Tj=25℃ unless otherwise noted.）

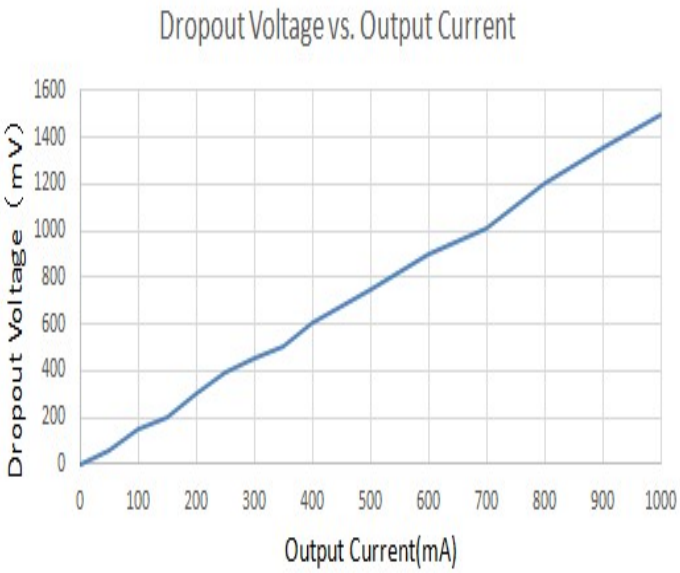
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{IN}	Input Supply Voltage		3		40	V
V_{OUT}	Output Voltage Accuracy	I_{OUT}=10mA	-1%		1%	V
			-2%		2%	V
I_Q	Quiescent Current			72		μA
I_{OUT}	Output Current			1		A
V_{DROP}	Dropout Voltage	I_{OUT}=10mA ΔV_{OUT}= -V_{OUT} *2%		15		mV
		I_{OUT}=100mA ΔV_{OUT}= - V_{OUT} *2%		150		mV
		I_{OUT}=1000mA ΔV_{OUT}= - V_{OUT} *2%		1.5		V
V_{LR}	Load Regulation	1mA ≤ I_{OUT}≤ 1000mA	-1		1	%
V_{SR}	Line Regulation	I_{OUT}=1mA, V_{IN}=(V_{OUT} +1V) to 36V		0.01		%/V
PSRR	Power Supply Rejection Ratio	Vin=12V , Iout=10mA F=1Khz,Vout=5V	—	65	—	dB
V_{ENH}	Enable High Level	Enabled	1	—	—	V
V_{ENL}	Enable Low Level	Disabled		—	0.4	V
I_{EN}	EN Current	EN=0~V_{IN}(R_{EN}=100K)		1		μA
I_{LIMIT}	Current Limit	V_{IN}=(V_{OUT} +1V) to 36V R_{LOAD}=V_{OUT} /1A		1.1		A
T_{SHDN}	Thermal Protection			150		℃
TC_{VOUT}	Output Voltage Temperature Coefficient	I_{OUT}=10mA -40℃≤T_{AMB}≤100℃		±100		ppm/℃

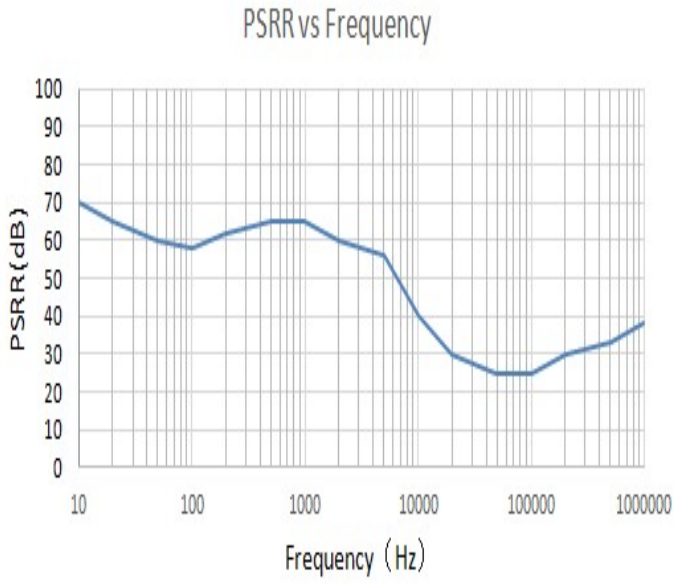
Typical Performance Characteristics

Test Condition: T_A=25°C,Vin=12V,Iout=1mA,C_{OUT}=10uF, unless otherwise note









APPLICATION INFORMATION

INPUT CAPACITOR

An input ceramic capacitor of 1μF is required between the VIN and GND pin. The capacitor shall be placed as close as possible to VIN pin, and the wide copper trace is also recommended.

OUTPUT CAPACITOR

The recommended is 10uF ceramic capacitor. The minimum capacitance for stable and correct operation is 1μF. The higher the value of this output capacitor, the lower the ripple during the operations. The output capacitor should be placed as close to the Output Pin as possible. The wide copper trace is recommended.

NO-LOAD STABILITY

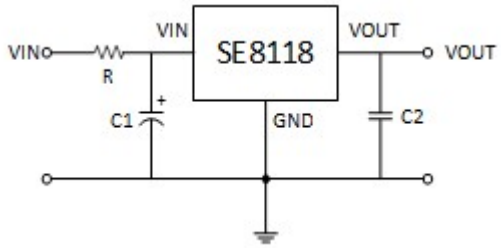
The SE8118 will remain stable and in regulation with no external load. This is especially important in CMOS RAM keep-alive applications.

FOLD-BACK SHORT-CIRCUIT PROTECTION

When short-circuit occurs, SE8118 will fold back the short-circuit currents to a pre-determined lower level, This will reduce excessive heat in otherwise large current conditions. This feature provides another level of protection to IC itself and also the whole system.

IN-RUSH CURRENT AND VOLTAGE

The following figure shows a typical application circuit for the SE8118 devices. Please keep in mind that in-rush current can push up the Vin overshoot by as much as 50%. For example, when Vin=30V, the in-rush caused spike voltage can be as high as 45V. Therefore the voltage rating of Cin needs to be higher than 50% of the application.

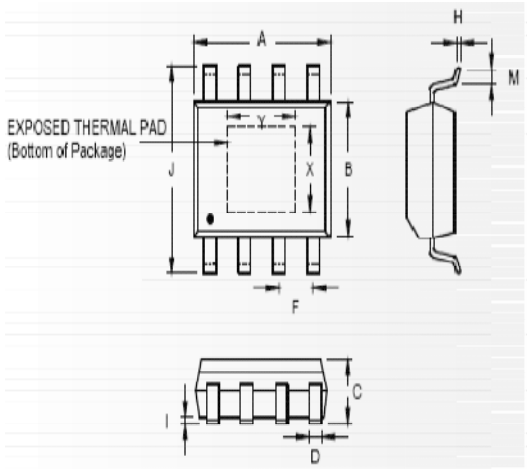


In live insertion application, it is suggested that R, C1 are selected as following：

1.C1=10μF ~ 100μF ceramic or electrolytic capacitor with maximum voltage greater than 50V, R=0

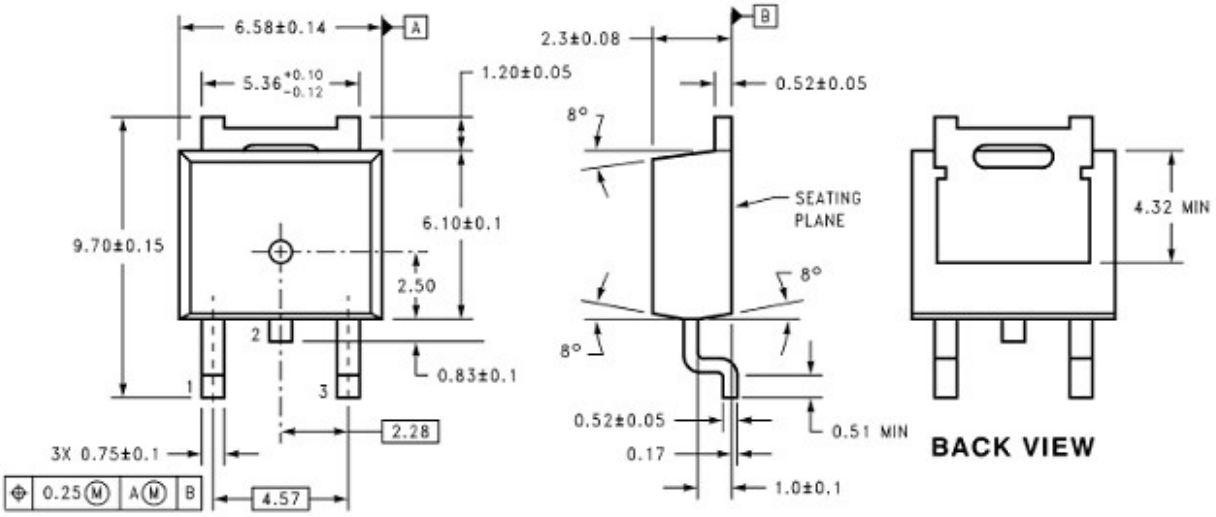
2.If the average current is known, for example at 10mA, then for an input voltage of 20V, the C1=1 μF ~ 10μF ceramic or electrolytic with maximum v oltage greater than 40V and R=1KΩ in the type of 1206 at 1/4W rating can be selected.

Outline Drawing for PSOP8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.801	5.004	0.189	0.197
B	3.810	3.988	0.150	0.157
C	1.346	1.753	0.053	0.069
D	0.330	0.508	0.013	0.020
F	1.194	1.346	0.047	0.053
H	0.191	0.254	0.008	0.010
I	0.000	0.152	0.000	0.006
J	5.791	6.190	0.228	0.244
M	0.406	1.270	0.016	0.050
X	2.057	2.515	0.081	0.099
Y	2.057	3.404	0.081	0.134

Outline Drawing for TO252



DIMENSIONS ARE IN MILLIMETERS

3-Lead TO-252 Package

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