

# S5U1118

## 1A Positive Low Dropout Fixed-Mode Regulator With EN Function

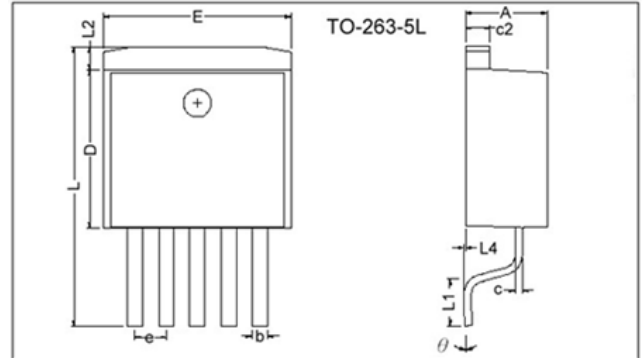
RoHS Compliant Product

### Description

The S5U1118 is a low dropout positive fixed-mode regulator with min. of 1A output current capability. The product is specifically designed to provide well-regulated supply for low voltage IC applications such as high-speed bus termination and low current 3.3V logic supply. S5U1118 is also well suited for other applications such as VGA cards. The product is guaranteed to have < 1.4V dropout at full load current making it ideal to provide well regulated outputs 1.5V to 12V with up to 18V input supply. The product offers a TTL-Logic compatible enable pin.

### Features

- \* 1.4V Max. Dropout Voltage At Full Load Current
- \* Fixed Output Voltage 1.5V, 1.8V, 2.5V, 3.3V, 5.0V, 9.0V, 12V
- \* Output Current Limiting
- \* Good Noise Rejection
- \* Fast Transient Response
- \* Built-in Thermal Shutdown
- \* Enable Function

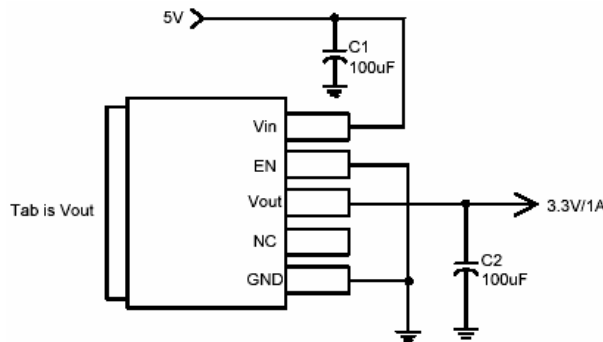


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.80	c2	1.25	1.45
b	0.66	0.91	L2	1.27 REF.	
L4	0.00	0.30	D	8.6	9.0
c	0.36	0.5	e	1.70 REF.	
L1	2.29	2.79	L	14.6	15.8
E	9.80	10.4	θ	0°	8°

### Applications

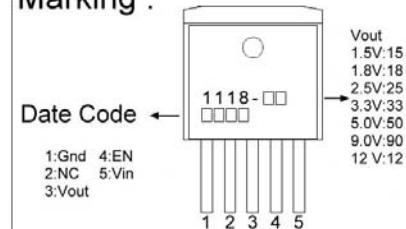
- \* CDROM
- \* PC Peripheral
- \* Communication

### Typical Circuit



( 5V/3.3V fixed output )

### Marking :



### Pin Descriptions

Name	Description
GND	Ground
V <sub>OUT</sub>	The output pin of regulator. A min. of 10uF capacitor must be connected from this pin to ground to insure stability.
V <sub>IN</sub>	The input pin of regulator. Typically a large storage capacitor is connected from this pin to ground to insure that the input voltage does not sag below the min. dropout voltage during the load transient response. This pin must always be 1.3V higher than V <sub>OUT</sub> in order for the device to regulate properly.
EN	This input pin of regulator. TTL/CMOS compatible input Logic high= disable output, Logic low or open=output enable. (internal pull-down resistor~100K)
NC	No connection

## Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
DC Supply Voltage	$V_{IN}$	-0.3 to 18	V
Enable Pin Voltage	$V_{EN}$	7	V
Power Dissipation	$P_D$	Internally Limited	
Storage Temperature Range	$T_{ST}$	-65~+150	°C
Operating Junction Temperature Range	$T_{OP}$	0~+150	°C

## Electrical Characteristics (Under operating Conditions)

Parameter	Conditions	MIN	TYP	MAX	UNIT
Output Voltage	S5U1118-15 $I_o=10mA, T_J=25^\circ C, 3.0V \leq V_{IN} \leq 15V$	1.47	1.500	1.530	V
	S5U1118-18 $I_o=10mA, T_J=25^\circ C, 3.3V \leq V_{IN} \leq 15V$	1.764	1.800	1.836	V
	S5U1118-25 $I_o=10mA, T_J=25^\circ C, 4.0V \leq V_{IN} \leq 15V$	2.450	2.500	2.550	V
	S5U1118-33 $I_o=10mA, T_J=25^\circ C, 4.8V \leq V_{IN} \leq 15V$	3.235	3.300	3.365	V
	S5U1118-50 $I_o=10mA, T_J=25^\circ C, 6.5V \leq V_{IN} \leq 15V$	4.900	5.000	5.100	V
	S5U1118-90 $I_o=10mA, T_J=25^\circ C, 10.5V \leq V_{IN} \leq 18$	8.820	9.000	9.180	V
	S5U1118-12 $I_o=10mA, T_J=25^\circ C, 13.5V \leq V_{IN} \leq 18V$	11.76	12.00	12.24	V
Line Regulator	S5U1118-XX $I_o=10mA, T_J=25^\circ C, V_{OUT}+1.5 < V_{IN} < 18V$	-	-	0.2	%
Load Regulation	S5U1118-15 $V_{IN}=3.0V, 0mA < I_o < 1A, T_J=25^\circ C, (Note 1, 2)$	-	12	15	mV
	S5U1118-18 $V_{IN}=3.3V, 0mA < I_o < 1A, T_J=25^\circ C, (Note 1, 2)$	-	15	18	mV
	S5U1118-25 $V_{IN}=4.0V, 0mA < I_o < 1A, T_J=25^\circ C, (Note 1, 2)$	-	20	25	mV
	S5U1118-33 $V_{IN}=5.0V, 0mA < I_o < 1A, T_J=25^\circ C, (Note 1, 2)$	-	26	33	mV
	S5U1118-50 $V_{IN}=8.0V, 0mA < I_o < 1A, T_J=25^\circ C, (Note 1, 2)$	-	40	50	mV
	S5U1118-90 $V_{IN}=12.0V, 0mA < I_o < 1A, T_J=25^\circ C, (Note 1, 2)$	-	70	90	mV
	S5U1118-12 $V_{IN}=15.0V, 0mA < I_o < 1A, T_J=25^\circ C, (Note 1, 2)$	-	100	120	%
Dropout Voltage ( $V_{IN}-V_{OUT}$ )	S5U1118-XX $I_o=1A, \Delta V_{OUT}=0.1 V_{OUT}$	-	1.3	1.4	V
Current Limit	S5U1118-XX ( $V_{IN}-V_{OUT}$ )=5V	1.1	-	-	A
Minimum Load Current	S5U1118-XX $0^\circ C \leq T_J \leq 125^\circ C$	-	5	10	mA
Enable Input Voltage $V_{EN}$	Logic Low (ON)	-	-	0.8	V
	Logic High (OFF)	1.6	-	-	
Enable Input Current $I_{EN}$	$V_{EN}=0.8V$	-	-	10	$\mu A$
	$V_{EN}=2.0V$	-	-	80	
Thermal Regulation	$T_A=25^\circ C, 30ms$ pulse	-	0.008	0.04	%/W
Ripple Rejection	$F=120Hz, C_{OUT}=25\mu F, \text{Tantalum}, I_o=1A$				
	S5U1118-XX $V_{IN}=V_{OUT}+3V$	-	60	70	dB
Temperature Stability	$I_o=10mA$	-	0.5	-	%
$\theta_{JA}$ Thermal Resistance Junction-to-Ambient (No heat sink ;No air flow)		-	90	-	°C/W
$\theta_{JC}$ Thermal Resistance Junction-to-Case	Control Circuitry/Power Transistor	-	3.5	-	°C/W

Note 1: See thermal regulation specifications for changes in output voltage due to heating effects. Line and load regulation are measured at a constant junction temperature by low duty cycle pulse testing. Load regulation is measured at the output lead=1/8" from the package.

Note 2: Line and load regulations are guaranteed up to the maximum power dissipation of 15W. Power dissipation is determined by the input/output differential and the output current. Guaranteed maximum power dissipation will not be available over the full input/output range

Note 3: Quiescent current is defined as the minimum output current required to maintain regulation. At 12V input/output differential the device is guaranteed to regulate if the output current is greater than 10mA.

## Typical Performance Characteristics

