Elektronische Bauelemente

S5M1119

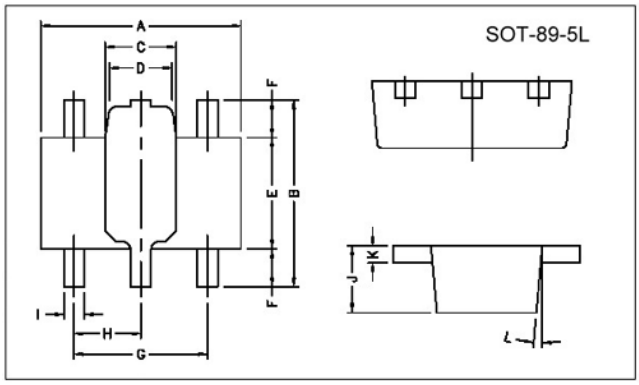
0.5A Positive Low Dropout

Fixed-Mode Regulator With EN Function

RoHS Compliant Product

Description

The S5M1119 is a low dropout positive fixed-mode regulator with min. of 0.5A 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.S5M1119 is also well suited for other applications such as VGA cards. The product is guaranteed to have < 1.3V 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.



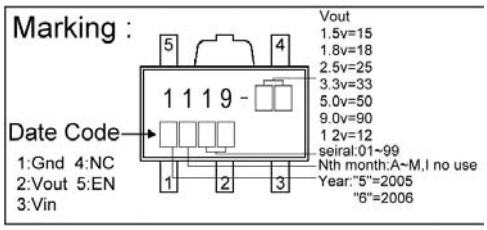
Features

* 1.3V Max. Dropout Voltage At Full Load Current
* 5-Terminal Device With Fixed 1.5V,1.8V,2.5V,3.3V,5.0V,9.0V,12V, Output
* Output Current Limiting
* Good Noise Rejection
* Fast Transient Response
* Built-in Thermal Shutdown

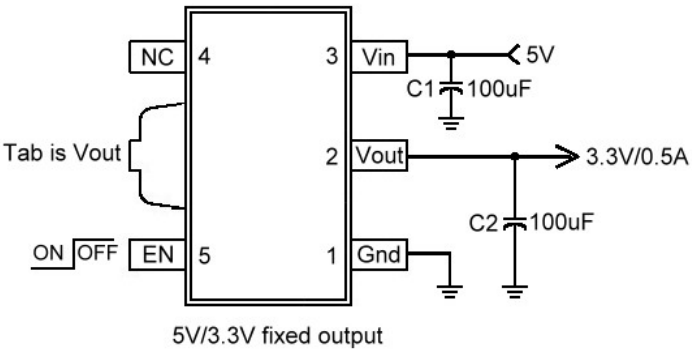
REF.	Millimeter		REF.	Dimensions
	Min.	Max.		Millimeter
A	4.40	4.60	G	3.00 REF.
B	4.05	4.25	H	1.50 REF.
C	1.50	1.70	I	0.40 0.52
D	1.30	1.50	J	1.40 1.60
E	2.40	2.60	K	0.35 0.41
F	0.80	-	L	5 ° TYP.

Applications

* CDROM.
* PC Peripheral
* Communication



Typical Circuit



5V/3.3V fixed output

Pin Descriptions

Name	Pin#	Function
GND	1	Ground
V_{OUT}	2	The output pin of regulator. A min. of 10uF capacitor must be connected from this pin to ground to insure stability.
V_{IN}	3	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_{OUT} in order for the device to regulate properly.
EN	5	This input pin of regulator. TTL/CMOS compatiable input Logic high= disable output, Logic low or open=output enable. (internal pull-down resistor~100K)

Absolute Maximum Ratings

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

Electrical Characteristics (Under operating conditions)

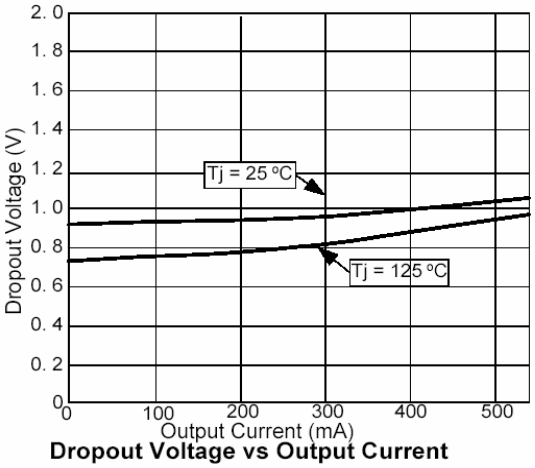
Parameter	Min.	Typ.	Max.	Unit	Condition	
Output Voltage	1.470	1.500	1.530	V	S5M1119-1.5	I_O=10mA,T_J=25℃,3.0V≤ V_{IN}≤ 12V
	1.764	1.800	1.836		S5M1119-1.8	I_O=10mA,T_J=25℃,3.3V ≤ V_{IN}≤ 12V
	2.450	2.500	2.550		S5M1119-2.5	I_O=10mA,T_J=25℃,4.0V ≤ V_{IN} ≤ 12V
	3.235	3.300	3.365		S5M1119-3.3	I_O=10mA,T_J=25℃,4.8V ≤ V_{IN} ≤ 12V
	4.900	5.000	5.100		S5M1119-5.0	I_O=10mA,T_J=25℃,6.5V ≤ V_{IN}≤ 12V
	8.820	9.000	9.180		S5M1119-9.0	I_O=10mA,T_J=25℃,10.5V≤ V_{IN} ≤18V
	11.760	12.000	12.240		S5M1119-12	I_O=10mA,T_J=25℃,13.5V ≤V_{IN} ≤18V
Line Regulation	–	–	0.2	%	S5M1119-XXX	I_O=10mA,T_J=25℃,V_{OUT}+1.5V<V_{IN}<15V
Load Regulation	–	12	15	mV	S5M1119-1.5	V_{IN}=3.0V,0mA<I_O<0.5A,T_J=25℃[1,2]
	–	15	18		S5M1119-1.8	V_{IN}=3.3V,0mA<I_O<0.5A, T_J=25℃[1,2]
	–	20	25		S5M1119-2.5	V_{IN}=4.0V,0mA<I_O<0.5A,T_J=25℃[1,2]
	–	26	33		S5M1119-3.3	V_{IN}=5.0V,0mA<I_O<0.5A,T_J=25℃[1,2]
	–	40	50		S5M1119-5.0	V_{IN}=8.0V,0mA<I_O<0.5A,T_J=25℃[1,2]
	–	70	90		S5M1119-9.0	V_{IN}=12.0V,0mA<I_O<0.5 A,T_J=25℃[1,2]
	–	100	120		S5M1119-12	V_{IN}=15.0V,0mA<I_O<0.5 A,T_J=25℃[1,2]
Dropout Voltage (V_{IN}-V_{OUT})	–	1.1	1.4	V	S5M1119-XXX	I_O=0.5 A, △V_{OUT}=0.1%V_{OUT}
Current Limit	0.6	–	–	A	S5M1119-XXX	(V_{IN}-V_{OUT})=5V
Min. Load Current	–	–	10	mA	S5M1119-XXX	0℃ ≤ T_J ≤ 125℃
Enable Input Voltage	–	–	0.8	V	Logic Low (ON)	
V_{EN}	2.0	–	–		Logic High (OFF)	
Enable Input Current	–	–	10	uA	V_{EN}=0.8V	
I_{EN}	–	–	30		V_{EN}=2.0V	
Thermal Regulation	–	0.008	0.04	%W	T_A=25℃,30ms pulse	
Ripple Rejection	–	60	70	dB	F=120Hz,C_{OUT}=25uF,Tantalum,I_O=0.5A	
					S5M1119-XXX	V_{IN}=V_{OUT}+3V
Temperature Stability	–	0.5	–	%	I_O=10mA	
θ_{JA} Thermal Resistance Junction-to-Ambient (No heat sink;No air folw)	–	300	–	°C/W		
θ_{JC} Thermal Resistance Junction-to-Case	–	100	–	°C/W	Control Circuitry/Power Transistor	

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

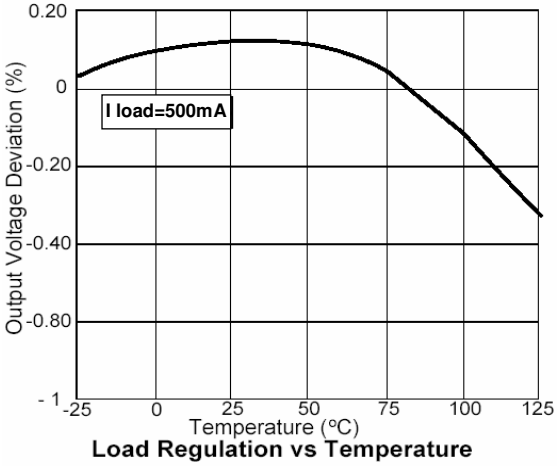
2: Line and load regulations are guaranteed up to the max. power dissipation of 5W. Power dissipation is determined by the input/ output differential and the output current. Guaranteed max. power dissipation will not be available over the full input/output range.

3: Quiescent current is defined as the min. 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.

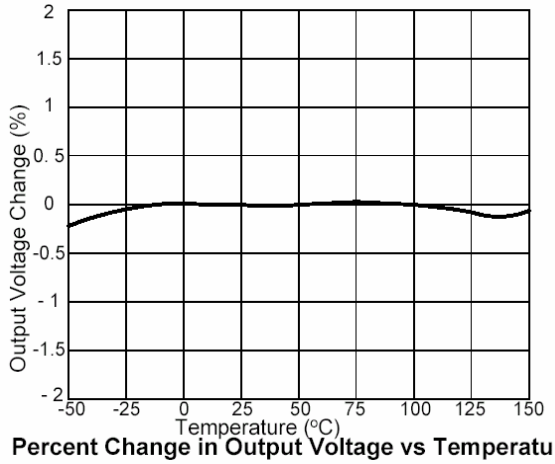
Characteristics Curve



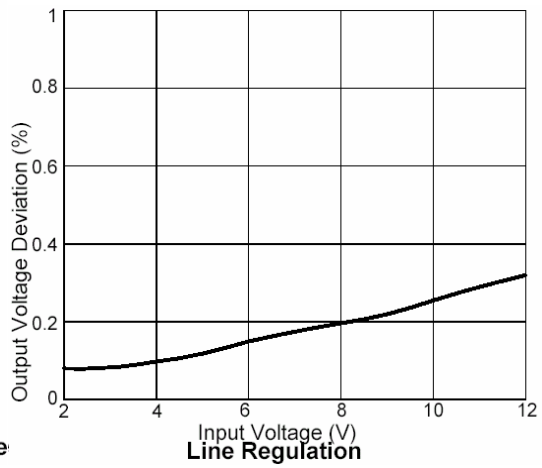
Dropout Voltage vs Output Current



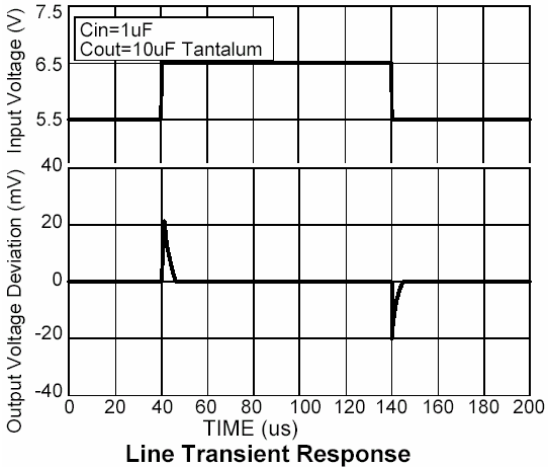
Load Regulation vs Temperature



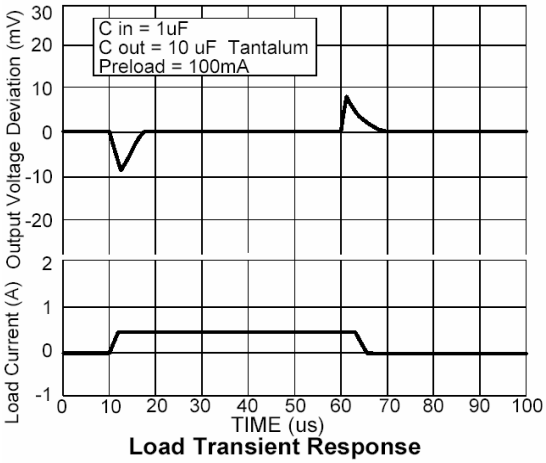
Percent Change in Output Voltage vs Temperature



Line Regulation



Line Transient Response



Load Transient Response