G5M1119

0.5A Positive Low Dropout Fixed-Mode Regulator with EN Function

Description

The G5M1119 is a low dropout positive fixed-mode regulator with minimum 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. G5M1119 is also well suited for other applications such as VGA cards. G5M1119 is guaranteed to have <1.3V dropout at full load current making it ideal to provide well regulated fixed outputs of 1.5V to 12V with up to 18V input supply. The G5M1119 offers a TTL-Logic compatible enable pin.

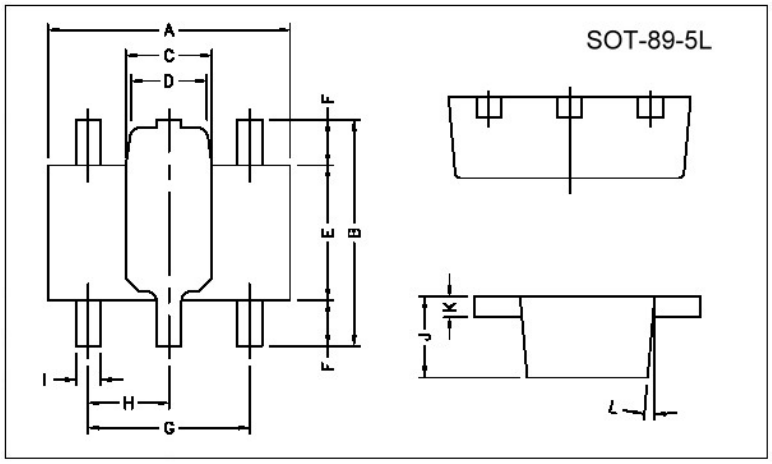
Features

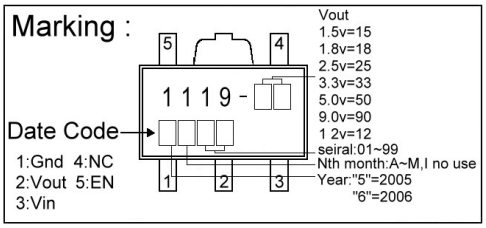
- 1.3Vmaximum dropout full load current
- Fast transient response
- Output current limiting
- Built-in thermal shutdown
- Good noise rejection
- 5-Terminal device with Fixed 1.5V,1.8V,2.5V,3.3V,5.0V, 9.0V, 12V, output

Applications

- PC peripheral
- Communication
- CDROM

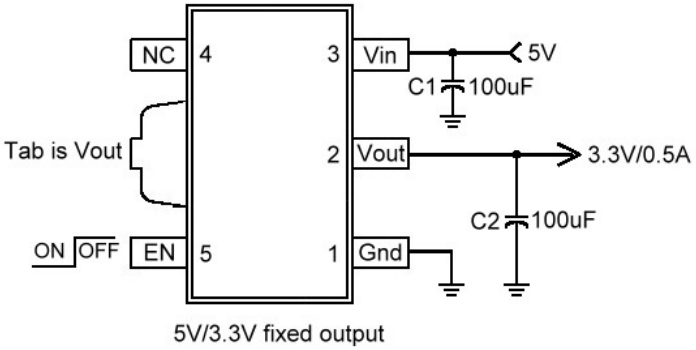
Package Dimensions





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.	

Typical Circuit



5V/3.3V fixed output

Pin Descriptions

Name	Pin#	Function
GND	1	Ground
Vout	2	The output of the regulator. A minimum of 10μF capacitor must be connected from this pin to ground to insure stability.
Vin	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 minimum dropout voltage during the load transient response .This pin must always be 1.3V higher than Vout in order for the device to regulate properly.
EN	5	The input pin of regulator. TTL/COMS compatible input Logic high=disable output, Logic Low or open= Enable output. (internal Pull-down resistor~100k).

Absolute Maximum Ratings

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

Electrical Characteristics

Parameter	Conditions		Min	Typ	Max	Unit
Output Voltage	G5M1119-1.5	Io=10mA, T_J=25℃, 3V≤ V_{IN} ≤12V	1.470	1.500	1.530	V
	G5M1119-1.8	Io=10mA, T_J=25℃, 3.3V≤ V_{IN} ≤12V	1.764	1.800	1.836	V
	G5M1119-2.5	Io=10mA, T_J=25℃, 4V≤ V_{IN} ≤12V	2.450	2.500	2.550	V
	G5M1119-3.3	Io=10mA, T_J=25℃, 4.8V≤ V_{IN} ≤12V	3.235	3.300	3.365	V
	G5M1119-5.0	Io=10mA, T_J=25℃, 6.5V≤ V_{IN} ≤12V	4.900	5.000	5.100	V
	G5M1119-9.0	Io=10mA, T_J=25℃, 10.5V≤ V_{IN} ≤18V	8.820	9.000	9.180	V
	G5M1119-12.0	Io=10mA, T_J=25℃, 13.5V≤ V_{IN} ≤18V	11.76	12.00	12.24	V
Line Regulation	G5M1119-XXX	Io=10mA, V_{OUT}+1.5V< V_{IN} <15V, T_J=25℃	-	-	0.2	%
Load Regulation	G5M1119-1.5	V_{IN}=3.0V, 0mA< Io <0.5A, T_J=25℃ (Note 1,2)	-	12	15	mV
	G5M1119-1.8	V_{IN}=3.3V, 0mA< Io <0.5A, T_J=25℃ (Note 1,2)	-	15	18	mV
	G5M1119-2.5	V_{IN}=4.0V, 0mA< Io <0.5A, T_J=25℃ (Note 1,2)	-	20	25	mV
	G5M1119-3.3	V_{IN}=5.0V, 0mA< Io <0.5A, T_J=25℃ (Note 1,2)	-	26	33	mV
	G5M1119-5.0	V_{IN}=8.0V, 0mA< Io <0.5A, T_J=25℃ (Note 1,2)	-	40	50	mV
	G5M1119-9.0	V_{IN}=12V, 0mA< Io <0.5A, T_J=25℃ (Note 1,2)	-	70	90	mV
	G5M1119-12.0	V_{IN}=15V, 0mA< Io <0.5A, T_J=25℃ (Note 1,2)	-	100	120	mV
Dropout Voltage (V_{IN}-V_{OUT})	G5M1119-XXX	Io=0.5A, (Δ V_{OUT} =0.1% V_{OUT})	-	1.1	1.3	V
Current Limit	G5M1119-XXX	V_{IN}-V_{OUT}=5V	0.6	-	-	A
Minimum Load Current	G5M1119-XXX	0℃≤ T_J ≤125℃	-	-	10	mA
Enable Input Voltage	G5M1119-XXX	Logic Low (ON)	-	-	0.8	V
		Logic High (OFF)	2.0	-	-	
Enable Input Current	G5M1119-XXX	V_{EN}=0.8	-	-	10	uA
		V_{EN}=2.0	-	-	30	
Thermal Regulation	T_A=25℃,30ms pulse		-	0.008	0.04	%/W
Ripple Rejection	F=120HZ,C_{OUT}=25uF Tantalum, I_{OUT}=0.5A		-	60	70	dB
	G5M1119-XXX	V_{IN}=V_{OUT}+3V				dB
Temperature Stability	I_O=10mA		-	0.5	-	%

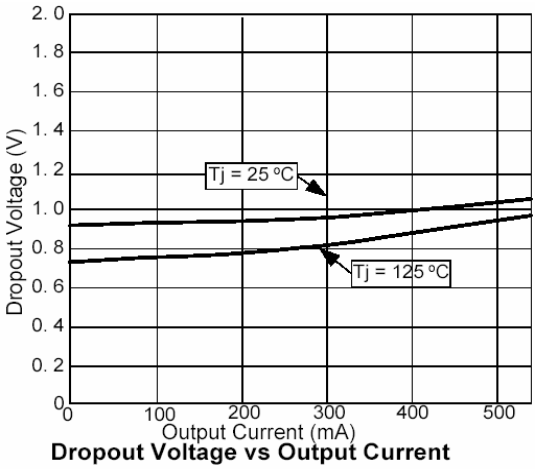
θ_{JA} Thermal Resistance Junction–to-Ambient(No heat sink ;No air flow)		-	300	-	℃/w
θ_{JC} Thermal Resistance Junction-to-Case	Control Circuitry/Power Transistor	-	100	-	℃/w

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 =1/18" from the package.

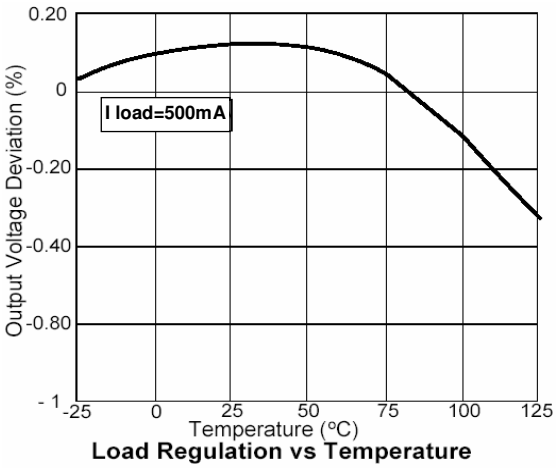
Note 2: Line and load regulation are guaranteed up to the maximum power dissipation of 5W. Power dissipation is determined by the input/output difference and the output current. Guaranteed maximum power dissipation will not be available over the full input/output range.

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

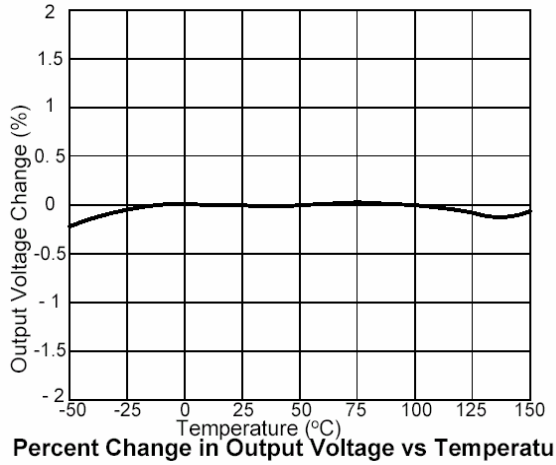
Characteristics Curve



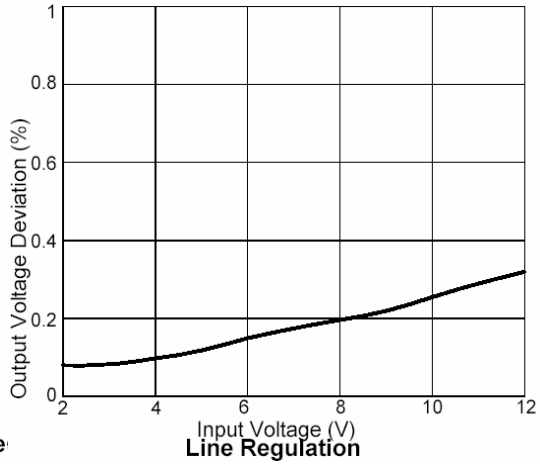
Dropout Voltage vs Output Current



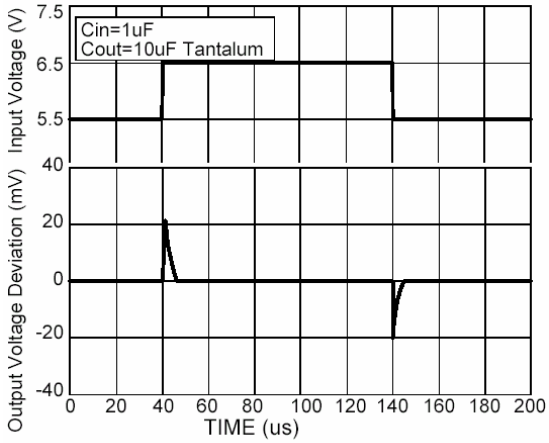
Load Regulation vs Temperature



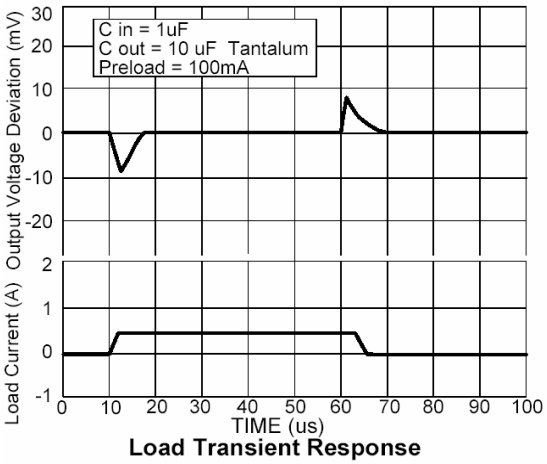
Percent Change in Output Voltage vs Temperature



Line Regulation



Line Transient Response



Load Transient Response

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