

GM2116

CMOS Positive Voltage Regulator

Description

The GM2116 series of positive, linear regulators feature low quiescent current (30 μ A typ.) with low dropout voltage, making them ideal for battery applications.

These rugged devices have both Thermal Shutdown, and Current Fold-back to prevent device failure under the "Worst" of operating conditions.

The GM2116 is stable with an output capacitance of 2.2 μ F or greater.

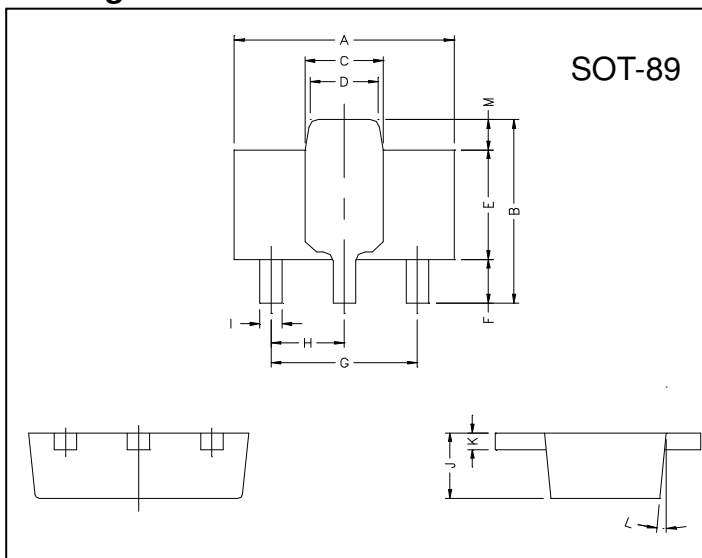
Features

- Very Low Dropout Voltage
- Guaranteed 600mA output
- Over-Temperature Shutdown
- Current Limiting
- Short Circuit Current Fold-back
- Factory Pre-set Output Voltage
- Highly Accurate $\pm 1.5\%$
- Low Temperature Coefficient

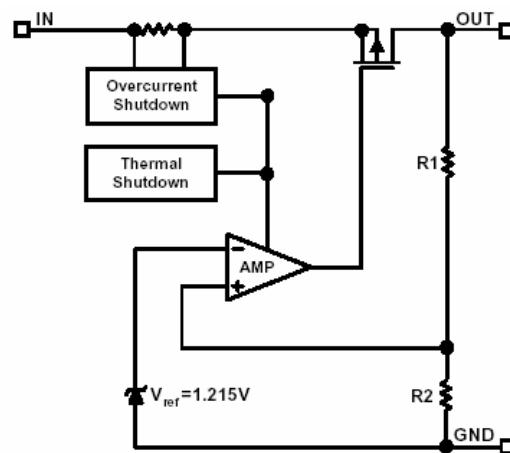
Applications

- Battery Powered Widgets
- Instrumentation
- Wireless Devices
- Cordless Phones
- PC Peripherals
- Portable Electronics
- Electronic Scales

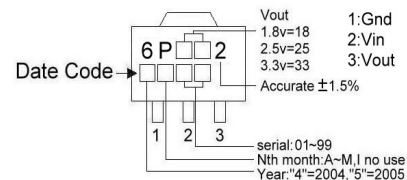
Package Dimensions



Block Diagram

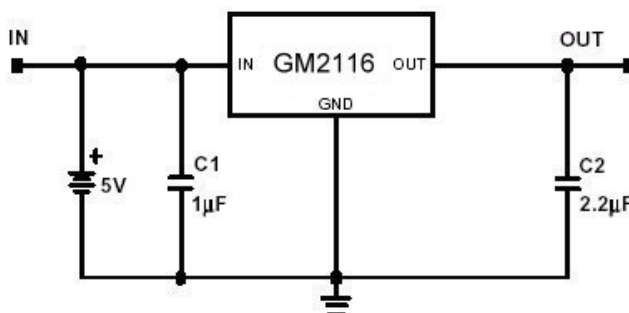


Marking :



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.4	4.6	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	0.89	1.20	L	5°	TYP.
			M	0.70	REF.

Typical Application Circuit



Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Input Max Voltage	V _{IN}	8	V
Output Current	I _{OUT}	1	A
Output Voltage	V _{OUT}	1.3~3.8	V
Supply Voltage	V _{IN}	4.5~5.5	V
Operating Ambient Temperature	T _{opr}	-40 ~ +85	°C
Junction Temperature	T _j	-40 ~ +125	°C
Maximum Junction Temperature	T _{j Max}	150	°C
Thermal Resistance	θ _{jc}	18	°C/W
	θ _{ja}	180	°C/W
Power Dissipation(ΔT=100°C)	PD	550	mW
EDS Classification		B	

Electrical Characteristics Ta=25°C unless otherwise noted

Parameter	Symbol	Condition	Min	TYP	Max	Unit
Output Voltage	V _{OUT(E)} (Note1)	V _{IN} =V _{OUT(T)} +1V, I _o =1mA	-1.5%	V _{OUT(T)} (Note2)	1.5%	V
Output Current	I _o	V _{IN} =V _{OUT(T)} +2V, V _{OUT} ≥V _{OUT(E)} *0.96	600	-	-	mA
Current Limit	I _{LM}	V _O >1.2V	600	800	-	mA
Load Regulation	REG _{LOAD}	V _{IN} =V _{OUT(T)} +2V, I _o =1mA to 600mA	-	0.2	1	%
Dropout Voltage	V _{DROPOUT}	I _o =600mA V _O =V _{OUT(E)} -2%	1.3V≤V _{OUT(T)} ≤1.4V	-	-	1900
			1.4V<V _{OUT(T)} ≤2.0V	-	-	1400
			2.0V<V _{OUT(T)} ≤2.8V	-	-	800
			2.8V<V _{OUT(T)}	-	-	600
Quiescent Current	I _Q	V _{IN} =V _{OUT(T)} +1V, I _o =0mA	-	30	50	μA
Line Regulation	REG _{LINE}	I _o =1mA V _{IN} =V _{OUT(T)} +1 to V _{OUT(T)} +2	1.3V≤V _{OUT(T)} ≤1.4V	-0.2	-	0.2
			1.4V<V _{OUT(T)} ≤2.0V	-0.15	-	0.15
			2.0V<V _{OUT(T)} <4.0V	-0.1	0.02	0.1
			4.0V≤V _{OUT(T)}	-0.4	0.2	0.4
Input Voltage	V _{IN}		Note3	-	7	V
Over Temperature Shutdown	OTS		-	150	-	°C
Over Temperature Hysteresis	OTH		-	30	-	°C
Output Voltage Temperature Coefficient	TC		-	30	-	ppm/°C
Short Circuit Current(Note4)	I _{SC}	V _{IN} =V _{OUT(T)} +1V, V _{OUT} <0.8V	-	300	600	mA
Power Supply Rejection	PSRR	I _o =100mA C _o =2.2μF	f=100Hz	-	60	-
			f=1kHz	-	50	-
			f=10kHz	-	20	-
Output Voltage Noise	e _N	f=10Hz~100kHz I _o =10mA, C _{BYP} =0μF	C _o =2.2μF	-	30	-

Note 1: V_{OUT(E)} =Effective Output Voltage (i.e. the output voltage when "V_{OUT(T)} + 1.0V" is provided at the V_{IN} pin while maintaining a certain I_{OUT} value).

2: V_{OUT(T)} =Specified Output Voltage

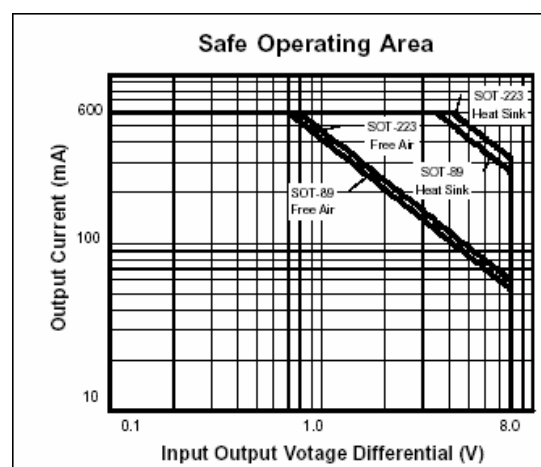
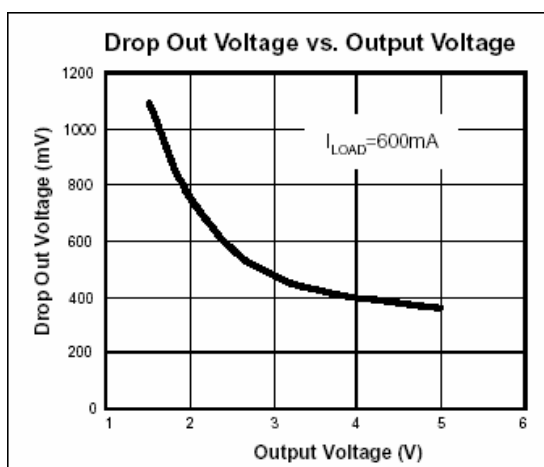
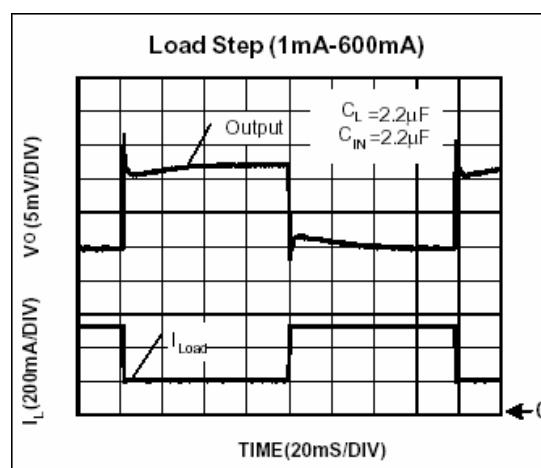
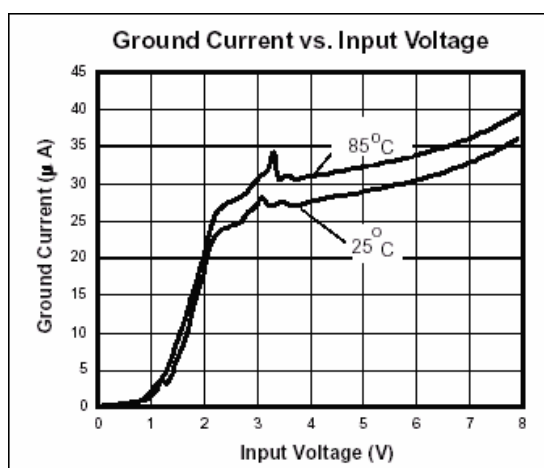
3: V_{IN(MIN)} =V_{OUT}+V_{DROPOUT}

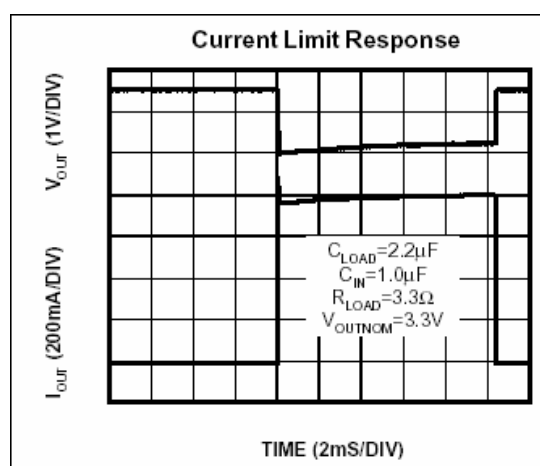
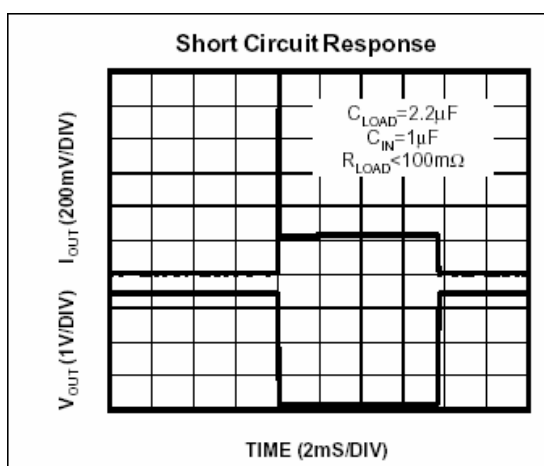
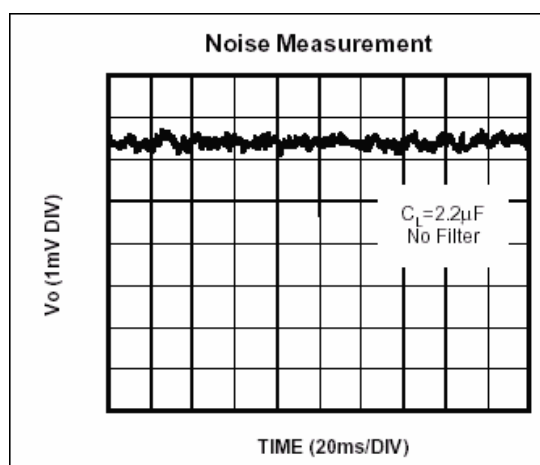
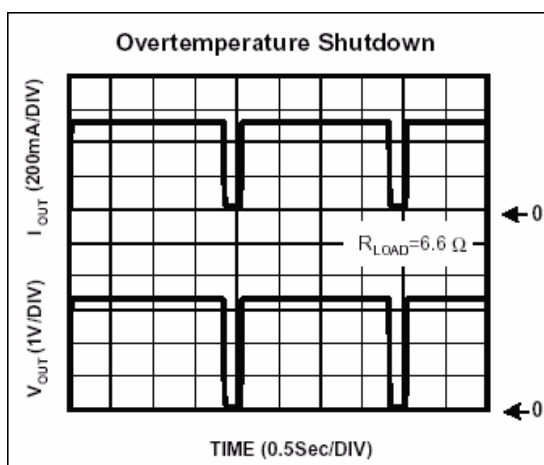
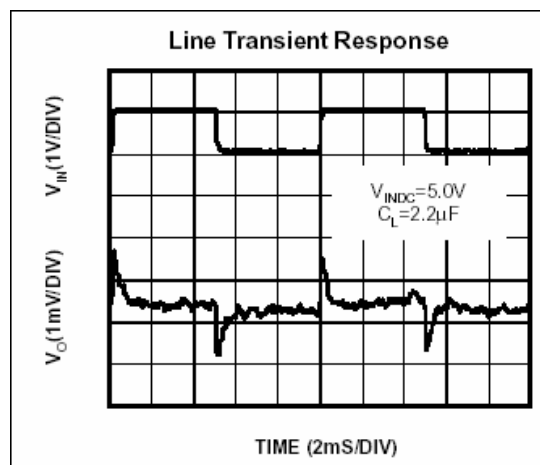
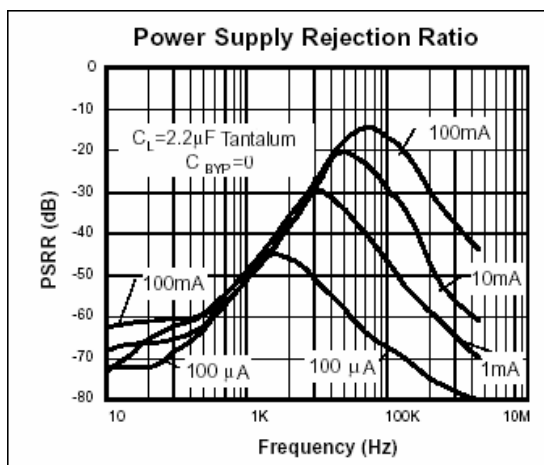
4: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

Ordering Information (contd.)

Part Number	Marking	Output Voltage	Part Number	Marking	Output Voltage
GM2116-13	6P132 XXXX	1.3V	GM2116-15	6P152 XXXX	1.5V
GM2116-18	6P182 XXXX	1.8V	GM2116-19	6P192 XXXX	1.9V
GM2116-20	6P202 XXXX	2.0V	GM2116-25	6P252 XXXX	2.5V
GM2116-27	6P272 XXXX	2.7V	GM2116-28	6P282 XXXX	2.8V
GM2116-29	6P292 XXXX	2.9V	GM2116-30	6P302 XXXX	3.0V
GM2116-31	6P312 XXXX	3.1V	GM2116-33	6P332 XXXX	3.3V
GM2116-34	6P342 XXXX	3.4V	GM2116-35	6P352 XXXX	3.5V
GM2116-36	6P362 XXXX	3.6V	GM2116-37	6P372 XXXX	3.7V
GM2116-38	6P382 XXXX	3.8V	GM2116-2H	6P2H2 XXXX	2.85V

Characteristics Curve





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