

GM2113

CMOS Positive Voltage Regulator

Description

The GM2113 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 GM2113 is stable with an output capacitance of 2.2 μ F or greater.

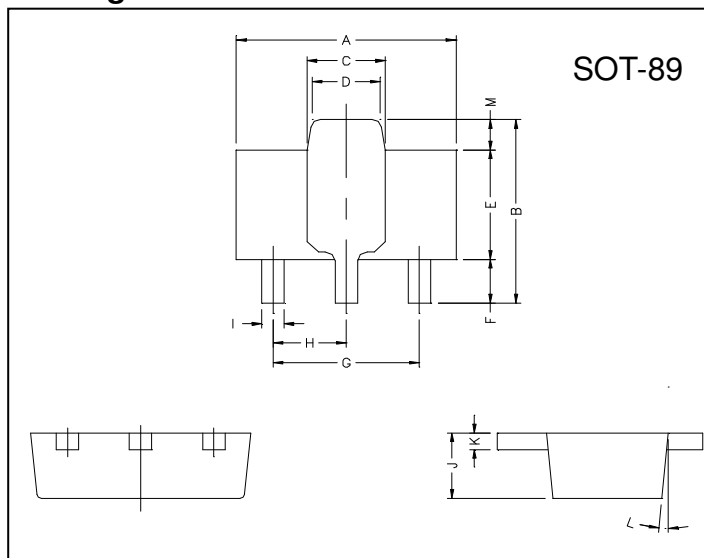
Features

- Very Low Dropout Voltage
- Guaranteed 300mA output
- Over-Temperature Shutdown
- Current Limiting
- Short Circuit Current Fold-back
- Factory Pre-set Output Voltage
- Highly Accurate $\pm 1.5\%$
- Low Temperature Coefficient

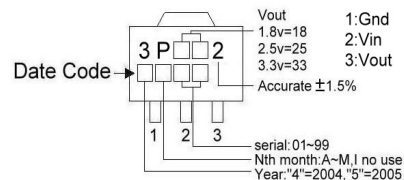
Applications

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

Package Dimensions

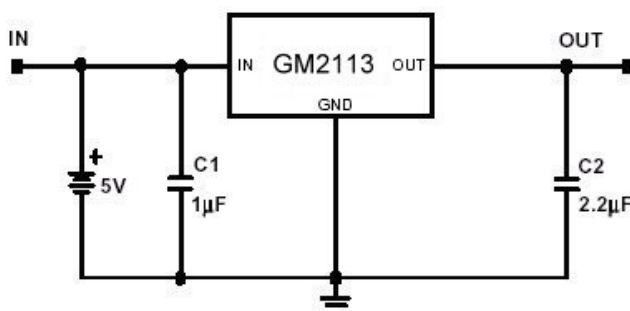


Marking :



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 Voltage	V _{IN}	8	V
Output Current	I _{OUT}	PD/(V _{IN} -V _O)	mA
Output Voltage	V _{OUT}	1.3~5	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}	38	°C/W
	θ _{ja}	180	°C/W
Power Dissipation(ΔT=100°C)	PD	550	mW
EDS Classification		B	

Electrical Characteristics Ta=25°C

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		300	-	-	mA
Current Limit	I _{LIM}	V _O >1.2V		300	450	-	mA
Load Regulation	REG _{LOAD}	V _{IN} =V _{OUT} (T)+2V, I _O =1mA to 300mA		-1	0.2	1	%
Dropout Voltage	V _{DROPOUT}	I _O =300mA V _O =V _{OUT} (E)-2%	1.3V≤ V _{OUT} (T) ≤2.0V	-	-	1300	mV
			2.0V<V _{OUT} (T) ≤2.8V	-	-	400	
			2.8V<V _{OUT} (T)	-	-	300	
Quiescent Current	I _Q	V _{IN} = V _{OUT} (T)+1V		-	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 Hysterisis	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} =0V		-	150	300	mA
Power Supply Rejection	PSRR	I _O =100mA C _O =2.2μF	f=1kHz	-	50	-	dB
			f=10kHz	-	20	-	
			f=100kHz	-	15	-	
Output Voltage Noise	e _N	f=10Hz~100kHz z I _O =10mA	C _O =2.2μF	-	30	-	μVrms

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).

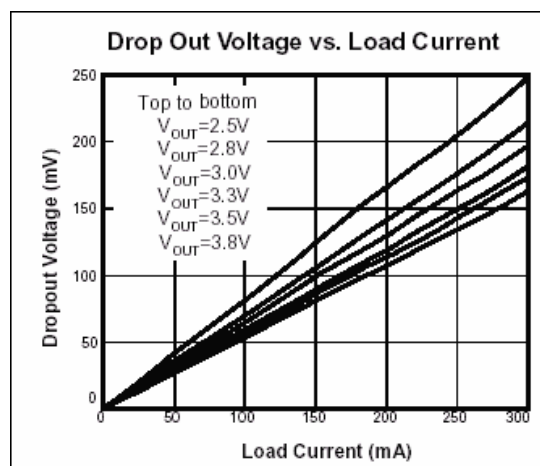
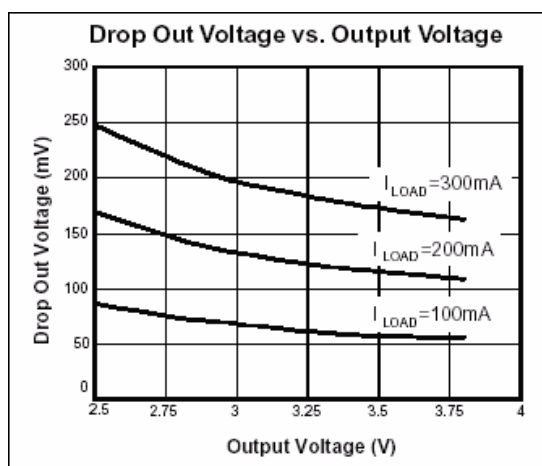
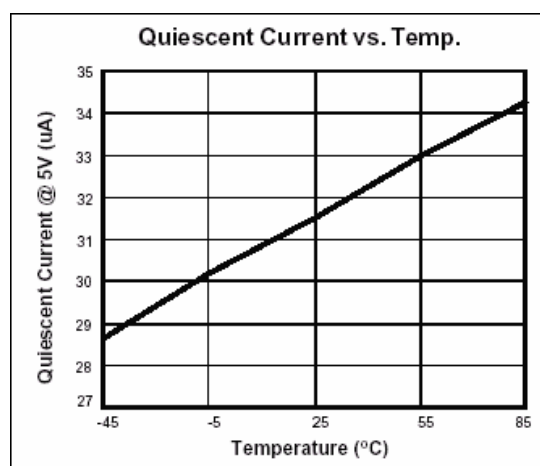
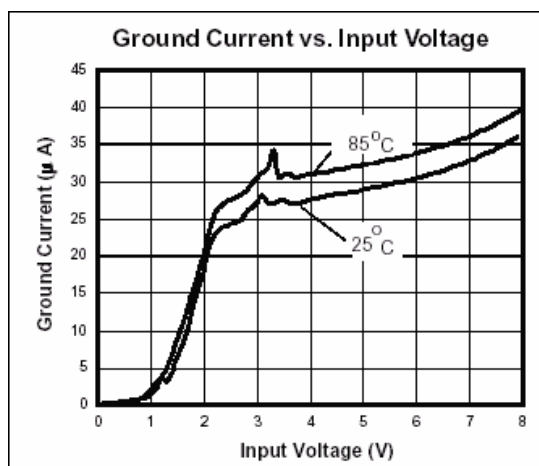
2: V_{OUT(T)} =Specified Output Voltage

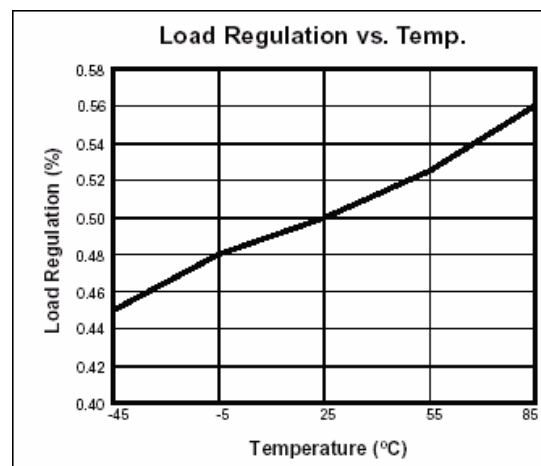
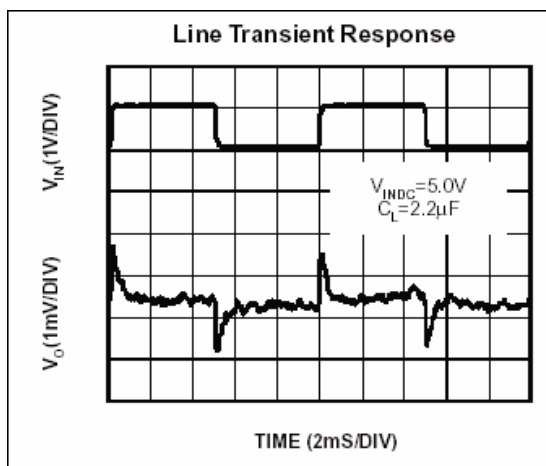
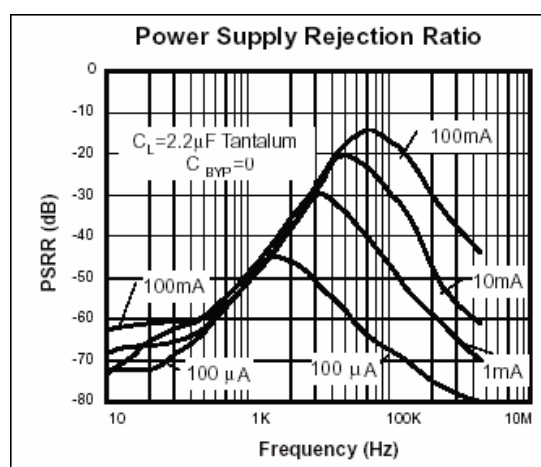
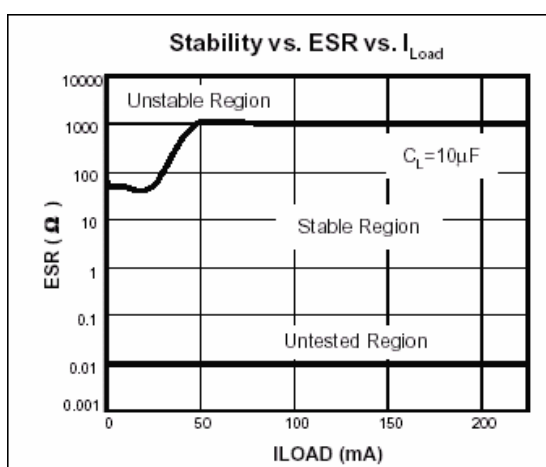
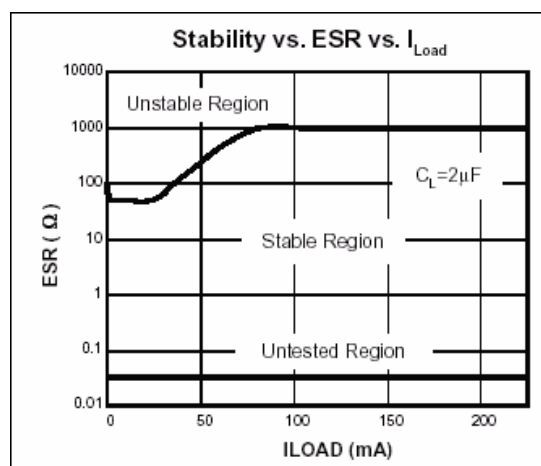
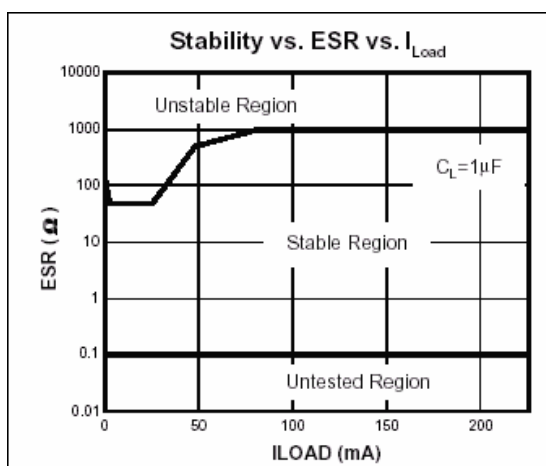
3: V_{IN(MIN)} =V_{OUT}+V_{DROPOUT}

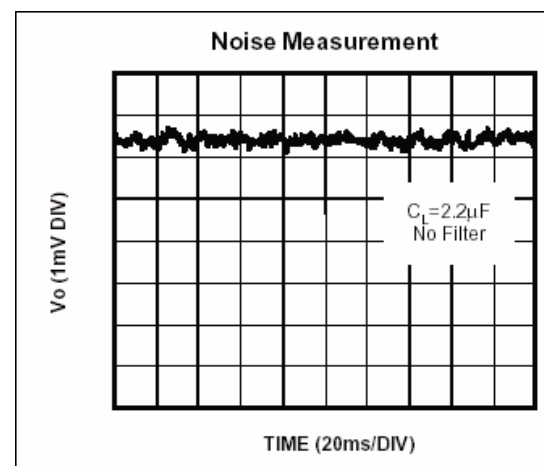
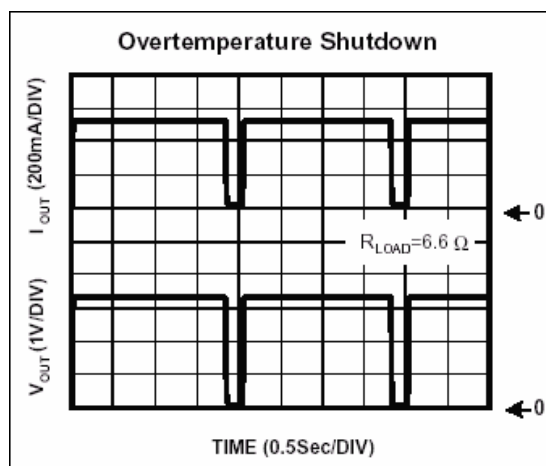
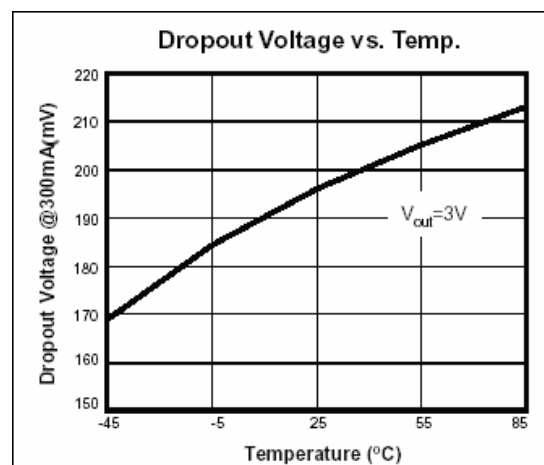
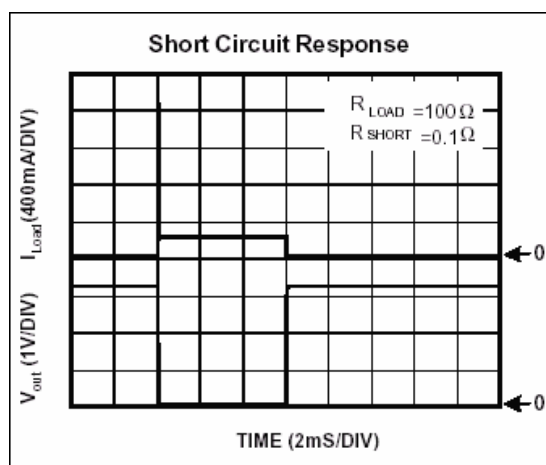
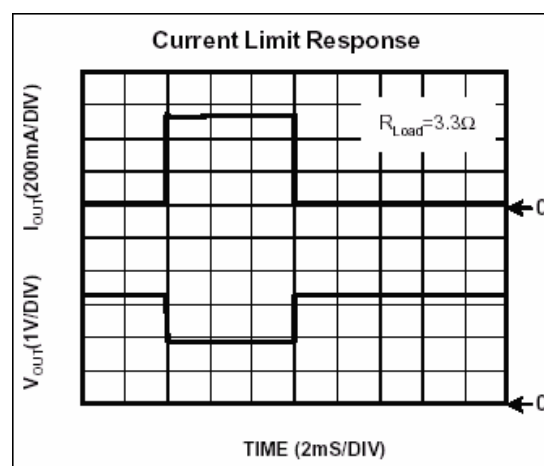
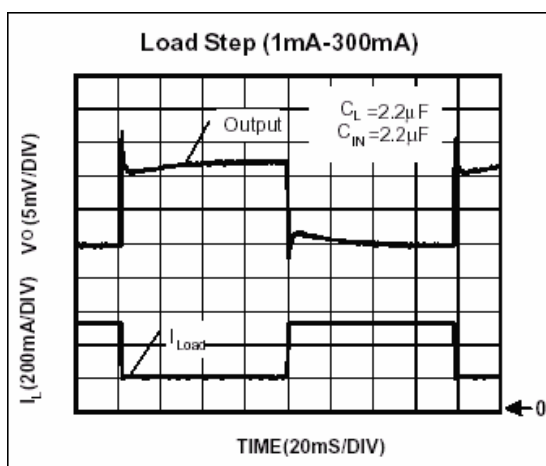
4: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

Ordering Information (contd.)

Part Number	Marking	Output Voltage	Part Number	Marking	Output Voltage
GM2113-13	3P132 XXXX	1.3V	GM2113-15	3P152 XXXX	1.5V
GM2113-18	3P182 XXXX	1.8V	GM2113-19	3P192 XXXX	1.9V
GM2113-20	3P202 XXXX	2.0V	GM2113-25	3P252 XXXX	2.5V
GM2113-27	3P272 XXXX	2.7V	GM2113-28	3P282 XXXX	2.8V
GM2113-29	3P292 XXXX	2.9V	GM2113-30	3P302 XXXX	3.0V
GM2113-31	3P312 XXXX	3.1V	GM2113-33	3P332 XXXX	3.3V
GM2113-34	3P342 XXXX	3.4V	GM2113-35	3P352 XXXX	3.5V
GM2113-36	3P362 XXXX	3.6V	GM2113-37	3P372 XXXX	3.7V
GM2113-38	3P382 XXXX	3.8V	GM2113-50	3P502 XXXX	5.0V

Characteristics Curve



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