

GN2133

CMOS Positive Voltage Regulator

Description

The GN2133 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 GN2133 is stable with an output capacitance of 2.2 μ F or greater.

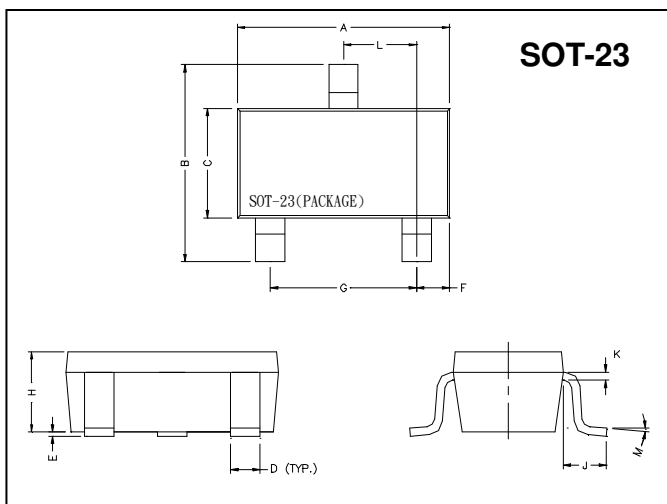
Features

- 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

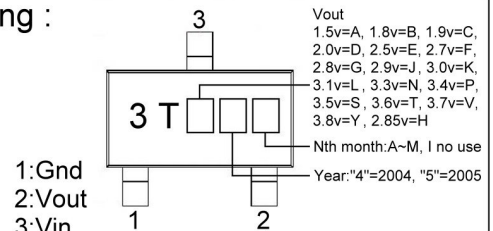
Applications

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

Package Dimensions

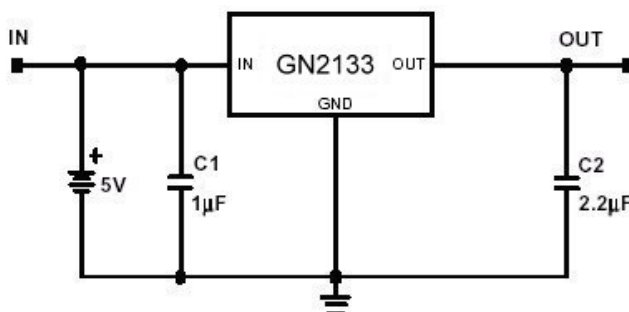


Marking :



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.40	2.80	H	1.00	1.30
C	1.40	1.60	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

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}	1.5~3.8	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}	110	°C/W
	θ _{ja}	325	°C/W
Power Dissipation(ΔT=100°C)	PD	300	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
	PSRR	I _O =100mA Co=2.2μF	f=1kHz	-	50	-	dB
			f=10kHz	-	20	-	
			f=100kHz	-	15	-	
Output Voltage Noise	e _N	f=10Hz~100kHz z I _O =10mA	Co=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

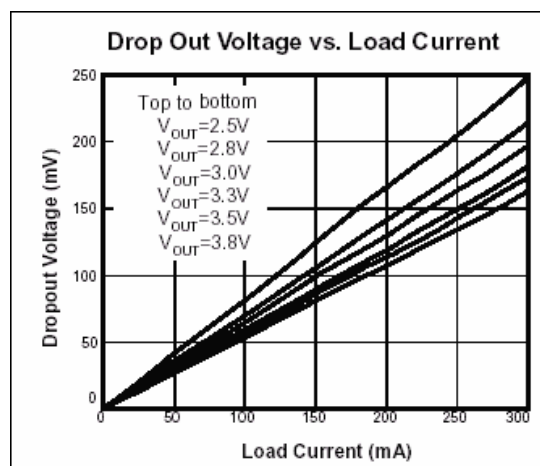
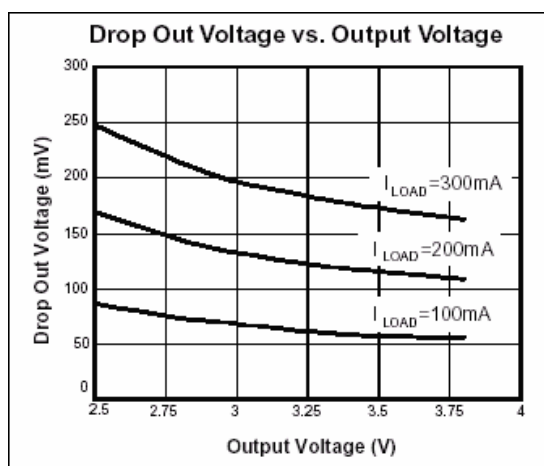
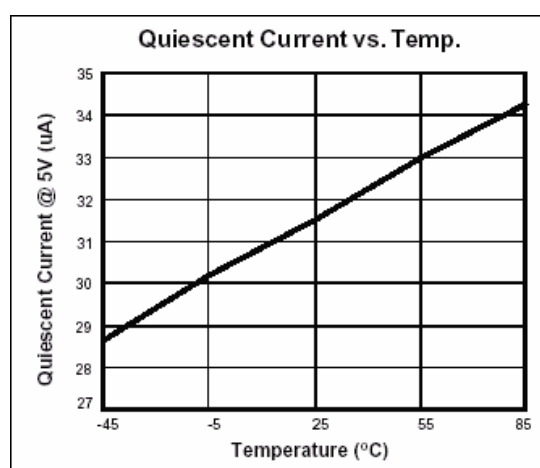
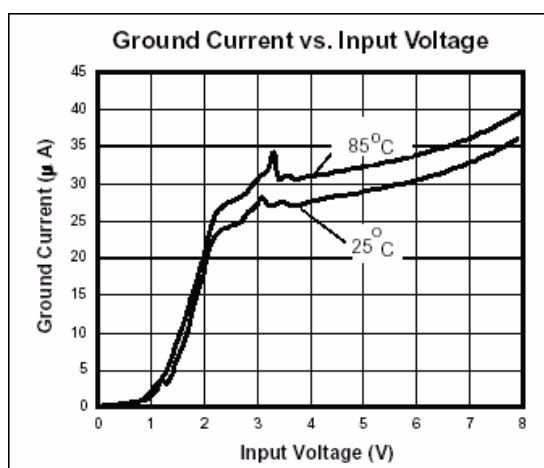
3: V_{IN(MIN)} =V_{OUT}+V_{DROPOUT}

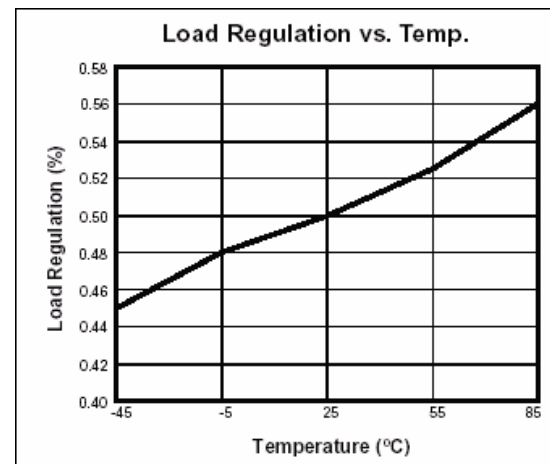
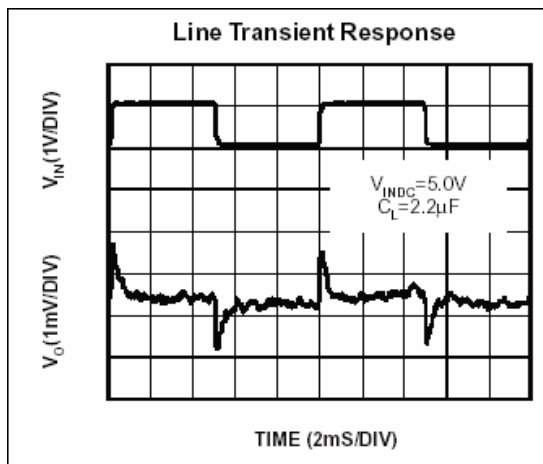
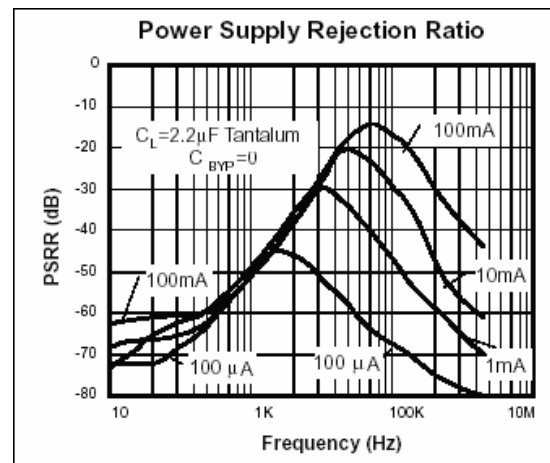
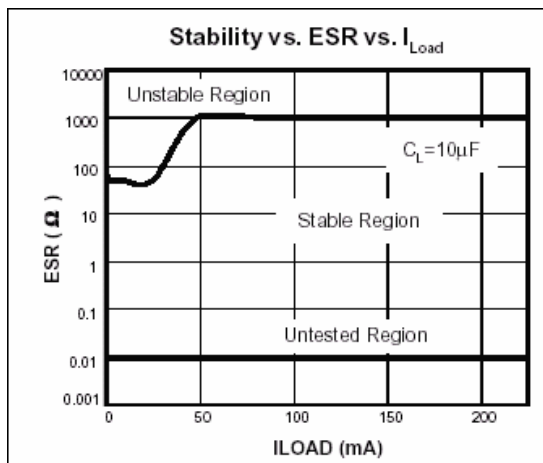
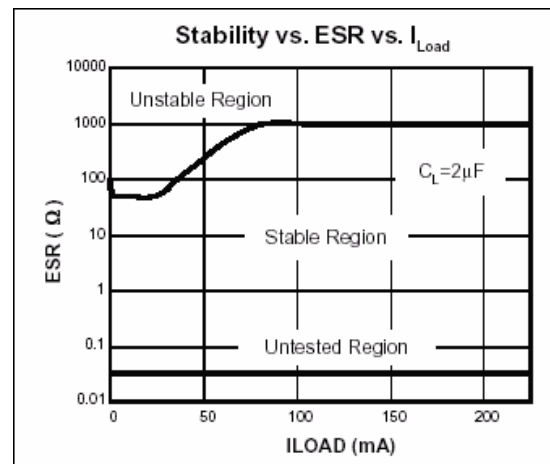
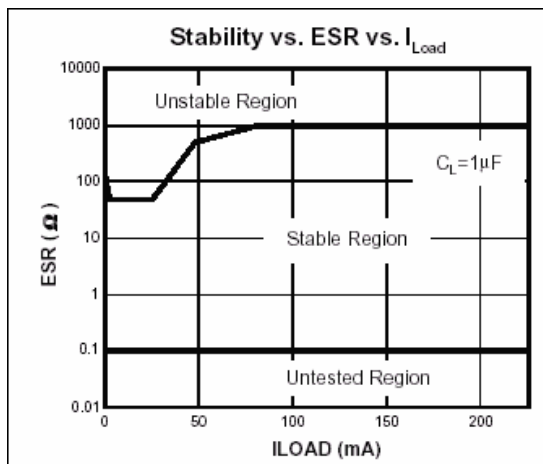
4: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

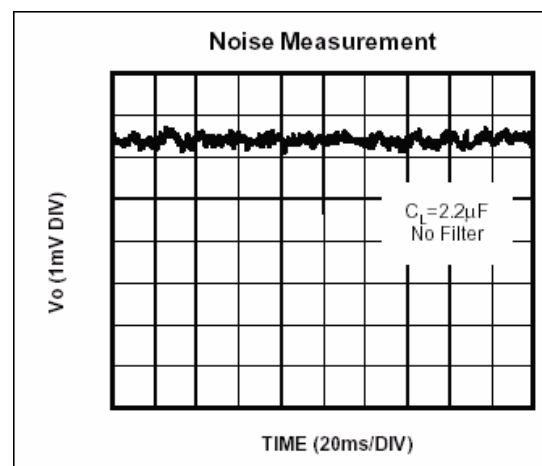
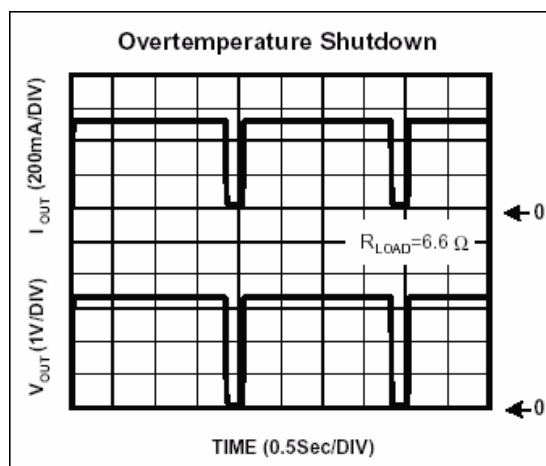
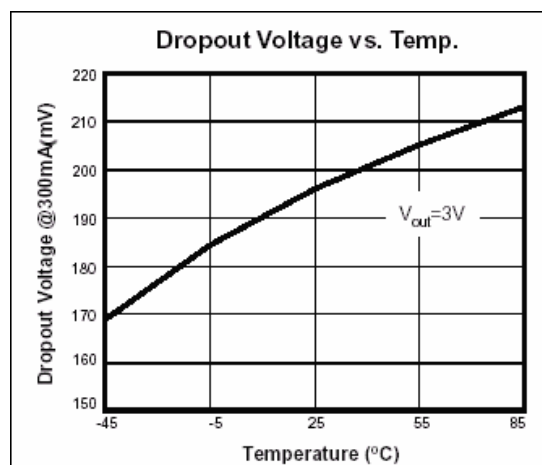
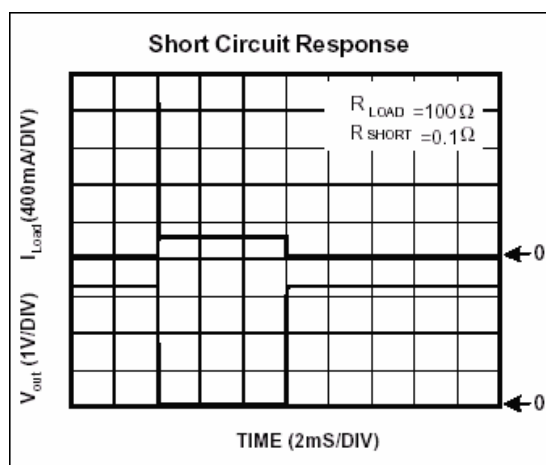
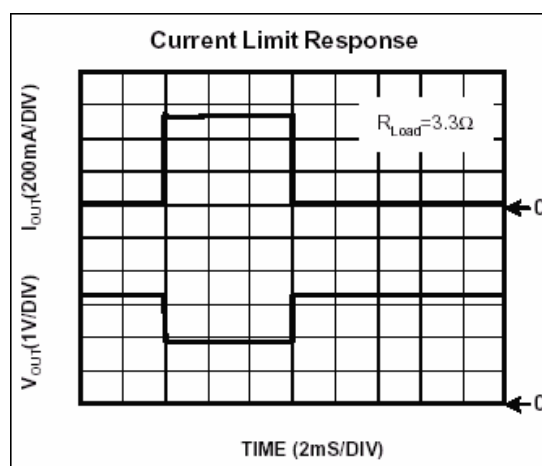
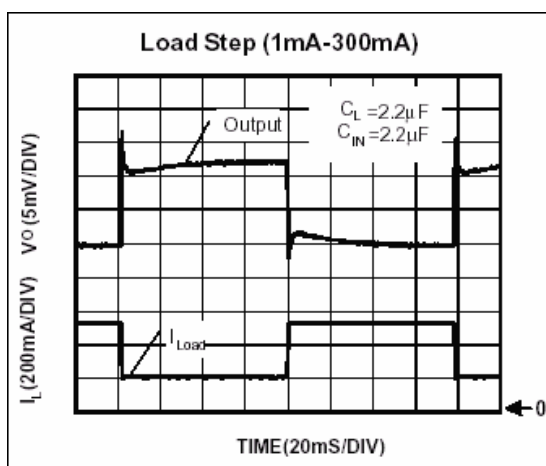
Ordering Information (contd.)

Part Number	Marking	Output Voltage	Part Number	Marking	Output Voltage
GN2133-15	3TAXX	1.5V	GN2133-18	3TBXX	1.8V
GN2133-19	3TCXX	1.9V	GN2133-20	3TDXX	2.0V
GN2133-25	3TEXX	2.5V	GN2133-27	3TFXX	2.7V
GN2133-28	3TGXX	2.8V	GN2133-2H	3THXX	2.85V
GN2133-29	3TJXX	2.9V	GN2133-30	3TKXX	3.0V
GN2133-31	3TLXX	3.1V	GN2133-33	3TNXX	3.3V
GN2133-34	3TPXX	3.4V	GN2133-35	3TSXX	3.5V
GN2133-36	3TTXX	3.6V	GN2133-37	3TVXX	3.7V
GN2133-38	3TYXX	3.8V			

Characteristics Curve







Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of GTM.
- GTM reserves the right to make changes to its products without notice.
- GTM semiconductor products are not warranted to be suitable for use in life-support Applications, or systems.
- GTM assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.

Head Office And Factory:

- Taiwan:** No. 17-1 Tatung Rd. Fu Kou Hsin-Chu Industrial Park, Hsin-Chu, Taiwan, R. O. C.
- TEL : 886-3-597-7061 FAX : 886-3-597-9220, 597-0785
- China:** (201203) No.255, Jang-Jiang Tsai-Lueng RD. , Pu-Dung-Hsin District, Shang-Hai City, China
- TEL : 86-21-5895-7671 ~ 4 FAX : 86-21-38950165