

GL2146

CMOS Positive Voltage Regulator

Description

The GL2146 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 GL2146 is stable with an output capacitance of 2.2 μ F or greater.

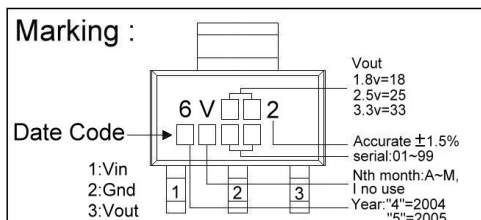
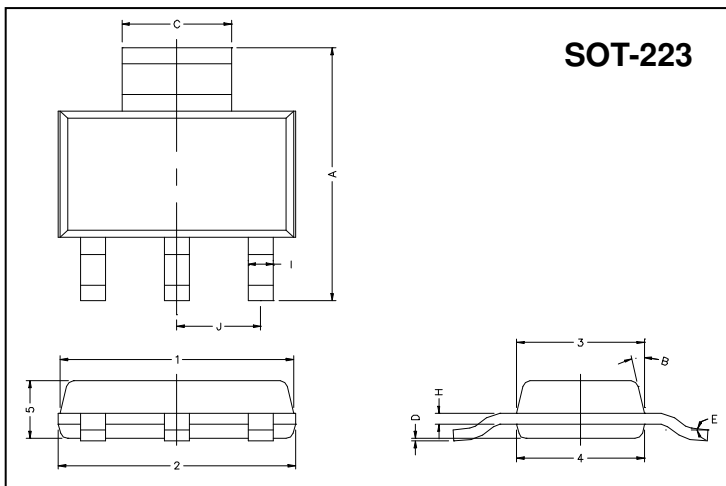
Features

- 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

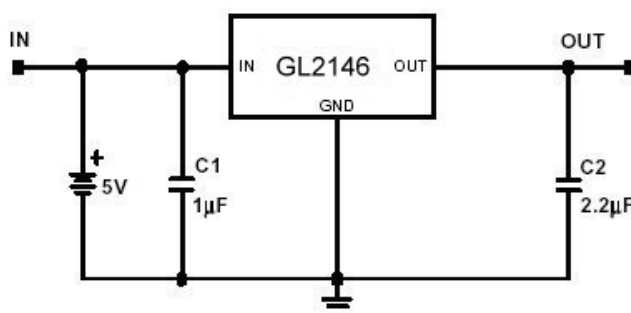
- Battery Powered Widgets
- Instrumentation
- Wireless Devices
- Cordless Phones
- PC Peripherals
- Portable Electronics
- Electronic Scales

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.70	7.30	B	13 TYP.	
C	2.90	3.10	J	2.30 REF.	
D	0.02	0.10	1	6.30	6.70
E	0°	10°	2	6.30	6.70
I	0.60	0.80	3	3.30	3.70
H	0.25	0.35	4	3.30	3.70
			5	1.40	1.80

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}	15	°C/W
	θ _{ja}	160	°C/W
Power Dissipation(ΔT=100°C)	PD	625	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

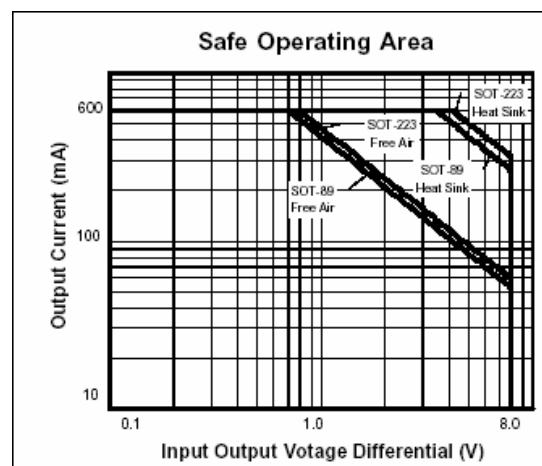
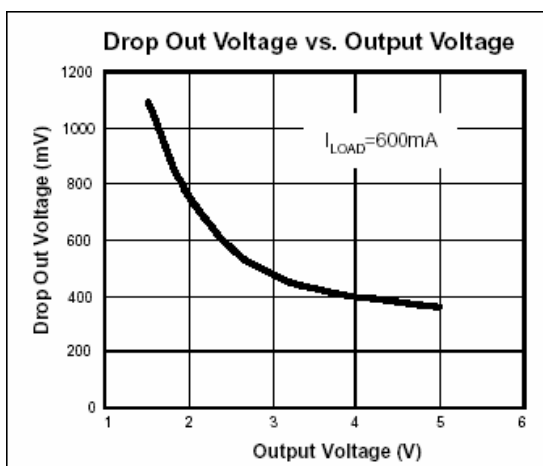
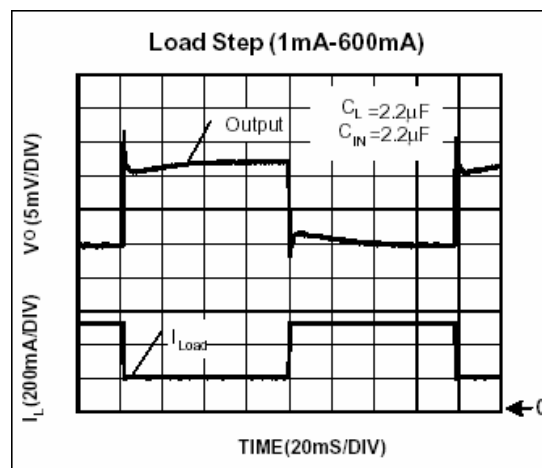
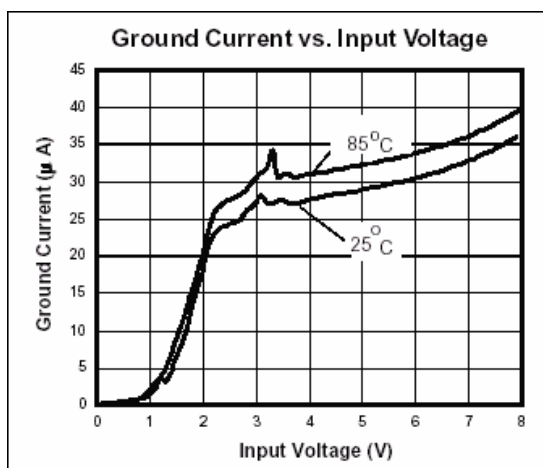
3: V_{IN}(MIN) =V_{OUT}+V_{DROPOUT}

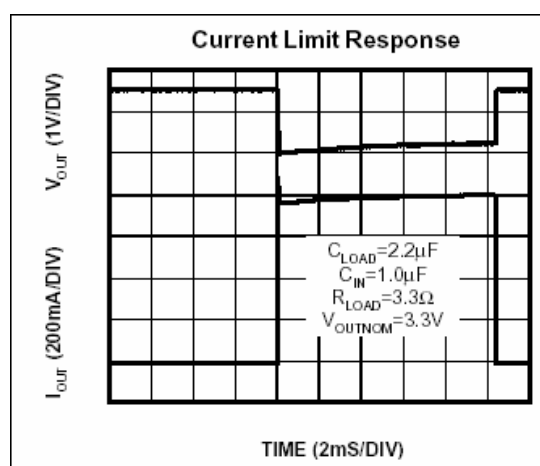
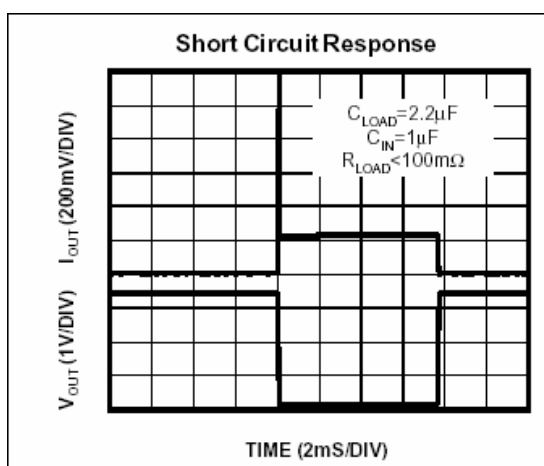
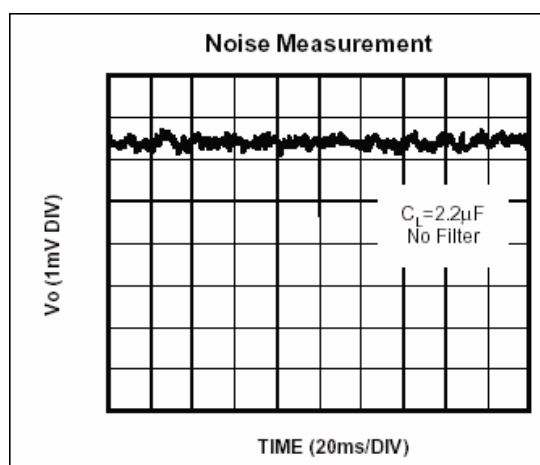
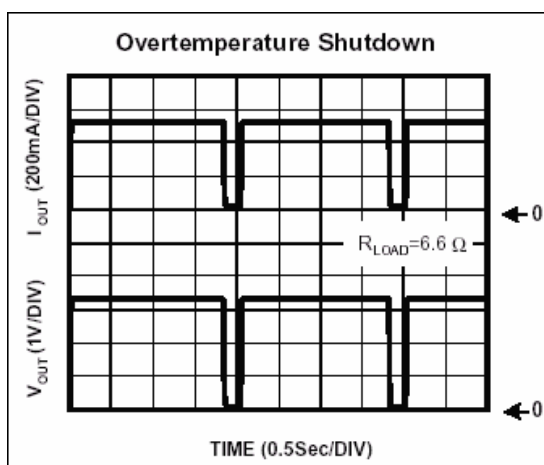
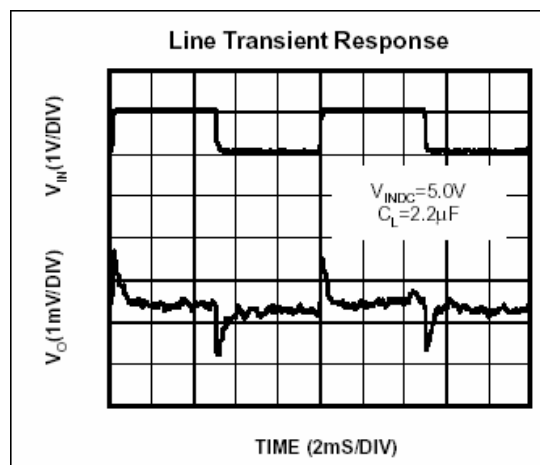
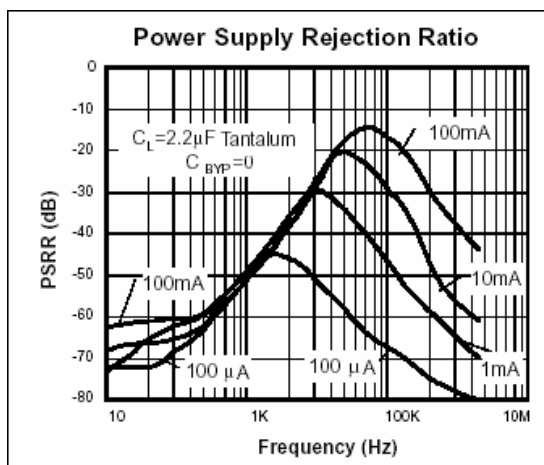
4: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

Ordering Information (contd.)

Part Number	Marking	Output Voltage	Part Number	Marking	Output Voltage
GL2146-13	6V132 XXXX	1.3V	GL2146-15	6V152 XXXX	1.5V
GL2146-18	6V182 XXXX	1.8V	GL2146-25	6V252 XXXX	2.5V
GL2146-27	6V272 XXXX	2.7V	GL2146-28	6V282 XXXX	2.8V
GL2146-29	6V292 XXXX	2.9V	GL2146-30	6V302 XXXX	3.0V
GL2146-31	6V312 XXXX	3.1V	GL2146-33	6V332 XXXX	3.3V
GL2146-34	6V342 XXXX	3.4V	GL2146-35	6V352 XXXX	3.5V
GL2146-36	6V362 XXXX	3.6V	GL2146-37	6V372 XXXX	3.7V
GL2146-38	6V382 XXXX	3.8V			

Characteristics Curve



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