GL2366

600mA STEP-DOWN VOLTAGE REGULATOR

Description

The GL2366 is a step-down, current mode, DC-DC converter. At heavy load, the constant-frequency PWM control performs excellent stability and transient response. To ensure the longest battery life in portable applications, the GL2366 have a power-saving PFM mode that reduces the switching frequency under light load conditions to save power. The GL2366 is supported with a range of input voltages from 2.5V to 5V, allowing the use of a single Li+/Li-polymer cell, multiple Alkaline/NiMH cell, USB, and other standard power sources. The output voltage is adjustable from 0.6V to the input voltage, while the suffix part numbers GL2366-XX indicate pre-set voltage ranges of 3.3V, 1.8V, 1.5V, or 1.2V. The maximum current is 600mA. All versions include internal power switch and synchronous rectifier for minimal external part count and high efficiency. During the shutdown, the input is disconnected from the output and the shutdown current is less than 0.1uA . Other key features include under-voltage lockout to prevent deep-battery discharge and Soft-start to prevent Input current overshoots at start up. The GL2366 Is available in SOT-23-5 package.

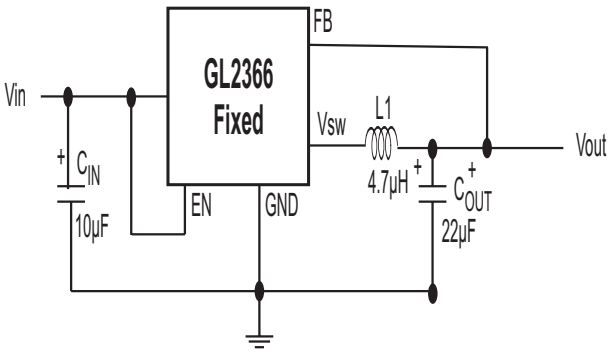
Features

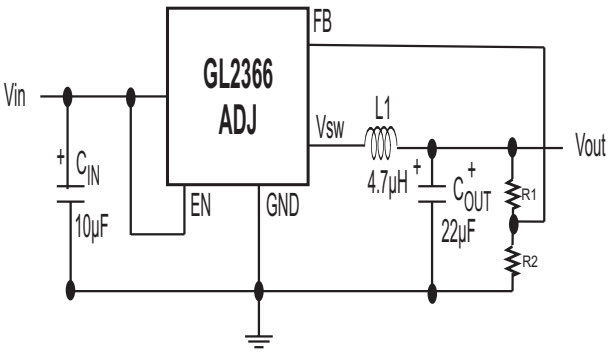
- Efficiency up to 93%
- Only 20uA(TYP.) Quiescent Current
- Internal Synchronous Rectifier
- 1.5MHz Switching Frequency
- Under-Voltage Lockout
- Soft-Start
- Short Circuit Protection
- 5-pin Small SOT-23-5 Package

Application

- Cellular phone
- Portable electronics
- Wireless Devices
- Cordless phone
- Computer peripherals
- Battery Powered Widgets
- Electronic scales

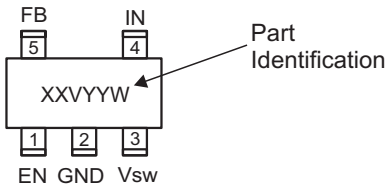
TYPICAL APPLICATIONS





◆ MARKING INFORMATION & PIN CONFIGURATIONS

SOT-25 (SOT-23-5)



Adjustable Voltage

XX = Marking Code(BA = GL2366)
V = Voltage Code
YY = Year
W = Weekly

◆ ORDERING INFORMATION (Green Package Products are available now!)

Ordering Number	Output Voltage	Package	Shipping
GL2366-AST25R	Adj	SOT-23-5	3000 Units / Reel
GL2366-1.2ST25R	1.2	SOT-23-5	3000 Units / Reel
GL2366-1.5ST25R	1.5	SOT-23-5	3000 Units / Reel
GL2366-1.8ST25R	1.8	SOT-23-5	3000 Units / Reel
GL2366-3.3ST25R	3.3	SOT-23-5	3000 Units / Reel

* For detail Ordering Number identification, please see last page.

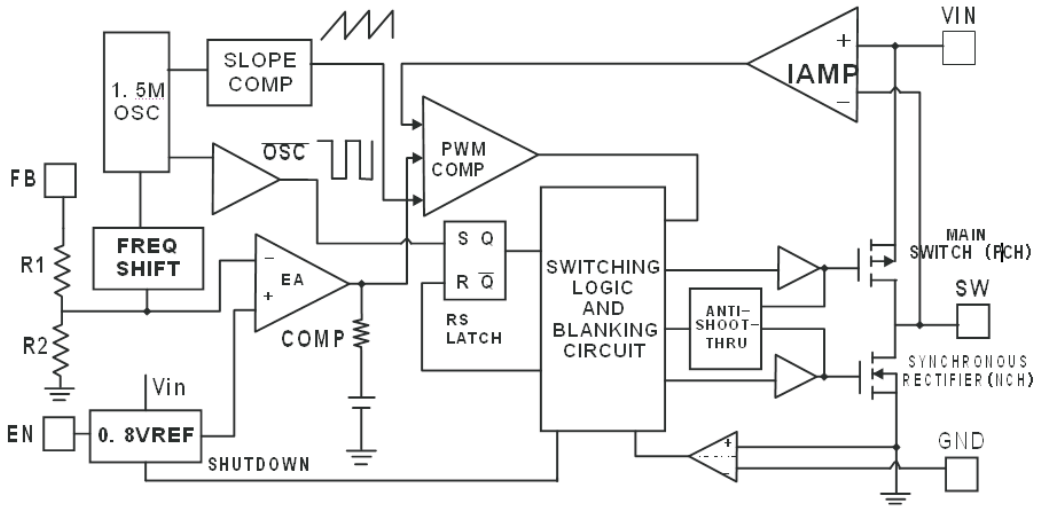
◆ ABSOLUTE MAXIMUM RATINGS

Rating	Value	Unit
Maximum Supply Voltage	6	V
$\overline{ON}$/OFF Pin Input Voltage/ Feed back pin voltage	-0.3 ≤ V ≤ Vin	V
Power Dissipation	Internally Limited	-
Storage Temperature Range	-65 to + 150	°C
Maximum Junction Temperature	+125	°C
Minimum ESD Rating (C=100pF, R=1.5kΩ)	2	kV
Lead Temperature (Soldering, 5 sec.)	+300	°C

◆ OPERATING CONDITIONS

Rating	Value	Unit
Temperature Range	- 20 ≤ T_J ≤+85	°C
Supply Voltage	2.5 to 5	V

◆ BLOCK DIAGRAM



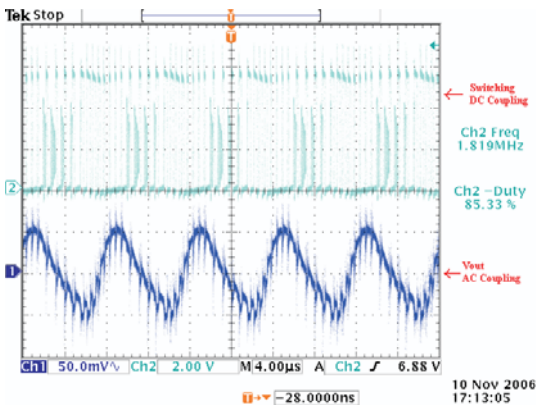
ELECTRICAL CHARACTERISTICS: All Output Voltage Versions

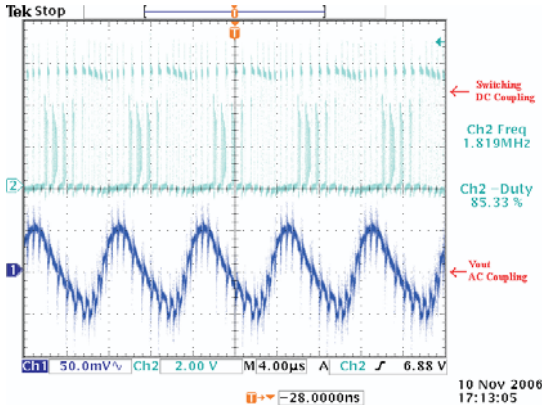
Specifications with standard type face are for T_A = 25 ℃, V_{IN}= 5V, V_{OUT}= 1.8V, C_{IN}= 10uF, C_{OUT}= 10uF, L=4.7uH

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Input Voltage Range		V_{IN}	-	-	5.5	V
Regulated Feedback Voltage		V_{FB}	0.588	0.6	0.612	V
V_{REF} Line Regulation	V_{IN} =2.5V to 5.5V	$\triangle V_{FB}$	-	0.3	-	%/V
Regulated output Voltage	I_{OUT} =100mA	V_{OUT}	-3		+3	%
Peak Inductor Current	V_{IN}=3V, V_{FB}=0.5 or V_{OUT}=90%	I_{PK}		0.9		A
V_{OUT} Line Regulation	V_{IN} =2.5V to 5.5V, I_{OUT} =10mA	LNR		0.5		%/V
V_{OUT} Load Regulation	I_{OUT} =1mA to 600mA	LDR		0.5		%
Quiescent Current	No Load	I_Q		20		μA
Shutdown Current	V_{EN} =0	I_{SD}		0.05		μA
Oscillator Frequency	V_{OUT} =100%	F_{OSC}		1.5		Mhz
	V_{FB} =0, or V_{OUT} =0	F_{OSC}		500		Khz
Drain-Source On-State Resistance	P MOSFET, I_{DS} = 100mA	$R_{DS(ON)}$		0.3		Ω
	N MOSFET, I_{DS} = 100mA	$R_{DS(ON)}$		0.3		Ω
SW Leakage Current		I_{LSW}		0.01		μA
EN Thershold High		V_{EH}	1.3			V
EN Thershold Low		V_{EL}			0.4	V
EN Leakage Current		I_{EN}		0.01		μA

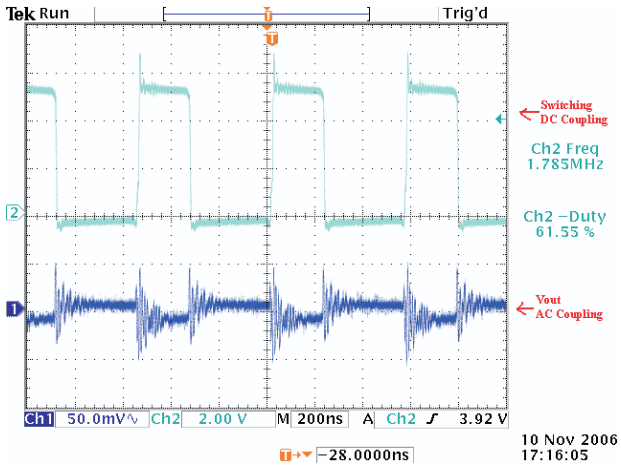
Typical Performance Characteristics

Test Environment: T_A = 25 C, V_{OUT}= 1.8V(For ADJ R1:51K ohm, R2:100Kohm), C_{IN}= 10uF, C_{OUT}= 10uF, L=4.7uH

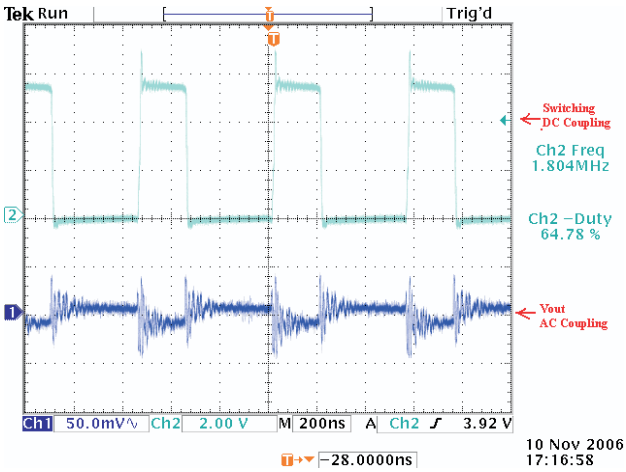




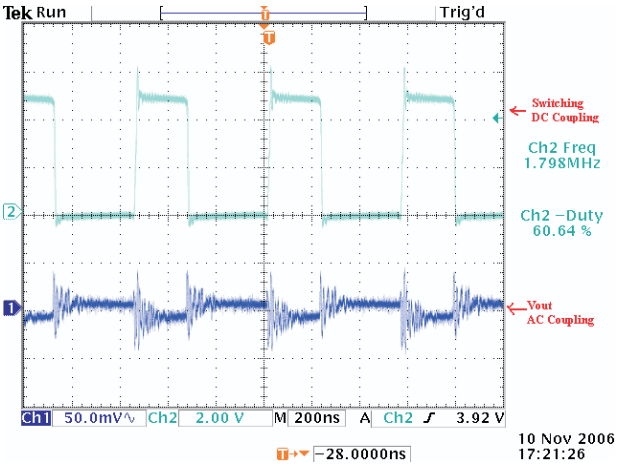
Test Conditions: Vin=5.5V.Io=200mA



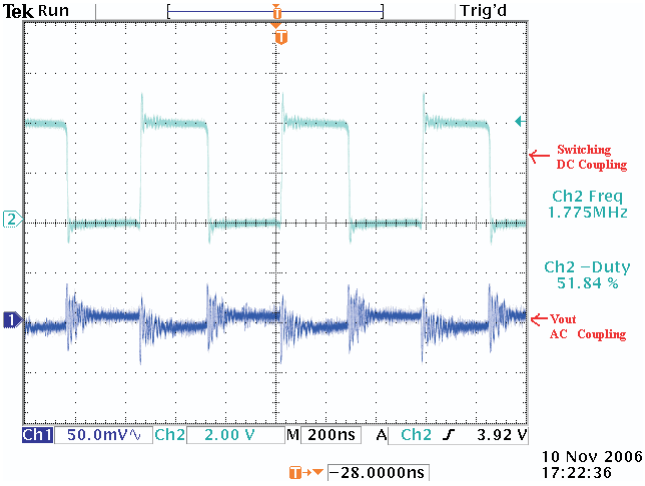
Test Conditions:Vin=5.5V,Io=800mA



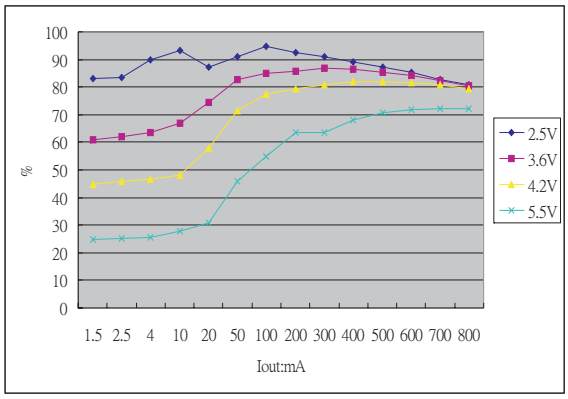
Test Conditions:Vin=5.5V,Io=400mA



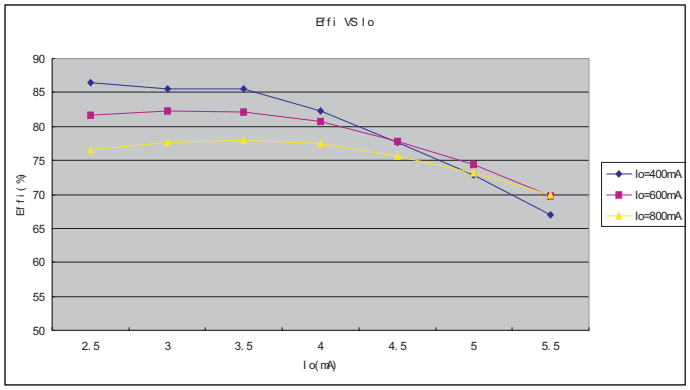
Test Conditions:Vin=5.0V,Io=400mA



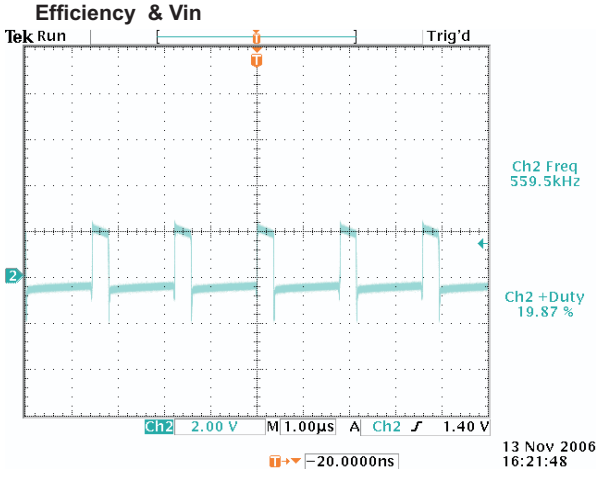
Test Conditions:Vin=3.0V,Io=400mA



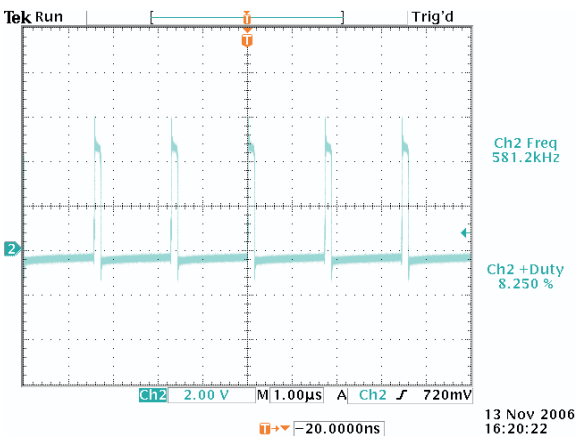
Efficiency & Vin



Efficiency & Iout

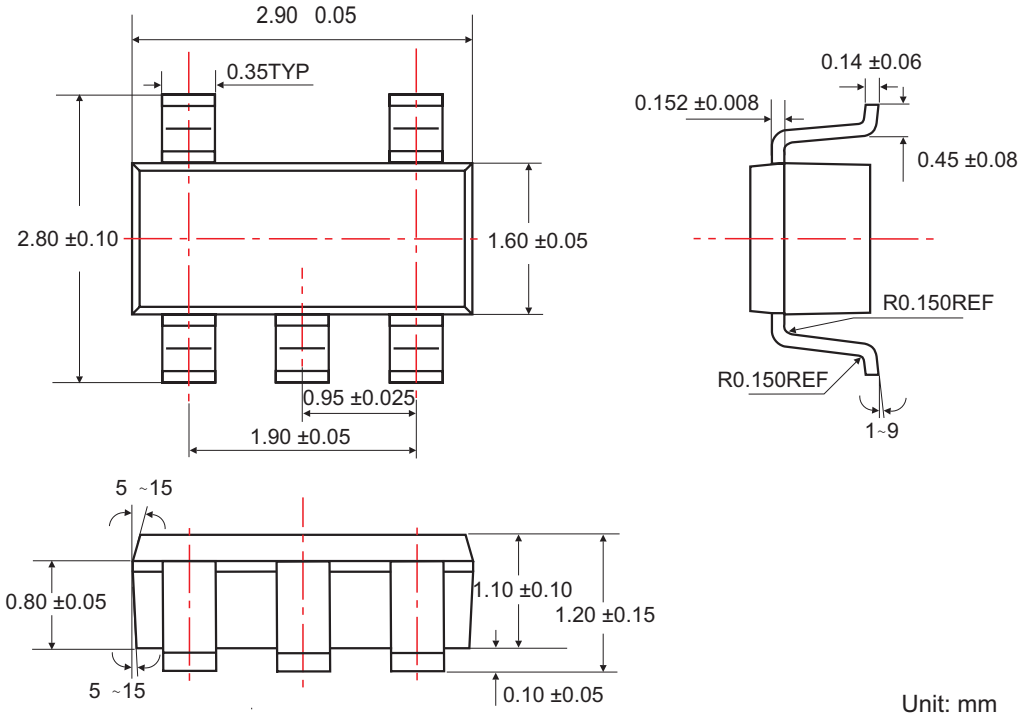


Vout Short to GND, Vin=2.5V



Vout Short to GND, Vin=4.5V

◆ SOT-25(SOT-23-5) PACKAGE OUTLINE DIMENSIONS



Unit: mm

◆ ORDERING NUMBER