1.5MHz 600mA, Synchronous Step-Down Regulator

General Description

EML9366 is designed with high efficiency step down DC/DC converter for portable devices applications. It features with extreme low quiescent current with no load which is the best fit for extending battery life during the standby mode. The device operates from 2.5V to 5.5V input voltage and up to 600mA output current capability. High 1.5MHz internal frequency makes small surface mount inductors and capacitors possible and reduces overall PCB board space. Further, build-in synchronous switch makes external Schottky diode is no longer needed and efficiency is improved. EML9366 is designed base on pulse width modulation (PWM) for low output voltage ripple and fixed frequency noise, low dropout mode provides 100% duty cycle operation. Low reference voltage is designed for achieving regulated output down to 0.6V.
The device is available in an adjustable version and fixed output voltages of 1.2V, 1.5V, 1.8V and 3.3V. The EML9366 is available in SOT package.

Features

- Achieve 95% efficiency
- Input Voltage : 2.5V to 5.5V
- Output Current up to 600mA
- Reference voltage 0.6V
- Quiescent Current 200 μA with No Load
- Internal switching frequency 1.5MHz
- No Schottky Diode needed
- Low Dropout Operation: 100% Duty Cycle
- Shutdown current < 1 μA
- Excellent Line and Load Transient Response
- Over-temperature Protection

Applications

- Blue-Tooth devices
- Cellular and Smart Phones
- Personal multi-media Player (PMP)
- Wireless networking
- Digital Still Cameras
- Portable applications

Typical Application (adjustable)

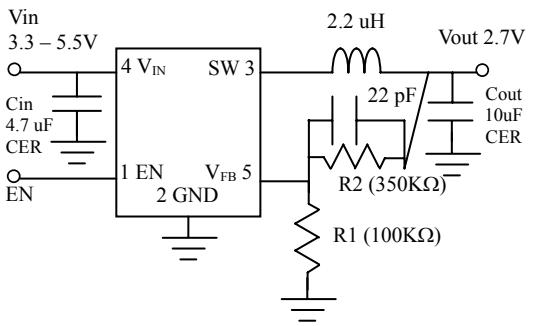


Fig. 1

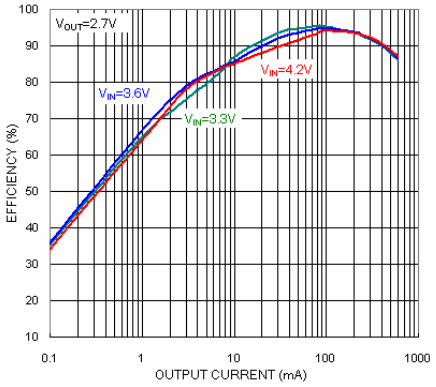
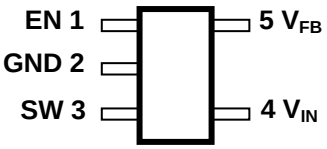


Fig. 2

CONNECTION DIAGRAM

SOT-23-5



ORDER INFORMATION

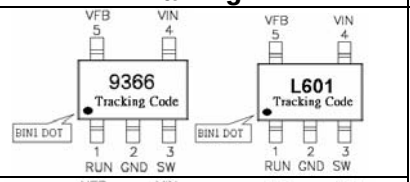
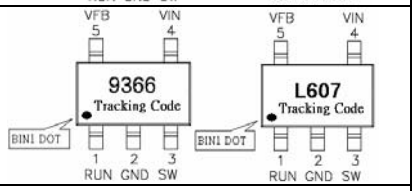
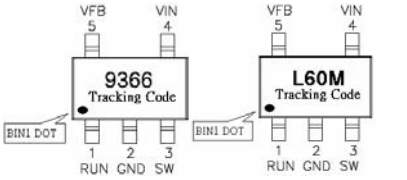
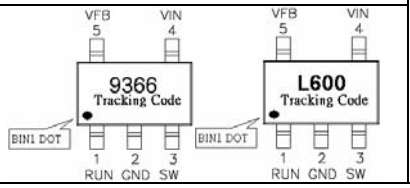
EML9366-XXVF05GRR/NRR

XX Output voltage

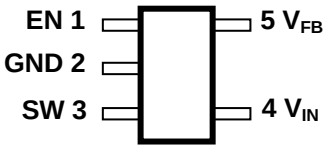
VF05 SOT-23-5Package

GRR RoHS (Pb Free)
Rating: -40 to 85°C
Package in Tape & Reel

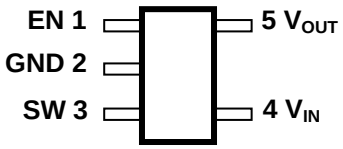
NRR RoHS & Halogen free (By Request)
Rating: -40 to 85°C
Package in Tape & Reel

Package	Vout	Product ID	Marking	Packing
SOT-23-5	1.2	EML9366-12VF05GRR		Tape & Reel 3Kpcs
	1.8	EML9366-18VF05GRR		
	3.3	EML9366-33VF05GRR		
SOT-23-5	adjustable	EML9366-00VF05GRR		

Package configuration



Adjustable
SOT-23-5
T_{JMAX}=125°C, θ_{JA}=250°C, θ_{JC}=90°C /W



Fixed voltage
SOT-23-5
T_{JMAX}=125°C, θ_{JA}=250°C, θ_{JC}=90°C /W

Pin Functions

Pin #	Pin Name	Function
1	EN	Enable Pin. Minimum 1.2V to enable the device. Maximum 0.4V to shut down the device. Do not leave this pin floating and enable the chip after Vin is in the input voltage range.
2	GND	Ground Pin.
3	SW	Switch Pin. Must be connected to Inductor. This pin connects to the drains of the internal main and synchronous power MOSFET switches.
4	V_{IN}	Input voltage Pin. Must be closely decoupled to GND pin with a 4.7μF or greater ceramic capacitor.
5	V_{FB} (Adjustable)	Feedback Pin. Receives the feedback voltage from an external resistive divider across the output.
	V_{OUT} (Fixed voltage)	Output Voltage Pin. An internal resistive divider divides the output voltage down for comparison to the internal reference voltage.