1.5MHz 1A, Synchronous Step-Down Regulator

General Description

EML3020 is a high efficiency step down DC/DC converter. It features an extremely low quiescent current, which is suitable for reducing standby power consumption, especially for portable applications.

The device can accept input voltage from 2.5V to 5.5V and deliver up to 1A output current. High 1.5MHz switching frequency allows the use of small surface mount inductors and capacitors to reduce overall PCB board space. Furthermore, the built-in synchronous switch improves efficiency and eliminates external Schottky diode. EML3020 uses different modulation algorithms for various loading conditions: (1) Pulse Width Modulation (PWM) for low output voltage ripple and fixed frequency noise, (2) Pulse Frequency Modulation (PFM) for improving light load efficiency, and (3) Low Dropout (LDO) Mode for providing 100% duty cycle operation during heavy loading. Adopting low reference voltage design reduces regulated output to 0.6V. The adjustable version of this device is available in both of TDFN-6 2x2mm and SOT-23-5 package.

Features

- Achieve 97% efficiency
- Input voltage : 2.5V to 5.5V
- Output current up to 1A
- Reference voltage: 0.6V
- Quiescent current $15\,\mu$A with no load
- Internal switching frequency: 1.5MHz
- No Schottky diode needed
- Low dropout operation: 100% duty cycle
- Shutdown current < $1\,\mu$A
- 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
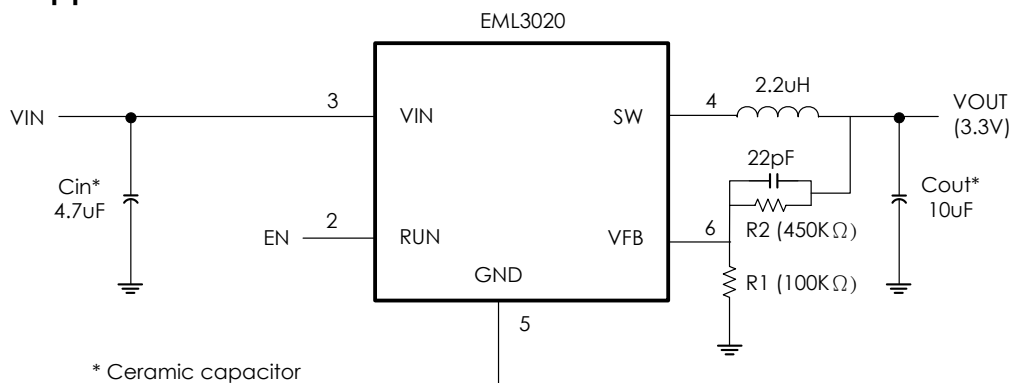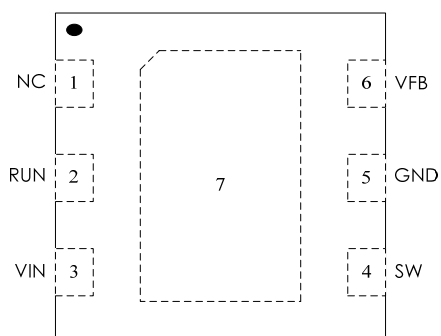- Portable applications
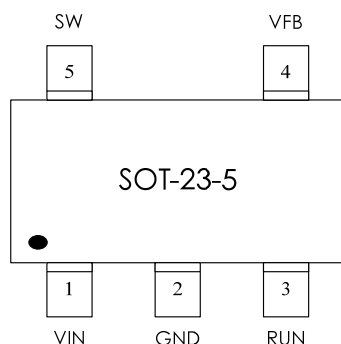
Typical Application

Fig. 1

Package Configuration

TDFN-6 (2x2mm)

EML3020-00FE06NRR

00	Adjustable
FE06	TDFN-6 (2x2mm) Package
NRR	RoHS & Halogen free package
	Commercial Grade Temperature
	Rating: -40 to 85°C
	Package in Tape & Reel

SOT-23-5

EML3020-00VF05NRR

00	Adjustable
VF05	SOT-23-5 Package
NRR	RoHS & Halogen free package
	Commercial Grade Temperature
	Rating: -40 to 85°C
	Package in Tape & Reel

Order, Mark & Packing information

Package	Vout(V)	Product ID	Marking	Packing
TDFN-6	adjustable	EML3020-00FE06NRR	3020 Tracking Code	Tape & Reel 3K units
SOT-23-5	adjustable	EML3020-00VF05NRR	3020 Tracking Code	Tape & Reel 3K units