

Preliminary Data Sheet

May 19, 2006

Aivaka

AV2102-Adj.

600mA, High Efficiency, Low Input Voltage, Adjustable Synchronous Monolithic Step-Down DC-DC Regulator.

Features

- Input Voltage of as low as **1.3V to 5.5V**
- Output Current of up to 600mA
- Synchronous operation with built-in power transistors (No need for external diodes).
- Adjustable output voltage $\geq 300\text{mV}$
- Low ripple of $< 10\text{mV}$ p-p
- Duty cycle of 10% to 90%
- High Efficiency of Up to 90%
- Output Accuracy of 2%
- Shutdown current of $< 1\mu\text{A}$
- 300mV internal reference voltage
- Built-in soft start
- Small 8 pin DFN package

Application

- Mobile Phones
- Digital Still Camera
- PDA
- Portable Instruments
- Battery Powered Equipment
- Personal Information Appliances
- MP3 Player

Description

The AV2102-Adj is a synchronous monolithic step-down switching regulator. The AV2102-Adj is designed to operate from a wide input voltage range of 1.3V to 5.5V. This enables the system to operate from either 2 or 3 “household” AA or AAA (Alkaline or NiMH) batteries, or from a single Lithium (Li-Ion or Li-Metal) battery. It is capable of producing a 300mV output with an efficiency of up to 90%. It has a built-in soft-start mechanism without the need for any external components, and has a very low AC voltage ripple (less than 10mV peak-to-peak) at the output.

The output of AV2102-Adj can be set to a voltage as low as 300mV with an accuracy of $\pm 2\%$. The integrated switches enable the system designers to reduce total part count, and at the same time maximize power density and efficiency of the regulator. The AV2102-Adj can replace traditional step-up and linear regulator combination to enhance the overall efficiency of regulation, and lower the BOM and board space.

The AV2102-Adj. is designed to operate with widely available passive components and is packaged in a small standard 8-pin DFN package

Typical Setup

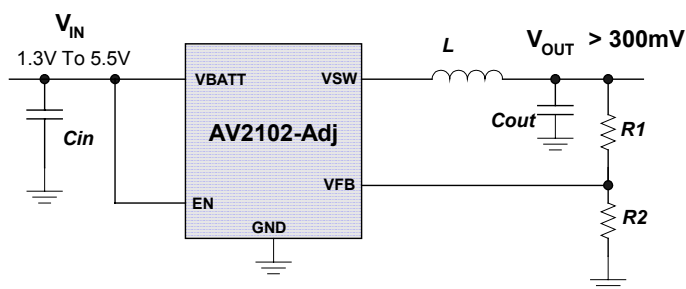


Figure 1. High Efficiency Buck Converter from 1.3V to 5.5V Input.

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Electrical Characteristics

SYMBOL	PARAMETER	CONDITION	MIN	TYP	MAX	UNIT
V _{IN}	Input Voltage Range	(Note 1)	1.3		5.5	V
I _Q	Dynamic Supply Current	I _{load} =0A		2.0		mA
	Shutdown Supply Current	EN = GND (Estimated leakage)			1	μA
I _{OUT}	Output Current				600	mA
V _{FB}	Feedback Voltage		294	300	306	mV
V _{LINEREG}	Output Voltage Line Regulation	V _{IN} Change @ I _{OUT} = 50mA		0.2		%/V
V _{LOADREG}	Output Voltage Load Regulation			0.25		%
V _{RIPPLE}	Output Voltage Ripple				1.5%* V _{out}	V
V _{UVLO}	Under Voltage Lockout	With 150mV Hysteresis.		1.4		V
V _{EN}	Enable Threshold	V _{IN} = 3.0V		1.2		V
T _{ON}	Switch On Time		300			ns

Note 1: On power up, the minimum input voltage is 1.4V.

Recommended Operating Conditions

PARAMETER	MIN	TYP	MAX	UNIT
Supply Voltage	1.3		5.5	V
Output Current I _{OUT}			600	mA
Output Voltage	300			mV
Input Capacitor (Ceramic)		4.7		μF
Output Inductor		10		μH
Output Capacitor		22		μF
Operating ambient temperature (T _A)	-40		85	°C

Remark: The information in this preliminary data sheet is subject to change without notice.