1.2A, 1.2MHz Synchronous Buck Converter with 7.2V OVP

DESCRIPTION

The ETA3496 is a high-efficiency, DC-to-DC step-down switching regulator, capable of delivering up to 1.2A of output current. The devices operate from an input voltage range of 2.5V to 7.2V and provide output voltages from 0.9V to 5V, making the ETA3496 ideal for low voltage power conversions. Running at a fixed frequency of 1.2MHz allows the use of small inductance value and low DCR inductors, thereby achieving higher efficiencies. Other external components, such as ceramic input and output caps, can also be small due to higher switching frequency, while maintaining exceptional low noise output voltages. Built-in EMI reduction circuitry makes this converter ideal power supply for RF applications. Internal soft-start control circuitry reduces inrush current. Short-circuit and thermal-overload protection improves design reliability. ETA3496 is housed in a tiny SOT23-5L package

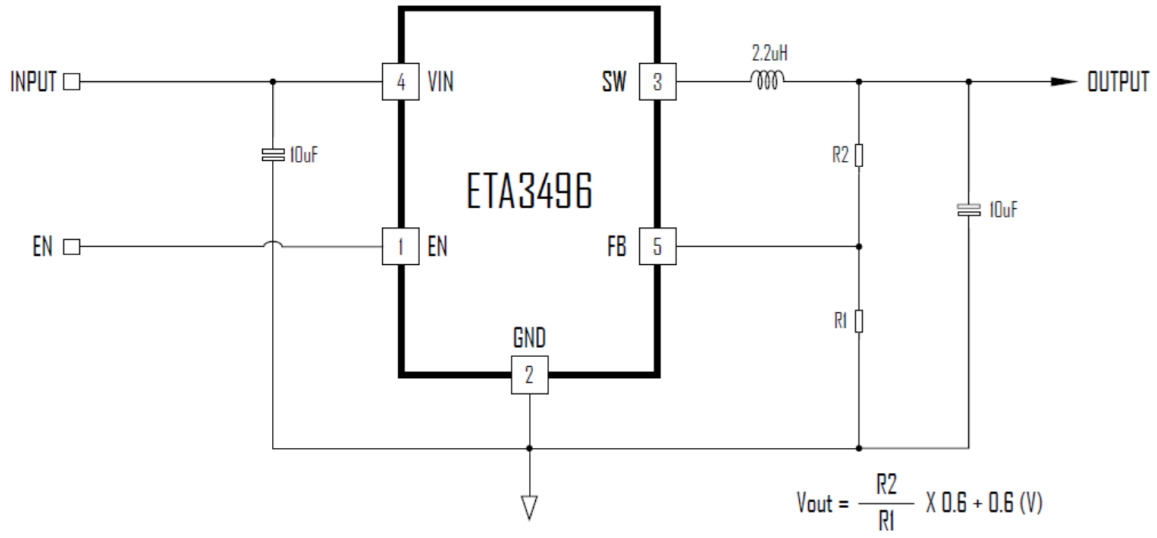
FEATURES

- Wide Input Voltage Range: 2.2 – 7.2V
- Standby Current 40uA (Vout=3.3V, Iout=0A)
- Up to 96% Efficiency
- Up to 1.2A Max Output Current
- 1.2MHz Frequency
- Light Load operation
- Internal Compensation
- Tiny SOT23-5L Package

APPLICATIONS

- Set-Top Box
- Mobile Wi-Fi Hotspot
- IPTV
- All devices powered by 5V adapter

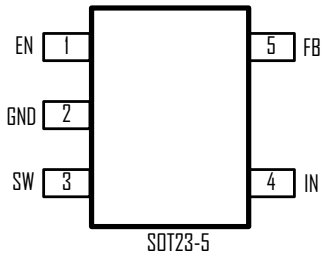
TYPICAL APPLICATION



ORDERING INFORMATION

PART No.	PACKAGE	TOP MARK	Pcs/Reel
ETA3496S2F	SOT23-5	BFYW	3000

PIN CONFIGURATION



ABSOLUTEMAXIMUM RATINGS

(Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periods may affect device reliability.)

IN, SW, FB, EN Voltage.....–0.3V to 12V
SW to ground current 1.8A
Maximum Power Dissipation.....400mW
Operating Temperature Range .....–40°C to 85°C
Storage Temperature Range .....–55°C to 150°C

Thermal Resistance	θ_{JC}	θ_{JA}	
SOT23-5	110	220	°C/W

Lead Temperature (Soldering, 10sec) .....260°C
ESD HBM (Human Body Mode) 2KV
ESD MM (Machine Mode) 200V

ELECTRICAL CHACRACTERISTICS

(V_{IN} = 3.6V, unless otherwise specified. Typical values are at TA = 25°C.)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Voltage Range		2.5		7.2	V
Input UVLO	Rising, Hysteresis=200mV	2.15	2.3	2.45	V
Input Supply Current	V_{FB} =0.65V		34	60	μA
Input Shutdown Current				1	μA
FB Feedback Voltage	V_{IN} =3.6V	0.588	0.6	0.612	V
FB Input Current			0.01		μA
Output Voltage Range		0.9		V_{IN}	V
Load Regulation	I_{load} =0.2A to 1A		0.1		%/A
Line Regulation	V_{IN} =2.7 to 5.5V@ I_{load}=1A		0.06		%/V
Switching Frequency			1.2		MHz
NMOS Switch On Resistance	I_{SW} =200mA		173		mΩ
PMOS Switch On Resistance	I_{SW} =200mA		318		mΩ
PMOS Switch Current Limit		1.8			A
SW Leakage Current	V_{IN}=5.5V,V_{SW}=0 or 5.5V,EN= GND			10	μA
EN Input Current				1	μA
EN Input Low Voltage				0.4	V
EN Input High Voltage		1.5			V

PIN DESCRIPTION

PIN #	NAME	DESCRIPTION
1	EN	Enable pin for the IC. Drive this pin high to enable the part, low to disable.
2	GND	Ground
3	SW	Inductor Connection. Connect an inductor Between SW and the regulator output.
4	IN	Supply Voltage. Bypass with a 10μF ceramic capacitor to GND
5	FB	Feedback Input. Connect an external resistor divider from the output to FB and GND to set the output to a voltage between 0.6V and VIN