

1uA Ultra-Low Quiescent Current, 1.2A Output Synchronous BUCK

DESCRIPTION

The ETA3426 is a high-efficiency, DC-to-DC step-down switching regulator, capable of delivering up to 1.2A of output current. It has an ultra-low quiescent current 1uA when there is no load. Running at a fixed frequency of 1.4MHz 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. Internal soft-start control circuitry reduces inrush current. Short-circuit and thermal-overload protection improves design reliability.

ETA3426 is housed in a tiny SOT23-5 and DFN2x2-6 package.

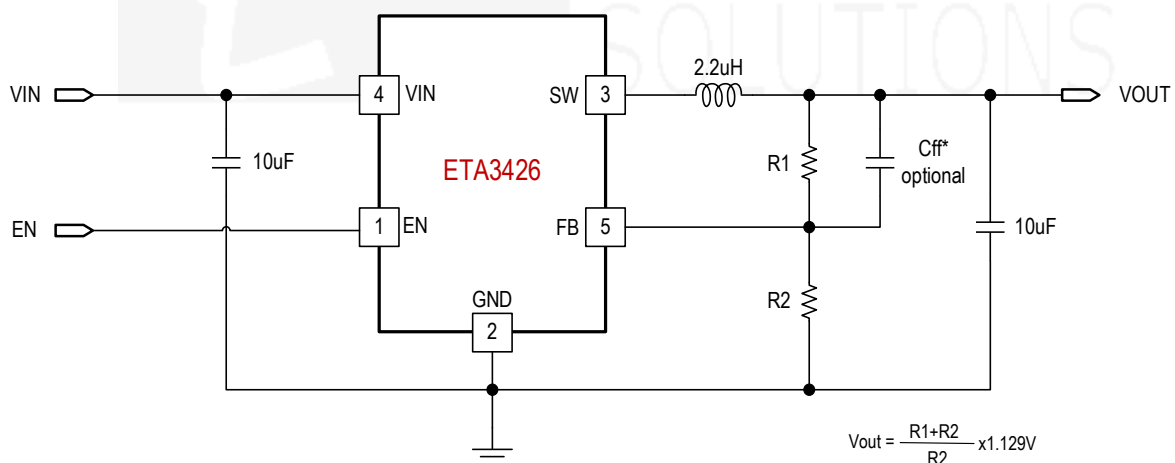
FEATURES

- ◆ 1 to 2uA No Switching Standby Current
- ◆ Up to 96% Efficiency
- ◆ Up to 1.2A Max Output Current
- ◆ 1.4MHz Frequency
- ◆ Light Load Operation
- ◆ Internal Compensation
- ◆ Tiny Package

APPLICATIONS

- ◆ Wearable
- ◆ IOT
- ◆ Energy Harvest
- ◆ Battery Powered Devices

TYPICAL APPLICATION



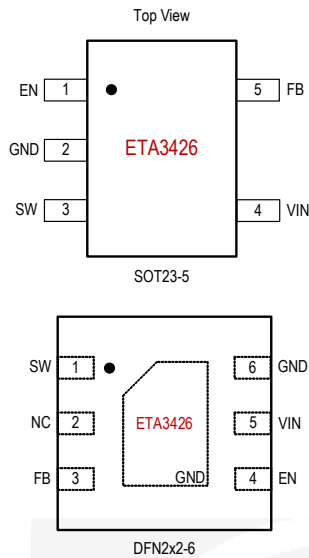
$$V_{out} = \frac{R1+R2}{R2} \times 1.129V$$

R2 is recommended to be 1M ohm for low standby current

ORDERING INFORMATION

PART No.	PACKAGE	TOP MARK	Pcs/Reel
ETA3426S2F	SOT23-5	IGYW	3000
ETA3426D2G	DFN2x2-6	IQYW	3000

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATINGS

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

IN, SW, OUT, EN Voltage	-0.3V to 7.5V
SW to ground current.....	Internally limited
Operating Temperature Range	-40°C to 85°C
Storage Temperature Range	-55°C to 150°C
Thermal Resistance	θ_{JA} θ_{JC}
SOT23-5.....	190.....90 °C /W
DFN2x2-6.....	165.....45 °C /W
Lead Temperature (Soldering, 10sec)	260°C
ESD HBM (Human Body Mode)	2KV
ESD MM (Machine Mode)	200V

ELECTRICAL CHARACTERISTICS

(V_{IN} = 5V, unless otherwise specified. Typical values are at T_A = 25°C.)

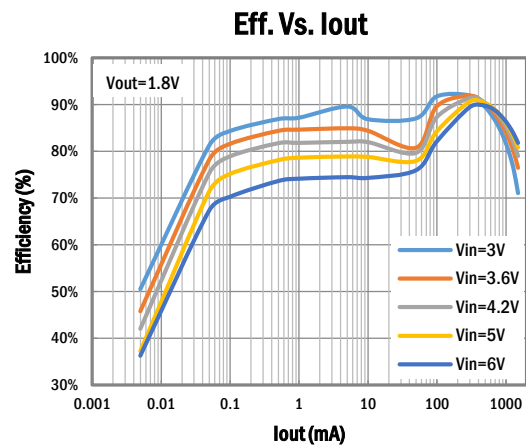
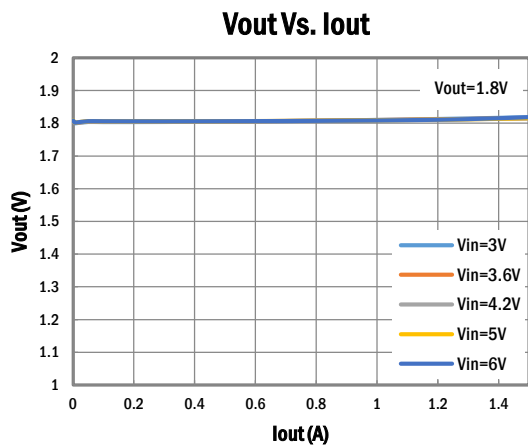
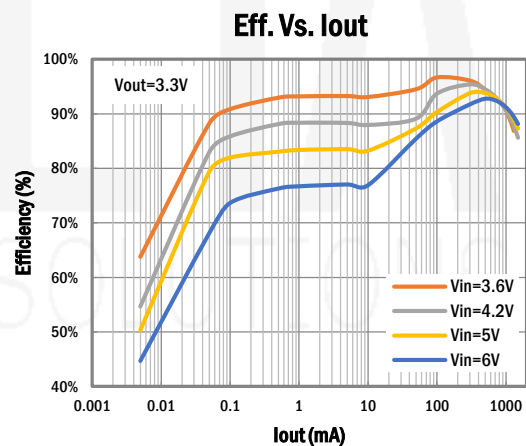
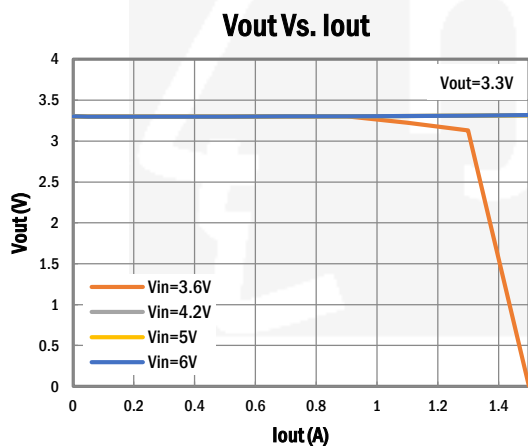
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Voltage Range		2.6		7	V
Input UVLO	Rising, Hysteresis=300mV		2.45		V
Input Supply Current	No Switching		1	2	μ A
Input Shutdown Current			0.1		μ A
FB Voltage		1.114	1.129	1.144	V
Load Regulation	V_{IN} =5V, I_{OUT} =0A to 1A		0.3		%/A
Line Regulation	V_{IN} =2.7 to 5.5V, I_{OUT} =0.5A		0.05		%/V
Switching Frequency		1.05	1.4	1.75	MHz
NMOS Switch On Resistance	I_{SW} =200mA		120		m Ω
PMOS Switch On Resistance	I_{SW} =200mA		250		m Ω
PMOS Switch Current Limit			1.7		A
SW Leakage Current	V_{OUT} =7V, V_{SW} =0 or 7V, EN= GND			1	μ A
EN Input Current	EN= GND			1	μ A
EN Input Low Voltage				0.4	V
EN Input High Voltage		1.5			V

PIN DESCRIPTION

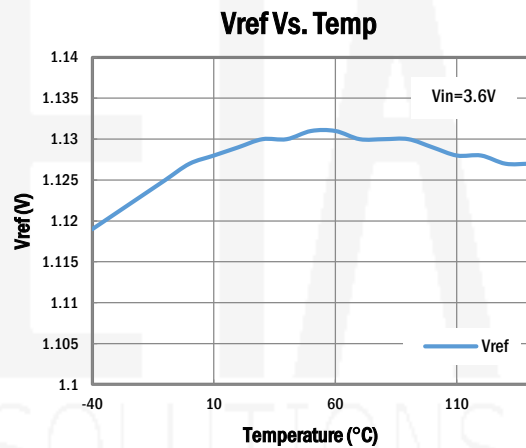
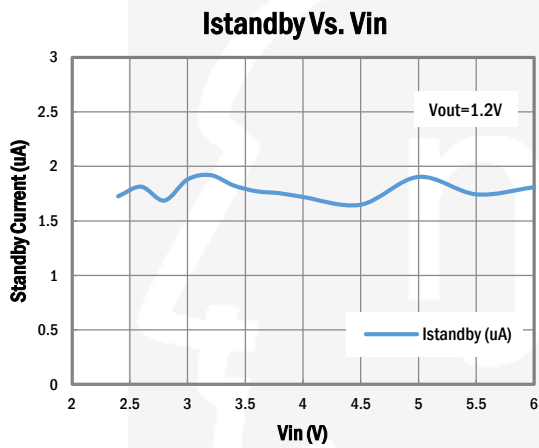
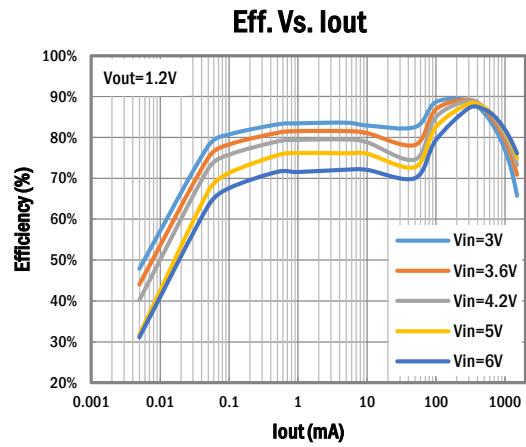
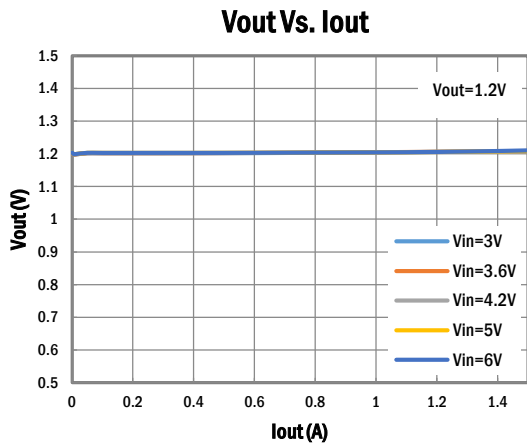
SOT23-5 PIN #	DFN2x2-6 PIN #	NAME	DESCRIPTION
1	4	EN	Enable Pin. Pull high to enable, pull low to disable.
2	6, 7	GND	Ground
3	1	SW	Inductor Connection. Connect a 2.2uH inductor Between SW and the regulator output.
4	5	VIN	Supply Voltage. Short to PIN. Bypass with a 10μF ceramic capacitor to GND
5	3	FB	FB Voltage Pin. Connect an external resistor divider from the output to FB and GND to set the output to a voltage between 1.129V and VIN
	2	NC	Not Connected

TYPICAL CHARACTERISTICS

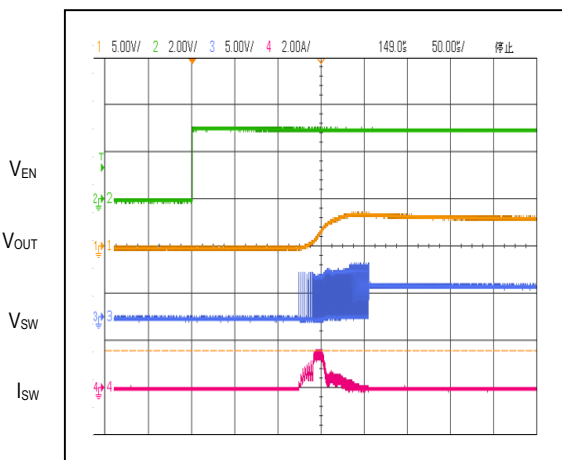
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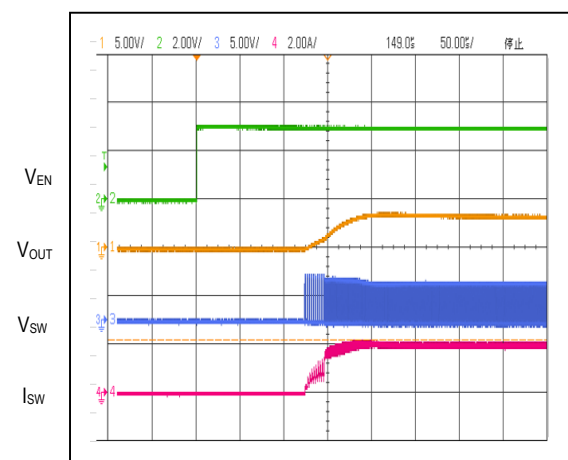
TYPICAL CHARACTERISTICS cont'
 (Typical values are at $T_A = 25^\circ\text{C}$ unless otherwise specified.)



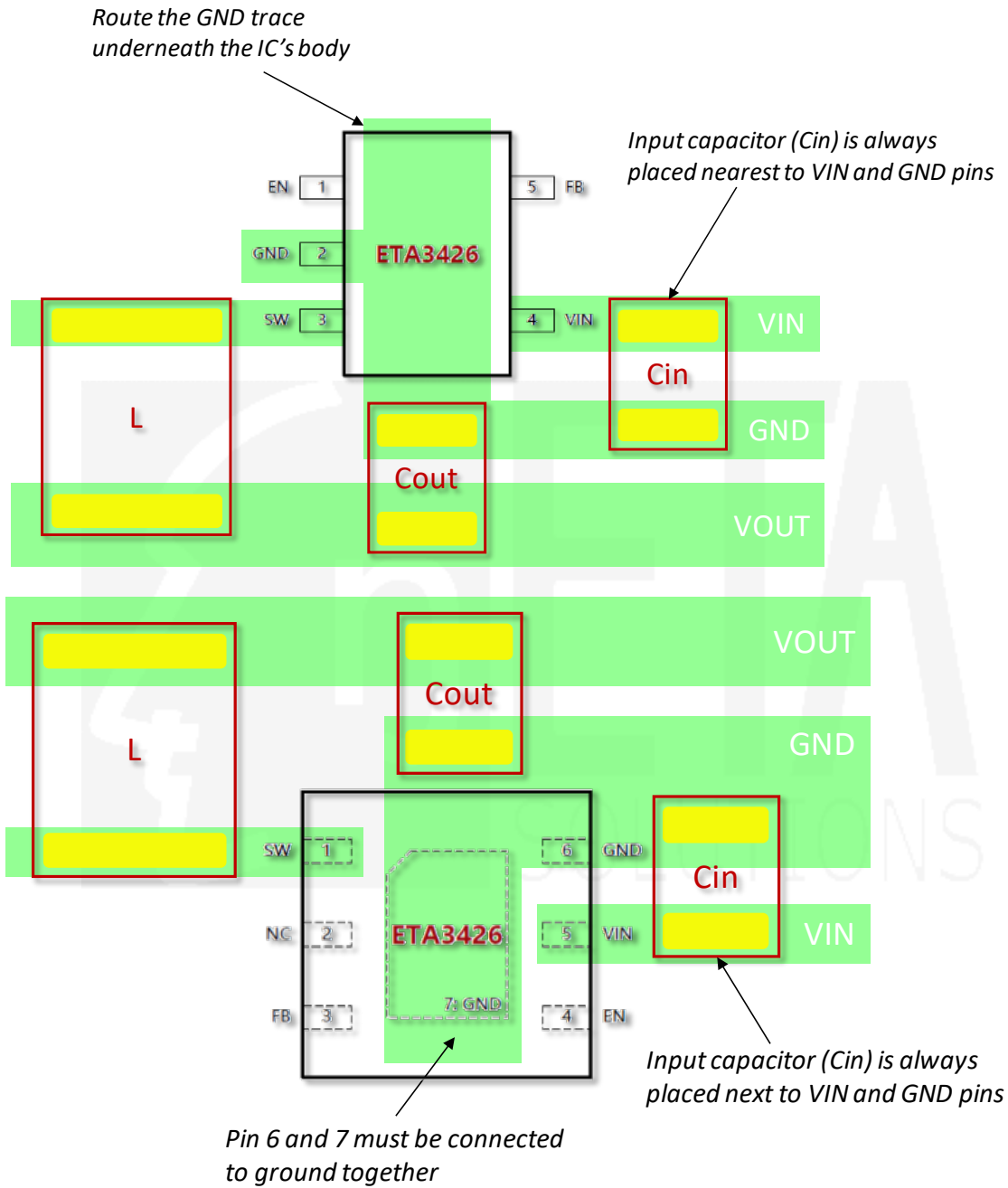
Start-up Waveform with EN
 $V_{IN}=5V, V_{OUT}=3.3V, I_{OUT}=0A$



Start-up Waveform with EN
 $V_{IN}=5V, V_{OUT}=3.3V, I_{OUT}=2A$

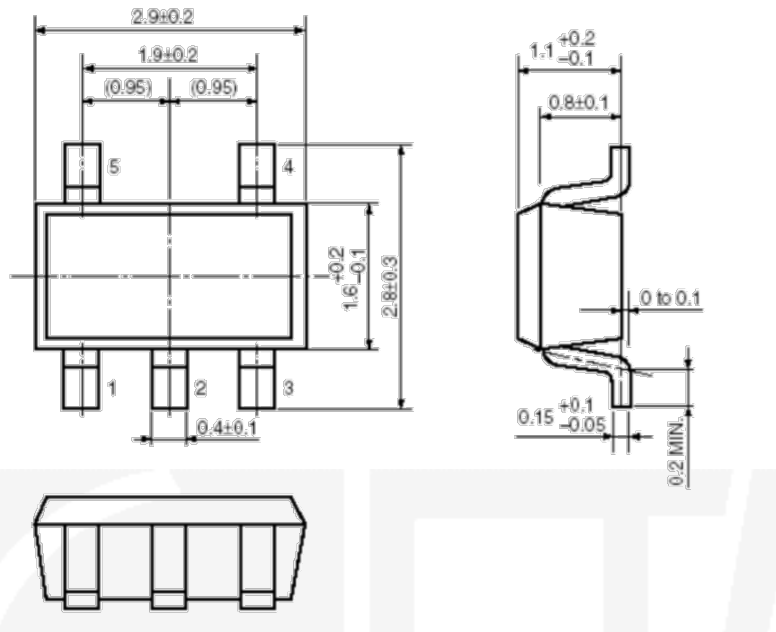


PCB GUIDELINES



PACKAGE OUTLINE

Package: SOT23-5



Package: DFN2x2-6

