3406(文件编号：S&CIC1945) 1A, 6V，1.5MHz, 50uA IQ Synchronous Step-Down Converter

DESCRIPTION

The 3406 is a current mode monolithic buck switching regulator. Operating with an input range of 2.7V-6.0V, the 3406 delivers 1A of continuous output current with integrated P-Channel and N-Channel MOSFETs. The internal synchronous power switches provide high efficiency. At light loads, the regulator operate in low frequency to maintain high efficiency and low output ripples.

The 3406 guarantees robustness with hiccup output short-circuit protection, FB short-circuit protection, start-up current run-away protection, input under voltage lockout and hot-plug in, and thermal protection.

The 3406 is available in 5-pin SOT23-5 package, which provides a compact solution with minimal external components.

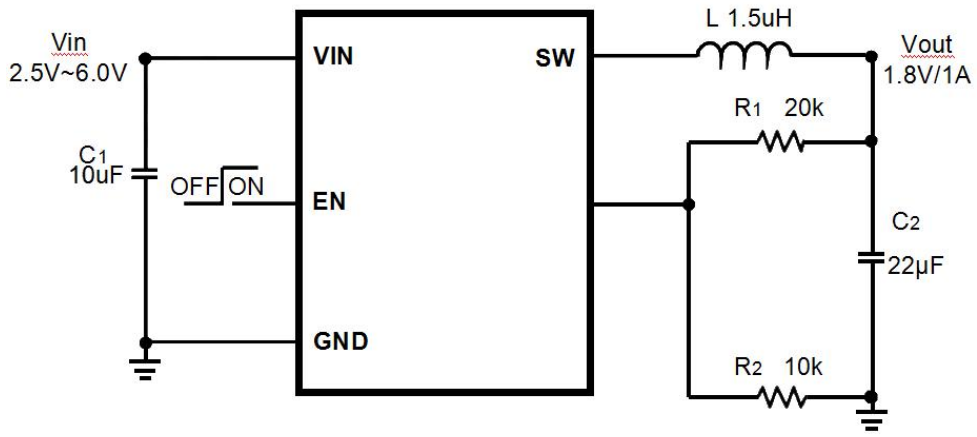
FEATURES

- 2.7V to 6.0V operating input range
- Up to 1A output current
- Up to 94% peak efficiency
- Internal Soft-Start
- 1.5MHz switching frequency
- Input under voltage lockout
- Hot-plug in protection
- Short circuit protection
- Thermal protection
- Available in SOT23-5 package

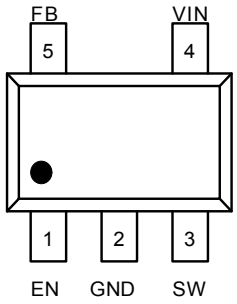
APPLICATIONS

- 5V or 3.3V Point of Load Conversion
- Set Top Boxes
- Telecom/Networking Systems
- Storage Equipment
- GPU/DDR Power Supply

TYPICAL APPLICATION



PIN DEFINITION



SOT23-5

引脚号	引脚名称	引脚说明
1	EN	Drive EN pin high to turn on the regulator and low to turn off the regulator.
2	GND	Ground pin.
3	SW	SW is the switching node that supplies power to the output. Connect the output LC filter from SW to the output load.
4	VIN	Input voltage pin. VIN supplies power to the IC. Connect a 2.7V to 6V supply to VIN and bypass VIN to GND with a suitably large capacitor to eliminate noise on the input to the IC.
5	FB	Output feedback pin. FB senses the output voltage and is regulated by the control loop to 0.6V. Connect a resistive divider at FB.

RECOMMENDED OPERATING CONDITIONS

Input Voltage VIN..... V to 6.0V

Output Voltage Vout..... 0.6V to VIN

Operating Junction Temperature..... ..-40ºC to 125ºC

THERMAL PERFORMANCE

	θ_{JA}	θ_{Jc}
SOT23-5.....	220....	130ºC/W

ELECTRICAL CHARACTERISTICS

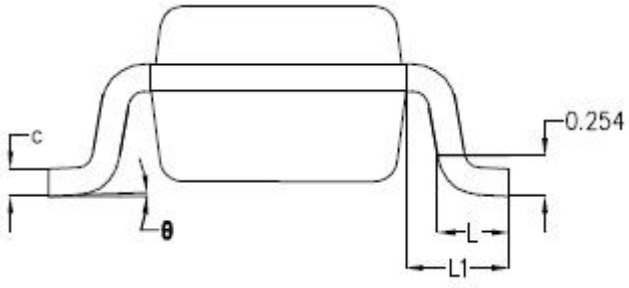
VIN=5V, T_A=25℃,unless otherwise stated.

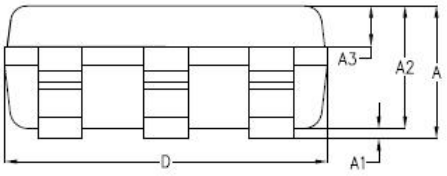
Item	Symbol	Condition	Min.	Typ.	Max.	Units
V_{IN} Under Voltage Lockout Threshold	V_{IN_UVLO}	V_{IN} rising	2.3	2.5	2.7	V
V_{IN} Under Voltage Lockout Hysteresis	$V_{IN\_UVLO\_HYST}$	V_{IN} falling		200		mV
V_{IN} Hot-plug in Protection Threshold	V_{IN_OVP}	VIN rising	6.1	6.6		V
V_{IN} Hot-plug in Protection Hysteresis	$V_{IN\_OVP\_HYST}$	VIN falling		600		mV
Shutdown Current	I_{SHDN}	V_{IN}=6.0V, V_{EN}=0V		0.1	1	μA
Quiescent Current	I_Q	V_{EN}=5V, I_{OUT}=0A, V_{FB}=V_{REF}*105%		40	70	μA
Regulated Feedback Voltage	V_{FB}	2.7V<V_{IN}<6.0V	0.588		0.612	V
PFET On Resistance[1)]	R_{DSON_P}	V_{IN}=3.6V, I_{SW}=200mA		260		mΩ
NFET On Resistance[1)]	R_{DSON_N}	V_{IN}=3.6V, I_{SW}=-200mA		190		mΩ
PFET Leakage Current	I_{LEAK_P}	V_{IN}=6.0V, V_{EN}=0V, V_{SW}=0V			1	uA
NFET Leakage Current	I_{LEAK_N}	V_{IN}=6.0V, V_{EN}=0V, V_{SW}=6.0V			1	uA
PFET Current Limit[1)]	I_{LIM_TOP}		1.6	2.0	2.4	A
NFET Current Limit[1)]	I_{LIM_BOT}		1.2	1.5	1.8	A
Switch Frequency	F_{SW}	I_{OUT}=1A		1,5		MHz
Minimum On Time[1)]	T_{ON_MIN}			100		ns
Maximum Duty Cycle[1)]	D_{MAX}			100		%
EN Rising Threshold	V_{EN_TH}	V_{EN} rising, FB=0.3V	1.5			V
EN Falling Threshold	V_{EN_HYST}	V_{EN} falling, FB=0.3V			0.4	V
Thermal Shutdown Threshold[1)]	T_{SHDN}			150		℃
Thermal Shutdown Hysteresis	T_{HYST}			20		℃

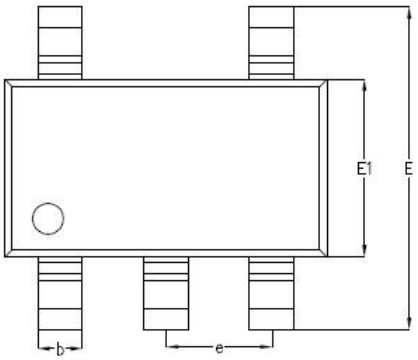
Note:

1) Guaranteed by design

SOT23-5 Package Description







SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	-	1.19	1.24
A1	-	0.05	0.09
A2	1.05	1.10	1.15
A3	0.31	0.36	0.41
b	0.35	0.40	0.45
c	0.12	0.17	0.22
D	2.85	2.90	2.95
E	2.80	2.90	3.00
E1	1.55	1.60	1.65
e	0.95BSC		
L	0.37	0.45	0.53
L1	0.65BSC		
θ	0°	2°	8°