CYT 2606

PFM Step-Up DC-DC Converter

General Description

The CYT2606 Series are PFM step-up DC-DC converters with very low ripple noise due to the high operation frequency. The maximum operation frequency is 260KHz.

Only three components are required to realize the conversion from the battery voltage to a selected output voltage.

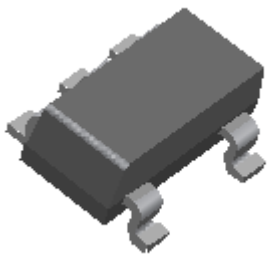
A driver pin (EXT) is provided for driving external power transistor to extend the output current capability where large current is required. Enable pin (EN) is also provided so that the circuit can be powered down.

Features

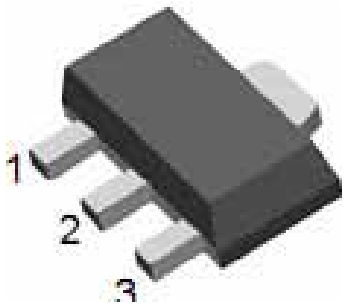
- 260KHz Maximum Operation Frequency
- 2.0V to 5.0V Output Voltage With 0.1V Step
- Low Start-up Voltage: 0.8V at 1mA
- ±2.5% Output Voltage Accuracy
- Up to 88% Efficiency
- Output current: 300mA at 2.5V input, 3.3V output
- Low Ripple and Low Noise
- Output Current Extendable by External Switch
- RoHS Compliant and 100% Lead (Pb)-Free

Applications

- Power source for applications where a higher voltage than the battery voltage is required
- One to three cell battery devices
- Power source for cameras
- camcorders
- VCRs, PDAs, LED and hand held communication instrument

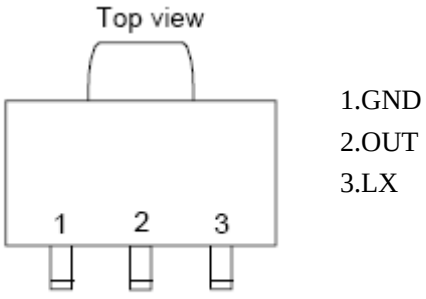


SOT-23-5 Package



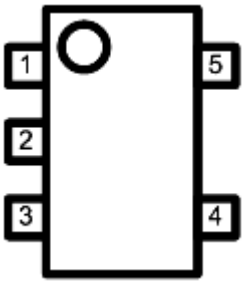
SOT-89 Package

Pin Configuration



1.GND
2.OUT
3.LX

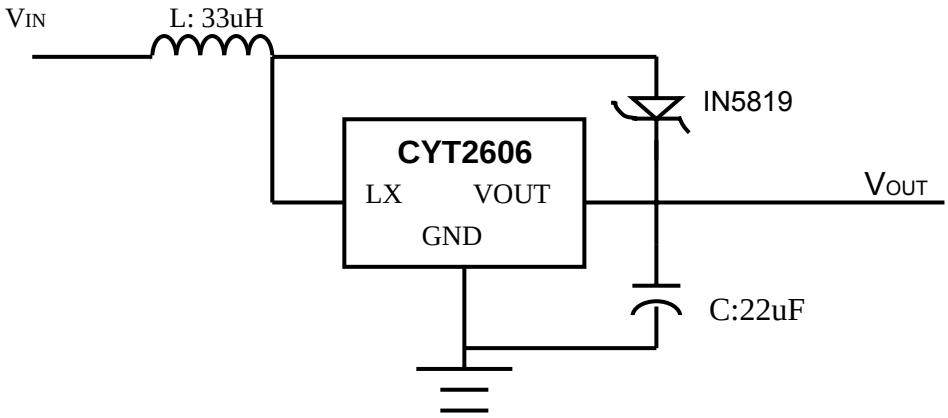
SOT-89



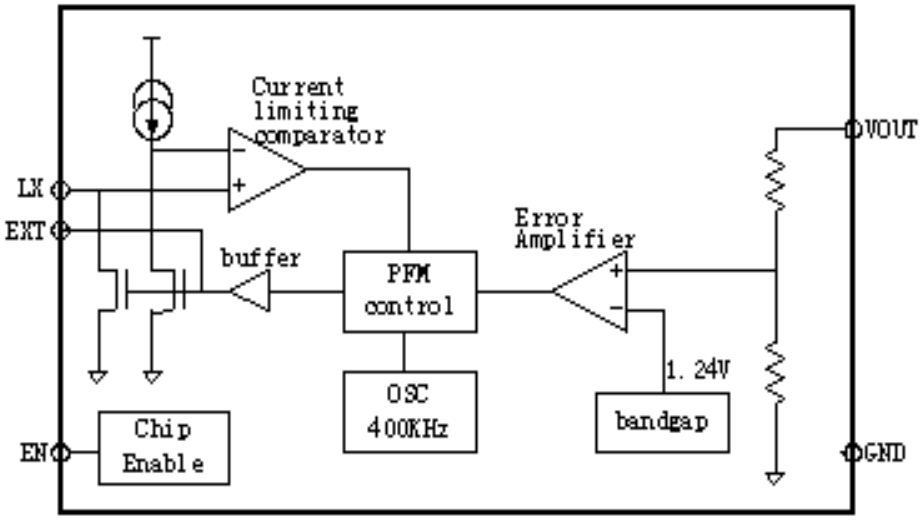
1.EN
2.VOUT
3.NC
4.GND
5.LX

SOT-23-5

Typical Application



Block Diagram



Ordering Information

CYT2606- [X] [X] [X] [X]

Package Type:

T: SOT-23-3
F: SOT-23-5
E: SOT-89

Output Voltage:

20: 2.0V
21: 2.1V

49: 4.9V
50: 5.0V

External Switch

E: use external switch
L: use internal switch

Pin Assignment

Pin Name	Part Marking and Package Type						Description
	CYT2606 LXXT	CYT2606 LXXF	CYT2606 LXXE	CYT2606 EXXT	CYT2606 EXXF	CYT2606 EXXE	
LX	2	5	3	-	-	-	Switching pin
EXT	-	-	-	2	5	3	Buffer output for external transistor
VOUT	3	2	2	3	2	2	Output voltage
EN	-	1	-	-	1	-	Chip enable (active high)
GND	1	4	1	1	4	1	Ground
NC	-	3	-	-	3	-	No connection

Absolute Maximum Ratings

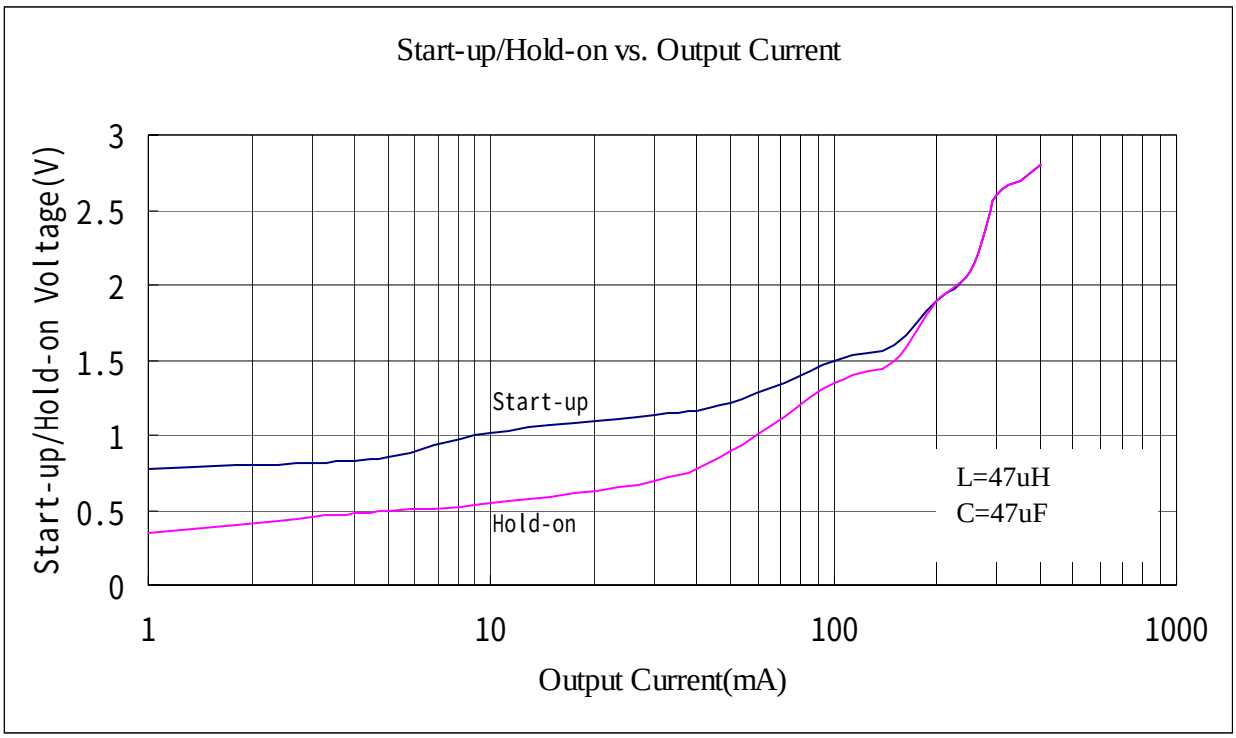
Type	Symbol	Description	Value	Unit
Voltage	Vmax	Maximum voltage on VOUT and VLX pins	8	V
	Vmin-max	Voltage range on EXT and EN pins	-0.3-VOUT+0.3	V
Current	ILXmax	Maximum current on LX pin	1000	mA
	IEXTmax	Maximum current on EXT pin	100	mA
Power dissipation	Psot-23-3	Maximum Power dissipation for SOT-23-3 package	0.25	W
	Psot-23-5	Maximum Power dissipation for SOT-23-5 package	0.25	W
	Psot-89	Maximum Power dissipation for SOT-89 package	0.5	W
Thermal	Tmin-max	Operation temperature range	-20-85	^{o}C
	Tstorage	Storage temperature range	-40-165	^{o}C
ESD	VESD	ESD voltage for human body mode	2000	V

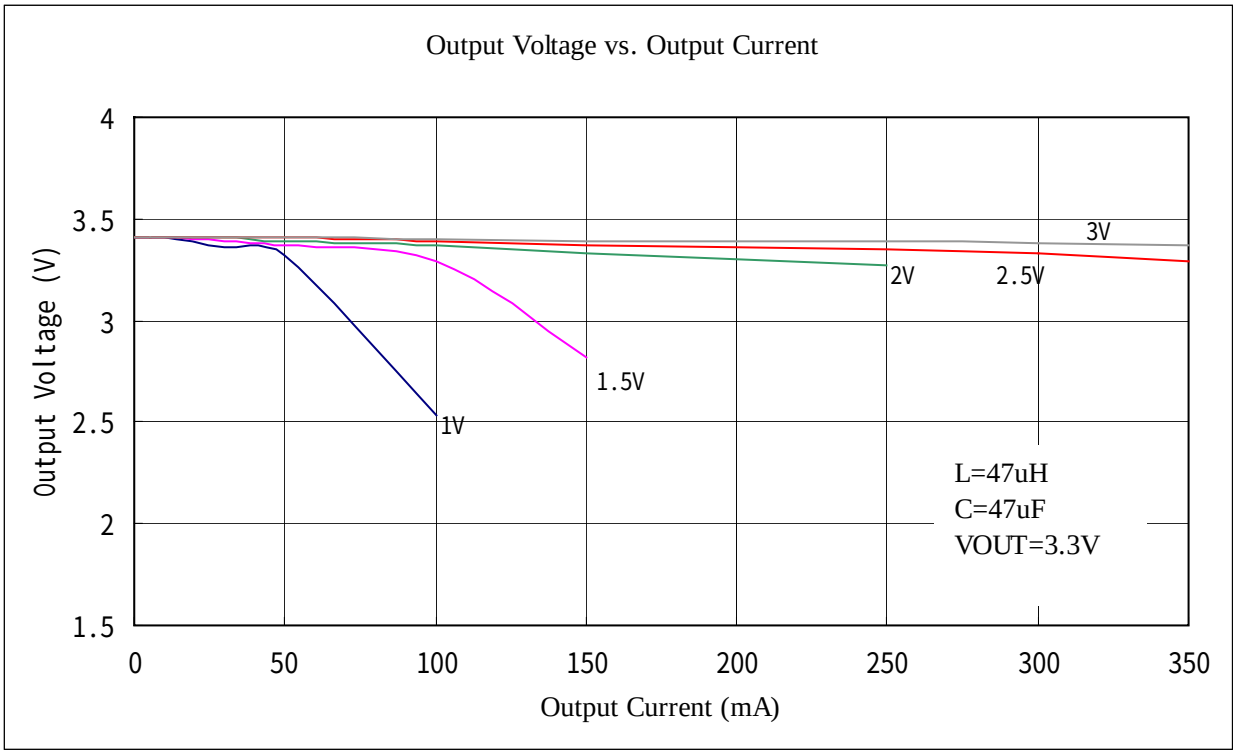
Electrical Characteristics

V_{IN} = 5V; I_{OUT} = 10mA, C_{IN} = 2.2μF; C_{OUT} = 2.2μF; TJ = 25°C; unless otherwise specified.

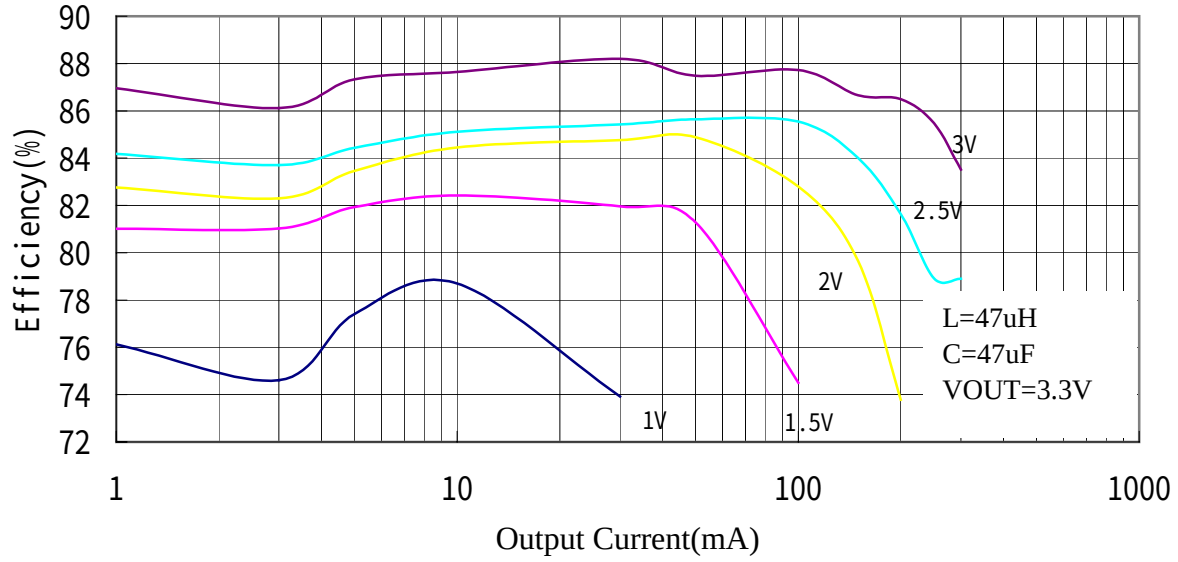
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output voltage accuracy	△VOUT		-2		2	%
Maximum input voltage	VIN_{MAX}		0.7		VOUT	V
Start-up voltage	V_{START}	ILOAD=1mA, VIN:0→2V			0.85	V
Hold-on voltage	V_{HOLD}	ILOAD=1mA, VIN:2→0V	0.6			V
Maximum oscillation frequency	F_{MAX}		220	260	280	KHz
Oscillator duty cycle	DC_{OSC}		75	80	85	%
Efficiency	η			85	88	%
Current limit	I_{LIMIT}		600	800	1000	mA
Input current at no load	IIN0	VIN=1.8V VOUT=3.0V		20		uA
		VIN=1.8V VOUT=5.0V		25		uA
Input standby current	IINQ	No load, EN="low"			1	uA
EN "High" voltage level			0.4*VOUT			V
EN "low" level					0.2	V
EN "high" input current					0.1	uA
EN "low" input current			-0.1			uA
EXT output current			-5		5	mA

Typical Characteristics (Using Internal Switch Transistor)

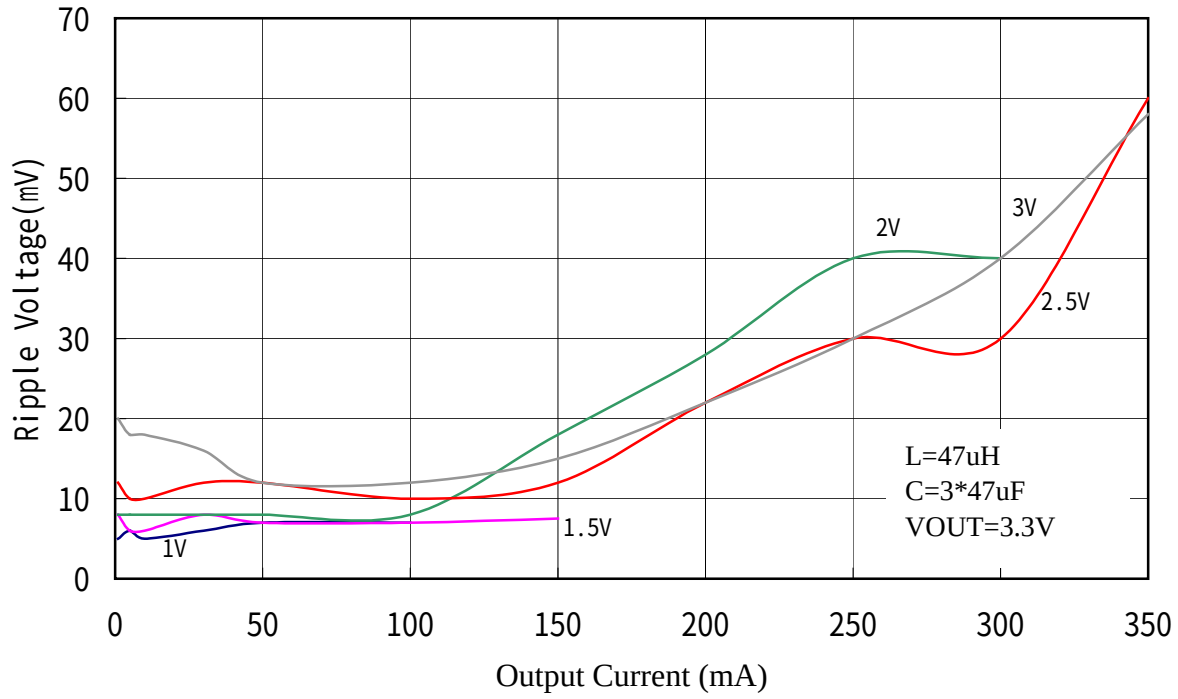




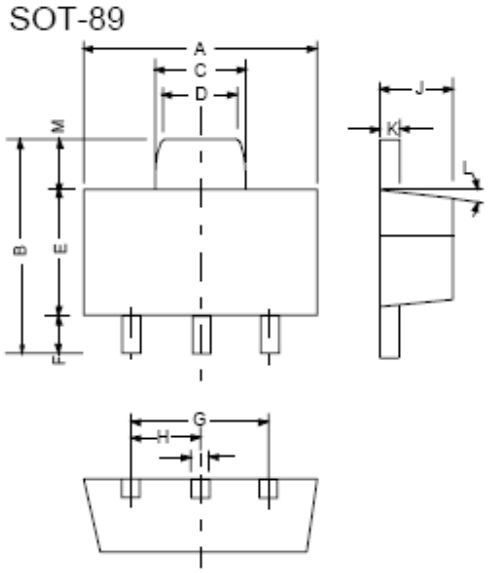
Efficiency vs. Output Current



Output Current vs. Ripple Voltage

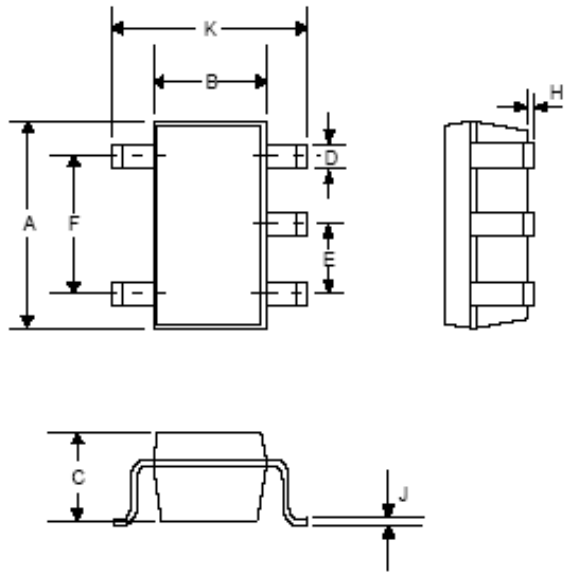


OUTLINE DRAWING SOT-89



DIMENSIONS				
DIM[N]	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.173	0.181	4.400	4.600
B	0.159	0.167	4.050	4.250
C	0.067	0.075	1.700	1.900
D	0.051	0.059	1.300	1.500
E	0.094	0.102	2.400	2.600
F	0.035	0.047	0.890	1.200
G	0.118REF		3.00REF	
H	0.059REF		1.50REF	
I	0.016	0.020	0.400	0.520
J	0.055	0.063	1.400	1.600
K	0.014	0.016	0.350	0.410
L	10 ° TYP		10 ° TYP	
M	0.028REF		0.70REF	

Outline Drawing SOT-23-5



DIMENSIONS				
DIM[N]	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.110	0.120	2.80	3.05
B	0.059	0.070	1.50	1.75
C	0.036	0.051	0.90	1.30
D	0.014	0.020	0.35	0.50
E	-	0.037	-	0.95
F	-	0.075	-	1.90
H	-	0.006	-	0.15
J	0.0035	0.008	0.090	0.20
K	0.102	0.118	2.60	3.00