

DC-DC conversion

Enhanced solutions for digital consumer and switching
generic point of load



June 2008

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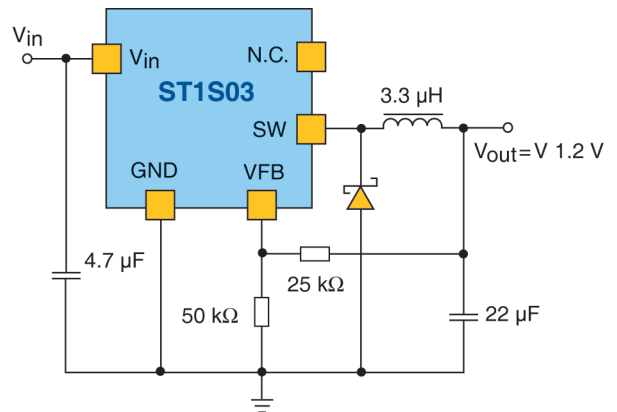


STMicroelectronics is successfully present in a number of market segments with a complete family of high performances, highly reliable, high switching frequency DC-DC converters. These high efficiency switching points of load feature wide input voltage and output current range. Most of them employ a synchronous typology that increase the efficiency sparing an external diode. The global effect of synchronous rectification and high switching frequency lead to intrinsic stability and low output ripple. Further to this the external components can be smaller, cost effective SMD inductors and capacitors.

ST1S03: 1.5 A, adjustable step-down DC-DC converter

Main features and key competitive advantages

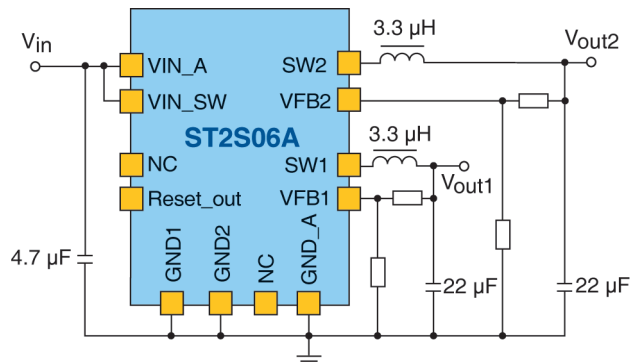
- Step-down current mode PWM DC-DC converter
- Input voltage from 3 to 16 V
- High switching frequency: 1.5 MHz
- Output current capability up to 1.5 A
- Internal soft start to avoid the in-rush current during the power on
- Typical efficiency > 70 %
- Non switching quiescent current; max 2.5 mA
- Switch V_{ds} : max 350 mV @ $I_{sw} = 750$ mA
- Package: DFN6 3x3 mm



ST2S06A_B: Dual step-down converter with reset or inhibit

Main features and key competitive advantages

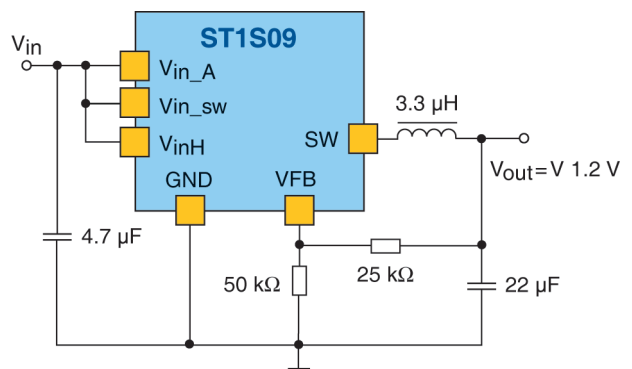
- PWM controller with embedded synchronous rectifier
- Enable function (B).
- Reset output flag monitoring the input (A)
- High efficiency: 90 % typical @ $V_{out} = 1.2$ V
- Very low ripple in all operating condition
- Fully integrated compensation network
- Typical output current: 0.5 A per channel
- Short circuit protection
- Package: QFN12 4x4 mm



ST1S09: 2 A, high efficiency, synchronous DC-DC converter

Main features and key competitive advantages

- Step-down current mode PWM DC-DC converter
- Input voltage from 2.5 to 5.5 V
- High switching frequency: 1.5 MHz
- Output current capability up to 2 A
- Internal synchronous rectifier
- Efficiency up to 93 %
- Power good or inhibit function
- Package: DFN6 3x3 mm

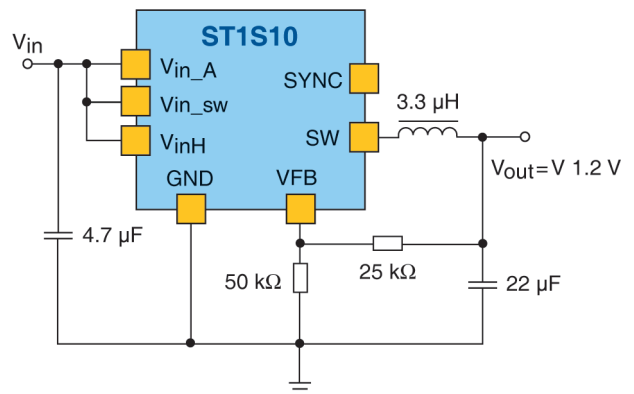




ST1S10: 3 A, high efficiency, synchronous DC-DC converter

Main features and key competitive advantages

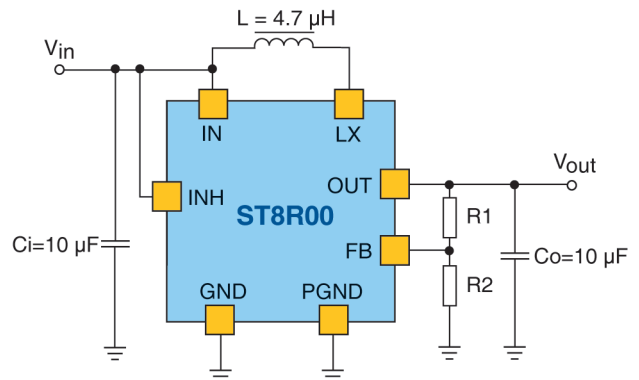
- Step-down current mode PWM converter
- Input voltage from 2.5 to 18 V
- Synchronizable switching frequency: from 400 kHz to 1.2 MHz
- Output voltage adjustable from 0.8 V
- Internal soft start
- Typical efficiency: 90 %
- Stand-by supply current: max 6 μA over temperature range
- Dynamic short circuit protection
- Packages: DFN8 4x4 mm
- Inhibit function



ST8R00: 1 A step-up converter for blue laser based applications

Main features and key competitive advantages

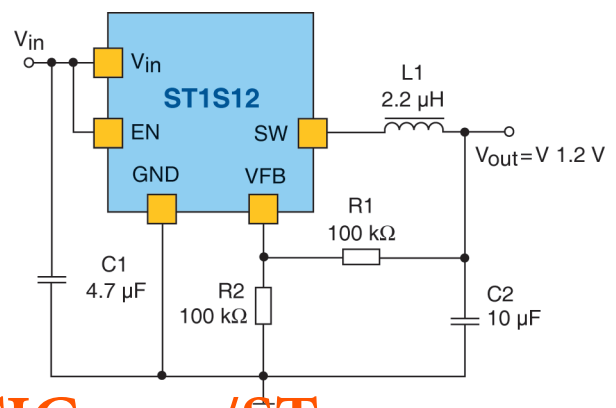
- PWM controller with embedded synchronous rectifier
- Adjustable output voltage from 6 to 12 V
- 1.2 MHz switching frequency
- Output current: 1 A,
- True shut down function
- Very low ripple in all operating conditions
- High efficiency: Typical 90 % @ $V_{\text{out}} = 9 \text{ V}$
- V_{in} Max: 6 V
- Package: DFN8 4x4 mm



ST1S12 : 0.7 A, high-efficiency, synchronous DC-DC converter

Main features and key competitive advantages

- Step-down current mode PWM DC-DC converter
- Input voltage from 2.5 to 6 V
- High switching frequency: 1.7 MHz
- Output voltage adjustable from 0.6 V
- Typical efficiency up to 90%
- 100% duty cycle at V_{in} close to V_{out}
- Package: TSOT23-5L



Reference table

Part number	Typology	I_{out} [A]	V_{in} range [V]	Frequency [MHz]	Additional functionality
ST1S03	Step-down	1.5	3 to 16	1.5	
ST1S09	Step-down	2	2.5 to 5.5	1.5	Power good or inhibit
ST1S10	Step-down	3	2.5 to 18	0.4 to 1.2	Inhibit
ST2S06A	Step-down	0.5 (x channel)	2.5 to 5.5	1.5	Reset
ST2S06B	Step-down	0.5 (x channel)	2.5 to 5.5	1.5	Inhibit
ST1S12	Step-down	0.7	2.5 to 6	1.7	Inhibit
ST8R00	Step-up	1	4.5 to 6	1.2	True shut down



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