

ST5Rxx Micropower VFM Step-Up DC/DC Converter

Ultra low quiescent current and high switching frequency

The ST5Rxx family of micropower VFM step-up DC/DC converters conserves space and power while offering a wide range of output voltages, up to 100mA of output current, and low ripple and noise. Using just three additional low-cost components - a diode, capacitor, and inductor (in the range of 47 μ H to 82 μ H) - the ST5Rxx accepts any positive DC voltage as low as 0.9 V and, converts it to a 2.5 to 5.0V output (see table below), accurate to within $\pm 5\%$ at 25°C. The ST5Rxx draws only 17 μ A at no load with an input voltage of 2.4V. Its typical efficiency is 87% and its full load frequency is set at 150kHz by an internal oscillator. The ST5Rxx uses voltage-to-frequency modulation (VFM) to achieve its very low quiescent current and high efficiency even under very light loads. To ensure safety during overcurrent conditions, the VFM control logic limits internal power dissipation. Functionally compatible with the Ricoh RH5R series, these converters are ideal for use in portable, battery-powered equipment such as pagers, cameras, camcorders, cellular phones, and palmtop computers.

Applications

- Battery equipment
- Cameras
- Personal Stereos
- GPS equipment
- Palmtop/Laptop Computers
- Cellular Phones
- Power sources for cameras, camcorders, VCRs, PDAs, electronic data banks and, hand-held communication equipment
- Power sources for appliances, which require a higher voltage than can be provided by a one cell battery

Features

- Ultra low input current, typically 17 μ A (at no load, with 2.4V input)
- Wide range of output voltages from 2.5 to 5.0V
- Output voltage accuracy of $\pm 5\%$
- Output current up to 100mA
- Low ripple and low noise
- Low start-up voltage : maximum 1.2V@ I_{out} = 1mA
- High efficiency, typically 87%
- Tiny package options : SOT23-5L, SOT-89

Products Range

SOT23-5L	SOT-89	Output Voltage (V)	Start-up Voltage (typ) (V)	Efficiency (%)	Temp° Range (°C)
ST5R25M	ST5R25U	2.5	0.8	82	-25 / +85
ST5R28M	ST5R28U	2.8	0.8	82	-25 / +85
ST5R30M	ST5R30U	3.0	0.8	83	-25 / +85
ST5R33M	ST5R33U	3.3	0.8	83	-25 / +85
ST5R50M	ST5R50U	5.0	0.8	87	-25 / +85



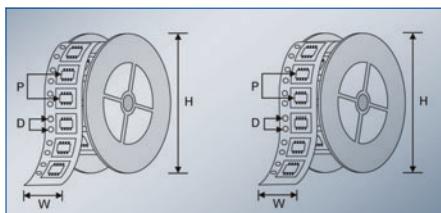
Tape & Reel Specification

TR Suffix

	SOT23-5L	SOT-89
H (mm)	178	178
W (mm)	8	12
P (mm)	4	8
D (mm)	4	4
Qty / Reel	3,000	1,000

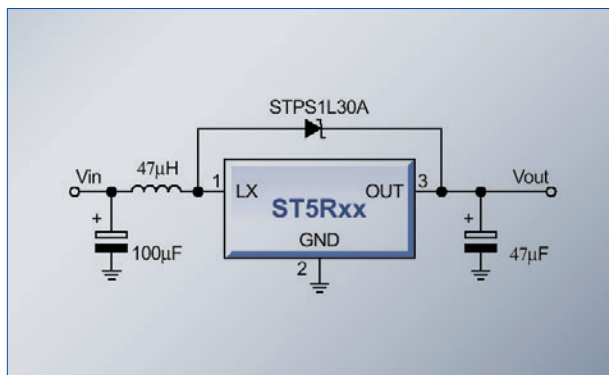
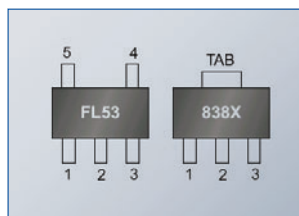
SOT23-5L

SOT-89



Pin Configuration

Pin N°	Symbol	Name and Function
1	IN	Input Pin (LX)
2	GND	Ground Pin
3	OUTPUT	Output Pin
4	NC	Not Connected
5	NC	Not Connected



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Full product information at www.st.com/vregs



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