

The RP503x Series are low supply current CMOS-based PWM/VFM step-down DC/DC converters with synchronous rectifier. RP503x is PWM/VFM auto switching control in which mode automatically switches to high-efficiency VFM mode in low output current. The efficiency in low output current (VFM mode) improved compared with existing products. RP503x includes a soft start circuit, an under-voltage lockout circuit (UVLO), and a latch protection circuit. By simply using an inductor and capacitors as external components, a high-efficiency step-down DC/DC converter can be easily configured.

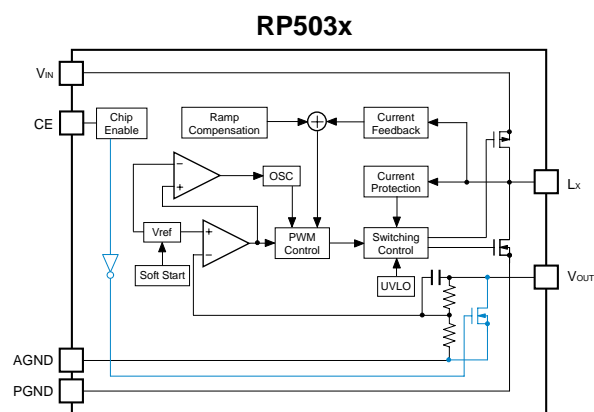
FEATURES

- Supply Current (I_{DD2}).....Typ. 20 μ A ($V_{IN}=V_{CE}=V_{OUT}=5.5V$)
- Standby Current ($I_{standby}$).....Max. 5 μ A ($V_{IN}=5.5V$, CE="L")
- Input Voltage Range (V_{IN}).....2.5V to 5.5V
- Output Voltage Range (V_{OUT}).....0.8V to 2.5V (internally fixed)
- Output Voltage Accuracy $\pm 1.5\%$
- Output Current (I_{OUT}).....600mA*
- Oscillator Frequency (f_{osc}).....2MHz

- Oscillator Maximum Duty Cycle (Maxduty) .. Min. 100%
- UVLO Detect Voltage (V_{UVLO}) Typ. 2.2V
- Soft Start Time (t_{start}).....Typ. 0.15ms
- Coil-current Limit Circuit Current limit Typ. 800mA
- Latch Protection Circuit Delay time for protection Typ. 1.5ms
- Auto-Discharge function 2 Version
- Packages.....DFN1616-6, SOT-23-5

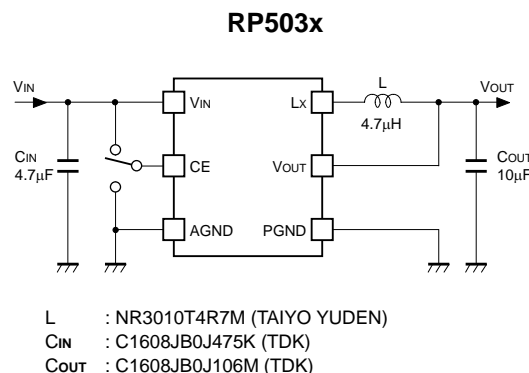
*) This is an approximate value, because output current depending on conditions and external parts.

BLOCK DIAGRAM



Blue line : RP503xx2A only

TYPICAL APPLICATION



SELECTION GUIDES

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN1616-6	5,000 pcs	RP503Lxx*A-TR
H/F	SOT-23-5	3,000 pcs	RP503Nxx*A-TR-FE

xx : Specify the output voltage within the range of 0.8V (08) to 2.5V (25) in 0.1V steps.

* : Select from (1) without auto-discharge function or (2) with auto-discharge function.

PACKAGES (Top View)

DFN1616-6	SOT-23-5																						
<table border="1"> <tr><td>1</td><td>CE</td></tr> <tr><td>2</td><td>AGND</td></tr> <tr><td>3</td><td>VIN</td></tr> <tr><td>4</td><td>Lx</td></tr> <tr><td>5</td><td>PGND</td></tr> <tr><td>6</td><td>VOUT</td></tr> </table>	1	CE	2	AGND	3	VIN	4	Lx	5	PGND	6	VOUT	<table border="1"> <tr><td>1</td><td>VOUT</td></tr> <tr><td>2</td><td>GND</td></tr> <tr><td>3</td><td>Lx</td></tr> <tr><td>4</td><td>VIN</td></tr> <tr><td>5</td><td>CE</td></tr> </table>	1	VOUT	2	GND	3	Lx	4	VIN	5	CE
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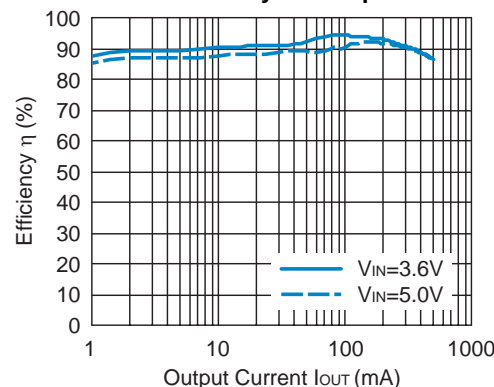
*) The tab is substrate level (GND).

APPLICATIONS

- Power source for battery-powered equipment
- Power source for compact HDD
- Power source for hand-held communication equipment, cameras, and VCRs

TYPICAL CHARACTERISTIC

RP503x25xA Efficiency vs. Output Current





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RICOH COMPANY., LTD. Electronic Devices Company



■ Ricoh presented with the Japan Management Quality Award for 1999.
Ricoch continually strives to promote customer satisfaction, and shares the achievements of its management quality improvement program with people and society.



■ Ricoh awarded ISO 14001 certification.

The Ricoh Group was awarded ISO 14001 certification, which is an international standard for environmental management systems, at both its domestic and overseas production facilities. Our current aim is to obtain ISO 14001 certification for all of our business offices.

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Ricoh completed the organization of the Lead-free production for all of our products. After Apr. 1, 2006, we will ship out the lead free products only. Thus, all products that will be shipped from now on comply with RoHS Directive.