

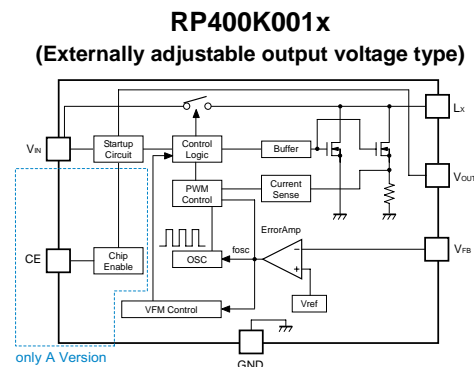
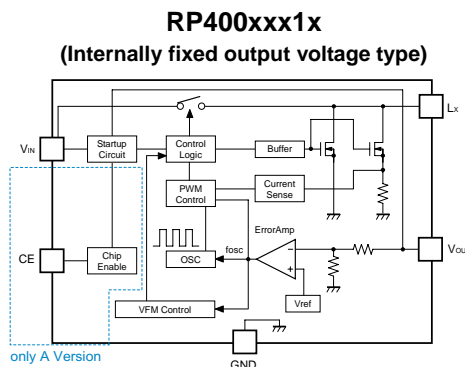
Current Mode PWM/VFM Step-up DC/DC Converter

The RP400x Series are CMOS-based automatic switch PWM- or VFM-controlled step-up DC/DC converters. RP400x includes a soft start circuit. By simply using an inductor, a capacitor, a diode, and (resistors) as external components, a high-efficiency step-up DC/DC converter can be easily configured. Due to current mode PWM control, the RP400x provides a fast response and high efficiency. Ceramic output capacitors can be used. The output voltage can be selected from the internally fixed or the externally adjustable. The RP400x has an anti-ringing switch that prevents inductor current from ringing in PWM discontinuous mode. RP400x switches automatically to VFM control in low output current, keeping high efficiency. In addition to SOT-23-5 package, a 1.8mm × 2.0mm square DFN(PLP)1820-6 package is also available.

FEATURES

- Supply Current (I_{DD1}).....Typ. 300 μ A (RP400x301, V_{IN} = SET V_{OUT} × 0.5, V_{OUT} = SET V_{OUT} × 0.95)
- Supply Current (I_{DD2}).....Typ. 160 μ A (V_{IN} =5V, In non-switching)
- Standby Current ($I_{standby}$).....Max. 3 μ A (In standby, only A Version)
- Input Voltage Range (V_{IN}).....Max. 5.5V
- Start-up Voltage (V_{start}).....Max. 0.9V
- Output Voltage Range (V_{OUT}).....1.8V to 5.0 V (internally fixed) (xx1)
Externally adjustable (Feedback voltage : 0.6V) (001)
- Output Voltage Accuracy..... $\pm 2\%$
- Oscillator Frequency (f_{osc}).....700kHz
- Oscillator Maximum Duty Cycle (Maxduty).....Typ. 88%
- Coil-current Limit CircuitCurrent Limit Typ. 600mA
- Soft Start Time (t_{start}).....Typ. 0.7ms
- Anti-ringing SwitchInternal EMI Suppression
- PackagesDFN(PLP)1820-6, SOT-23-5

BLOCK DIAGRAMS

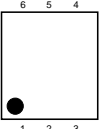
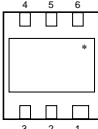
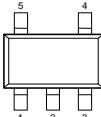


SELECTION GUIDES

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN(PLP)1820-6	5,000 pcs	RP400Kxx1*-TR
H/F	SOT-23-5	3,000 pcs	RP400Nyy1*-TR-FE

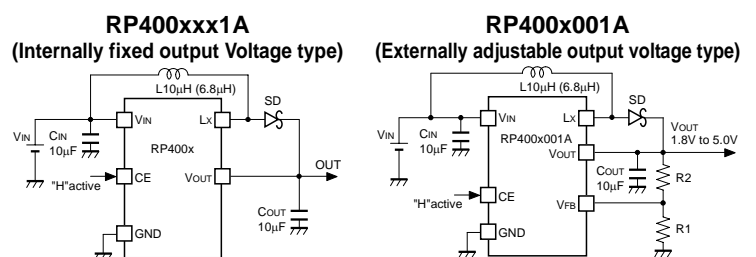
- xx** : Specify the output voltage within the range of 1.8V (18) to 5.0V (50) in 0.1V steps.
For the externally adjustable output voltage type (00).
- yy** : Specify the output voltage within the range of 1.8V (18) to 5.0V (50) in 0.1V steps.
(The externally adjustable output voltage type is not available.)
- * : Select from (A) With CE pin or (B) Without CE pin.

PACKAGES

DFN(PLP)1820-6					SOT-23-5							
<div><div>Top View</div></div>					<div><div>Bottom View</div></div>					<div></div>		
	xx1A	001A	xx1B	001B		xx1A	xx1B					
1	V _{IN}	V _{IN}	V _{IN}	V _{IN}	1	CE	NC					
2	CE	CE	NC	NC	2	GND	GND					
3	GND	GND	GND	GND	3	V _{IN}	V _{IN}					
4	L _X	L _X	L _X	L _X	4	V _{OUT}	V _{OUT}					
5	NC	V _{FB}	NC	V _{FB}	5	L _X	L _X					
6	V _{OUT}	V _{OUT}	V _{OUT}	V _{OUT}								

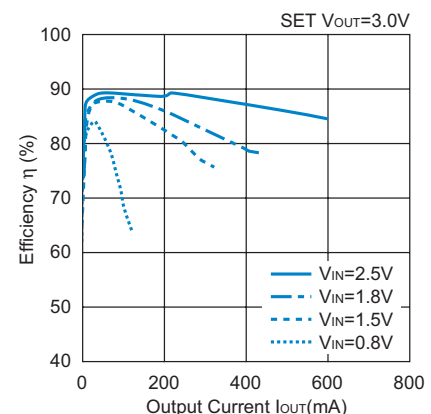
*) The tab is substrate level (GND).

TYPICAL APPLICATIONS



TYPICAL CHARACTERISTIC

RP400x001A Efficiency vs. Output Current



- MP3 players and PDA
- Digital cameras

- LCD bias power supply
- Personal medical equipment

- Wireless Handset
- GPS



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■ Ricoh presented with the Japan Management Quality Award for 1999.
Ricoh 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.