

1.2A* 30V Input PWM Step-down DC/DC Converter

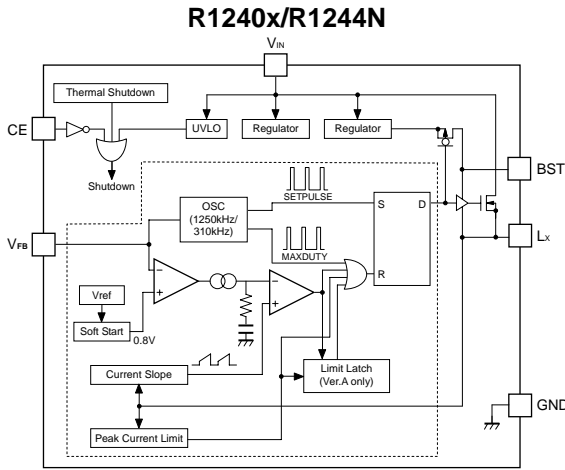
The R1240x/R1244N Series are 30V input, CMOS-based PWM step-down DC/DC converters featuring 1.2A* output current. R1240x/R1244N include a soft start circuit and a latch or a fold-back protection circuit. (R1244N includes a fold-back Protection Circuit only.) By simply using an inductor, resistors, a diode, and capacitors as external components, a high-efficiency step-down DC/DC converter can be easily configured. Due to current mode PWM control, the R1240x/R1244N provide a fast response and high efficiency. Ceramic output capacitors can be used. Two different pin layout of SOT-23-6W package as R1240N and R1244N are available.

FEATURES

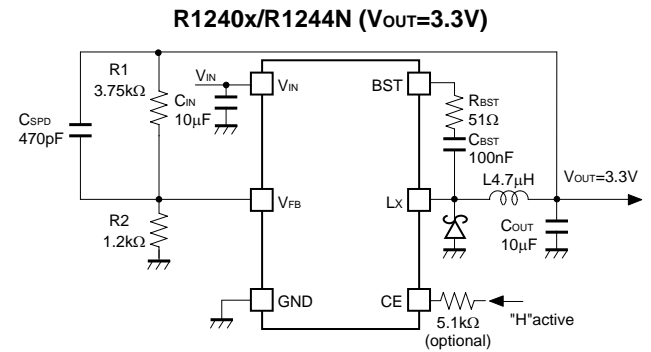
- Supply Current (I_{DD}) Typ. 500 μ A (No switching)
- Standby Current ($I_{standby}$) Max. 5 μ A (CE="L")
- Input Voltage Range (V_{IN}) 4.5V to 30.0V
- Output Voltage Range (V_{OUT}) 0.8V to 15.0V (Externally adjustable)
(Feedback voltage : 0.8V)
- Feedback Voltage Accuracy \pm 12mV
- Output Current (I_{OUT}) 1.2A*
- Oscillator Frequency (f_{OSC}) 1.25MHz
- Oscillator Maximum Duty Cycle (Maxduty) R1240x : Min. 75%, Typ. 85%
R1244N : Typ. 85%
- Minimum ON Time (t_{MIN}) Typ. 100ns
- UVLO Detect Voltage (V_{UVLO}) Typ. 3.8V
- Soft Start Time (t_{start}) Typ. 0.4ms
- High Side Switch Limit Current Typ. 2A
- Thermal Shutdown Circuit Stops at 160°C.
- Latch Protection Circuit Delay time for protection
Typ. 2ms (A Version)
- Fold-back Protection Circuit Fold-back frequency
Typ. 310kHz (B Version)
- Packages DFN(PLP)2527-10,
SOT-23-6W

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

BLOCK DIAGRAM



TYPICAL APPLICATION



- CSPD : Speed-up capacitor
- CIN, COUT : Ceramic capacitors can be used.
- CBST : Bootstrap Capacitor
- R1, R2 : Resistors for setting output voltage
- RBST : LX slew-rate adjustable resistor

SELECTION GUIDES

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN(PLP)2527-10	5,000 pcs	R1240K003*-TR
H/F	SOT-23-6W	3,000 pcs	R1240N001*-TR-FE R1244N001B-TR-FE

* : Select the protection circuit from
(A) Latch type or (B) Fold-back type.

PACKAGES

DFN(PLP)2527-10		SOT-23-6W	
Top View	Bottom View		
		R1240N	R1244N
1 LX	6 GND	1 CE	1 BST
2 VIN***	7 NC	2 VIN	2 GND
3 VIN***	8 VFB	3 LX	3 VFB
4 CE	9 NC	4 BST	4 CE
5 TEST**	10 BST	5 GND	5 VIN
		6 VFB	6 LX

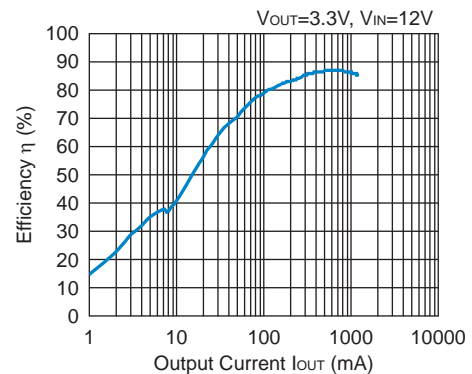
*) The tab is substrate level (GND).

**) TEST pin should be open.

***) The VIN pin must be wired together when it is mounted on board.

TYPICAL CHARACTERISTIC

R1240x/R1244N Efficiency vs. Output Current



APPLICATIONS

- Power source for digital home appliances such as digital TVs and DVD players
- Power source for office automation equipment such as printers and fax machines
- Power source for hand-held communication equipment, cameras, and VCRs
- Power source for battery-powered equipment



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For the conservation of the global environment, Ricoh is advancing the decrease of the negative environmental impact material.
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. Basically after Apr. 1, 2012, we will ship out the Power Management ICs of the Halogen Free products only. (Ricoh Halogen Free products are also Antimony Free.)

RICOH RICOH COMPANY, LTD. Electronic Devices Company

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RICOH COMPANY, LTD.

Electronic Devices Company

● Higashi-Shinagawa Office (International Sales)

3-32-3, Higashi-Shinagawa, Shinagawa-ku, Tokyo 140-8655, Japan
Phone: +81-3-5479-2857 Fax: +81-3-5479-0502

RICOH EUROPE (NETHERLANDS) B.V.

● Semiconductor Support Centre

"Nieuw Kronenburg" Prof. W.H. Keesomlaan 1, 1183 DJ, Amstelveen, The Netherlands
P.O.Box 114, 1180 AC Amstelveen
Phone: +31-20-5474-309 Fax: +31-20-5474-791

RICOH ELECTRONIC DEVICES KOREA Co., Ltd.

11 floor, Haesung 1 building, 942, Daechidong, Gangnamgu, Seoul, Korea
Phone: +82-2-2135-5700 Fax: +82-2-2135-5705

RICOH ELECTRONIC DEVICES SHANGHAI Co., Ltd.

Room403, No.2 Building, 690#Bi Bo Road, Pu Dong New district, Shanghai 201203,
People's Republic of China
Phone: +86-21-5027-3200 Fax: +86-21-5027-3299

RICOH COMPANY, LTD.

Electronic Devices Company

● Taipei office

Room109, 10F-1, No.51, Hengyang Rd., Taipei City, Taiwan (R.O.C.)
Phone: +886-2-2313-1621/1622 Fax: +886-2-2313-1623