

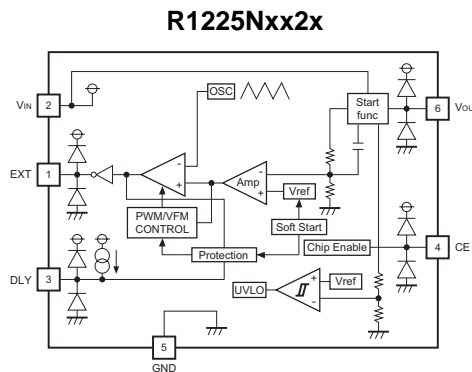
18.5V Input PWM/VFM Step-down DC/DC Controller with Ext. Tr.

The R1225N Series are low supply current CMOS-based PWM/VFM controlled step-down DC/DC controllers with an external output transistor. By simply using a power transistor, an inductor, a diode, and a capacitor as external components, a high-efficiency step-down DC/DC converter can be easily configured. The PWM/VFM alternative circuit automatically switches to VFM control in the smaller output current range and provides high efficiency even in the smaller output current range. The version with fixed PWM control is also available. The latch type protection circuit embedded into the device latches the power MOS in the "OFF" state when the oscillator maximum duty cycle continues for a predetermined period of time. Protection time is adjustable by the capacity of an external capacitor of the DLY pin. R1225N also includes an under-voltage lockout circuit (UVLO) that stops DC/DC operation and prevents malfunction when the supply voltage falls below the UVLO detector threshold and reduces supply current.

FEATURES

- Supply Current (I_{DD1}) Typ. 20 μ A (A, B, J, K Versions),
Typ. 30 μ A (C Version),
Typ. 40 μ A (D Version) (No switching)
- Standby Current ($I_{standby}$) Typ. 0 μ A (CE="L")
- Input Voltage Range (V_{IN}) 2.3V to 18.5V (Absolute maximum rating : 20.0V)
- Output Voltage Range (V_{OUT}) 1.2V to 6.0V (Internally fixed)
- Output Voltage Accuracy $\pm 2\%$
- Oscillator Frequency (f_{osc}) 180kHz, 300kHz, 500kHz
- Oscillator Maximum Duty Cycle (Maxduty) · Min. 100%
- UVLO Detect Voltage (V_{UVLO}) Typ. 2.0V
- Soft Start Time (t_{start}) Typ. 10ms
- Latch Type Protection Circuit Delay time for protection
Typ. 20ms
- Package SOT-23-6W

BLOCK DIAGRAM

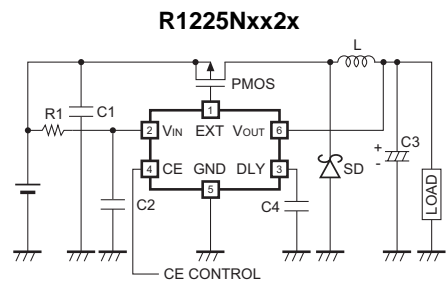


SELECTION GUIDE

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	SOT-23-6W	3,000 pcs	R1225Nxx2*-TR-FE

- xx : Specify the output voltage within the range of 1.2V (12) to 6.0V (60) in 0.1V steps.
- * : Specify the oscillator frequency, modulation method.
- A : 300kHz, PWM/VFM,
 - B : 500kHz, PWM/VFM,
 - C : 300kHz, fixed PWM,
 - D : 500kHz, fixed PWM,
 - J : 180kHz, PWM/VFM,
 - K : 180kHz, fixed PWM

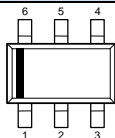
TYPICAL APPLICATION



PMOS : HAT1044M, L : 27 μ H, SD : RB063L-30,
C1 : 10 μ F, C2 : 0.1 μ F, C3 : 47 μ F, C4 : 0.02 μ F, R1 : 10 Ω

PACKAGE (Top View)

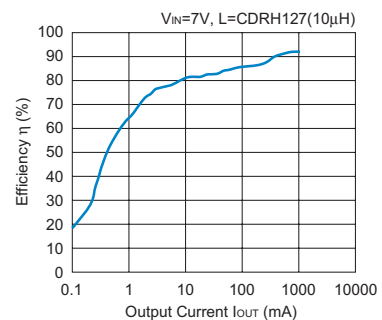
SOT-23-6W



1	EXT	4	CE
2	V _{IN}	5	GND
3	DLY	6	V _{OUT}

TYPICAL CHARACTERISTIC

R1225N332A Efficiency vs. Output Current



APPLICATIONS

- Power source for hand-held communication equipment, cameras, and VCRs
- Power source for home appliances
- Power source for battery-powered equipment



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RICOH RICOH ELECTRONIC DEVICES CO., LTD.

<http://www.e-devices.ricoh.co.jp/en/>

Sales & Support Offices

RICOH ELECTRONIC DEVICES CO., LTD.

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
Prof. W.H. Keesomlaan 1, 1183 DJ Amstelveen, The Netherlands
Phone: +31-20-5474-309

RICOH ELECTRONIC DEVICES KOREA CO., LTD.

3F, Haesung Bldg. 504, Teheran-ro, Gangnam-gu, Seoul, 135-725, Korea
Phone: +82-2-2135-5700 Fax: +82-2-2051-5713

RICOH ELECTRONIC DEVICES SHANGHAI CO., LTD.

Room 403, No.2 Building, No.690 Bilbo Road, Pu Dong New District, Shanghai 201203,
People's Republic of China
Phone: +86-21-5027-3200 Fax: +86-21-5027-3299

RICOH ELECTRONIC DEVICES CO., LTD.

Taipei office
Room 109, 10F-1, No.51, Hengyang Rd., Taipei City, Taiwan (R.O.C.)
Phone: +886-2-2313-1621/1622 Fax: +886-2-2313-1623