

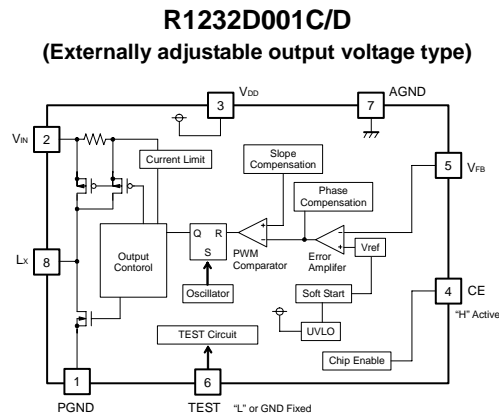
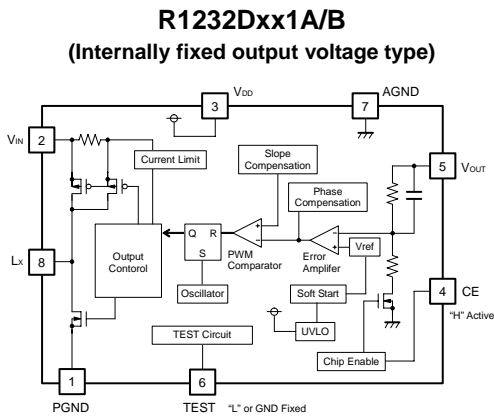
PWM Step-down DC/DC Converter with Synchronous Rectifier

The R1232D Series are low supply current CMOS-based PWM step-down DC/DC converters with synchronous rectifier. R1232D includes a soft start circuit, under-voltage lockout circuit (UVLO) and latch type protection circuit. By simply using an inductor, a capacitor, and (resistors) as external components, a high-efficiency step-down DC/DC converter can be easily configured. R1232D comes in two types: R1232Dxx1A/B with internally fixed output voltage and R1232D001C/D with adjustable output voltage with external resistors.

FEATURES

- Supply Current (I_{DD}) Typ. 140 μ A (1MHz), 240 μ A (2.25MHz) (No switching)
- Standby Current ($I_{standby}$) Typ. 0 μ A (CE="L")
- Input Voltage Range (V_{IN}) 2.6V to 5.5V (Absolute maximum rating : 6.5V)
- Output Voltage Range (V_{OUT}) 0.9V to 3.3V (Internally fixed, R1232Dxx1A/B)
Externally adjustable (Feedback voltage : 0.8V, R1232D001C/D)
- Output Voltage Accuracy $\pm 2\%$ (Feedback Voltage Accuracy : $\pm 16mV$)
- Oscillator Frequency (f_{osc}) 1MHz, 2.25MHz
- Oscillator Maximum Duty Cycle (Maxduty) Min. 100%
- UVLO Detect Voltage (V_{UVLO}) Typ. 2.25V
- Soft Start Time (t_{start}) Typ. 1ms (1MHz)
Typ. 0.4ms (2.25MHz)
- Coil-current Limit Circuit Current limit Typ. 1.4A
- Latch Type Protection Circuit Delay time for protection
Typ. 2ms
- Package SON-8
- Ceramic capacitors can be used. .. $C_{IN}=C_{OUT}=10\mu F$ or more

BLOCK DIAGRAMS

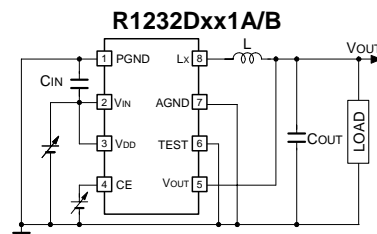


SELECTION GUIDE

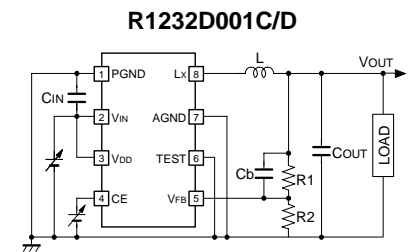
Halogen Free	Package	Q'ty per Reel	Part No.
H/F	SON-8	3,000 pcs	R1232Dxx1*-TR-FE R1232D001\$-TR-FE

- xx : Specify the output voltage within the range of 0.9V (09) to 3.3V (33) in 0.1V steps.
For the externally adjustable output voltage type (00)
- * : Select the oscillator frequency and output voltage type from (A) 1MHz, internally fixed type or (B) 2.25MHz, internally fixed type.
- \$: Select the oscillator frequency and output voltage type from (C) 1MHz, externally adjustable type or (D) 2.25MHz, externally adjustable type.

TYPICAL APPLICATIONS



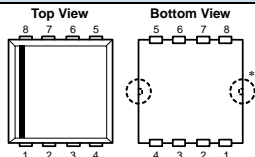
$L=4.7\mu H, 2.2\mu H$
 $C_{IN}=10\mu F, C_{OUT}=10\mu F$



For $V_{OUT}=2.0V$,
 $R1=33k\Omega, R2=22k\Omega, Cb=100pF$

PACKAGE

SON-8

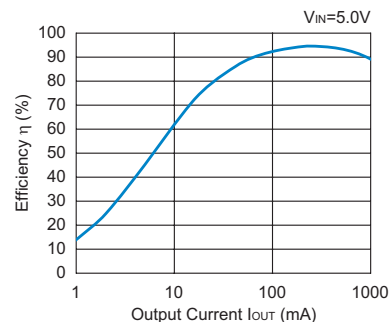


1	PGND	5	V_{OUT} or V_{FB}
2	V_{IN}	6	TEST
3	V_{DD}	7	AGND
4	CE	8	L_x

*) The tab suspension leads are substrate level (GND).

TYPICAL CHARACTERISTIC

R1232D331A Efficiency vs. Output Current



APPLICATIONS

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



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