

Tiny Package, 1.3MHz, Step-up DC/DC Converter

General Description

The RT9268 is a compact, 1.3MHz, step-up DC/DC converter with a current mode PWM control loop, providing a stable and efficient operation without external compensation.

The high switching rate makes RT9268 suitable for ADSL applications providing sufficient output current for variant types of line drivers. The 2V~6V wide applicable V_{IN} range makes it suitable for applications. This device is available space-saving SOT-26 package.

The output voltage is set with 2 external resistors. Both internal 2A switch and driver for driving external power devices (NMOS or NPN) are provided.

Ordering Information

RT9268□□
 □ Package type
 E : SOT-26
 □ Operating temperature range
 C: Commercial standard

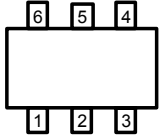
Features

- 1.3MHz Switching Rate
- Below 2V Low Start-up Input Voltage
- Sufficient Supply Capability for Supplying XDSL Line Drivers
- Zero Shutdown Mode Supply Current
- Providing Flexibility for Using Internal and External Power Switches
- Small SOT-26 Package

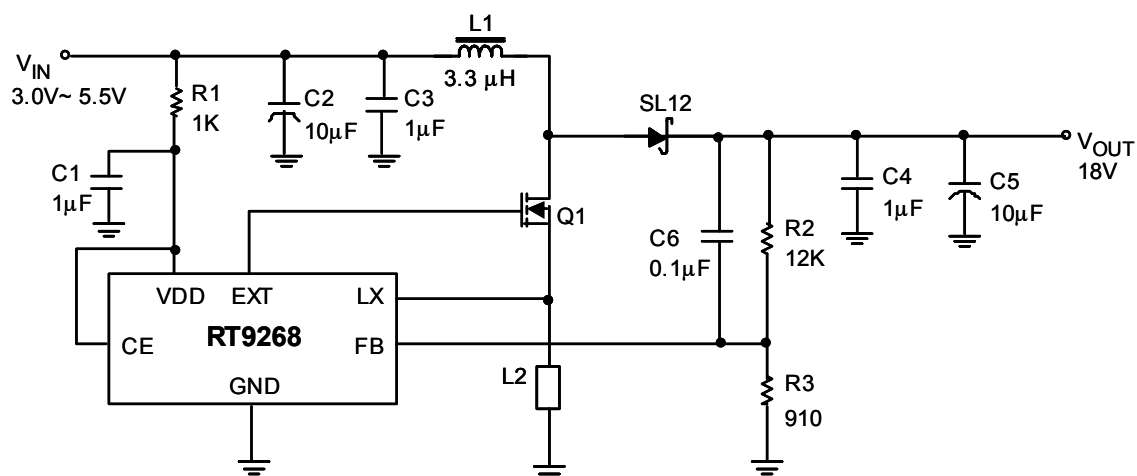
Applications

- XDSL Line Drivers
- USB Devices
- PCMCIA Cards
- Mini-PCI Cards

Pin Configurations

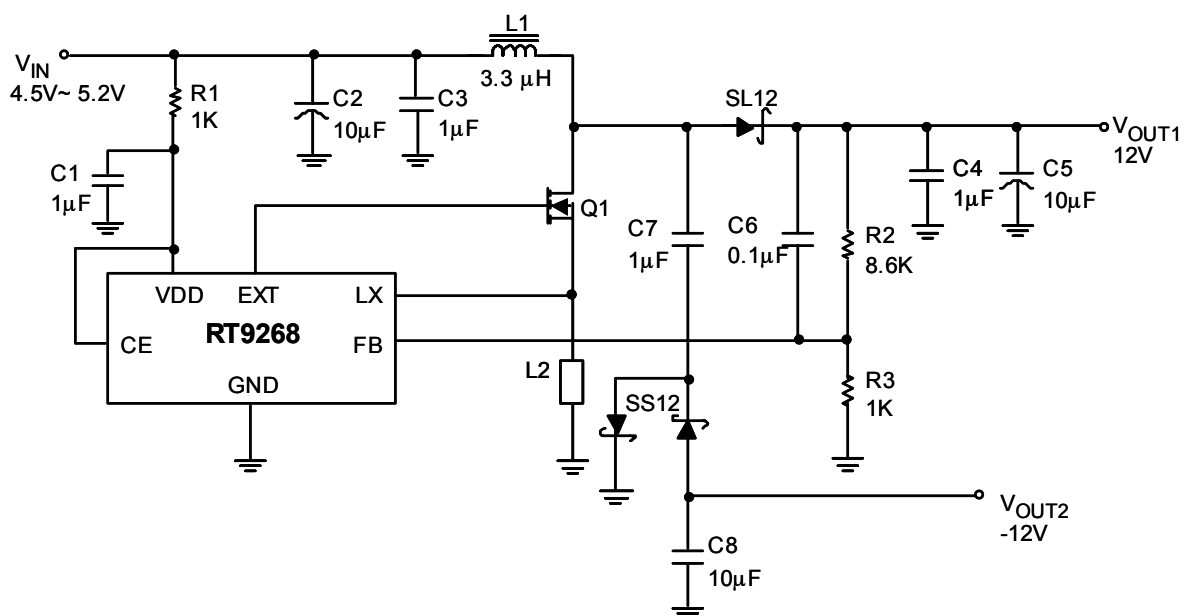
Part Number	Pin Configurations
RT9268CE (Plastic SOT-26)	 TOP VIEW 1. CE 2. EXT 3. GND 4. LX 5. VDD 6. FB

Typical Application Circuit



L2 : CL321611T-R22K-S/ YAGEO

Fig. 1 RT9268 Application for XDSL 18V Line Drivers



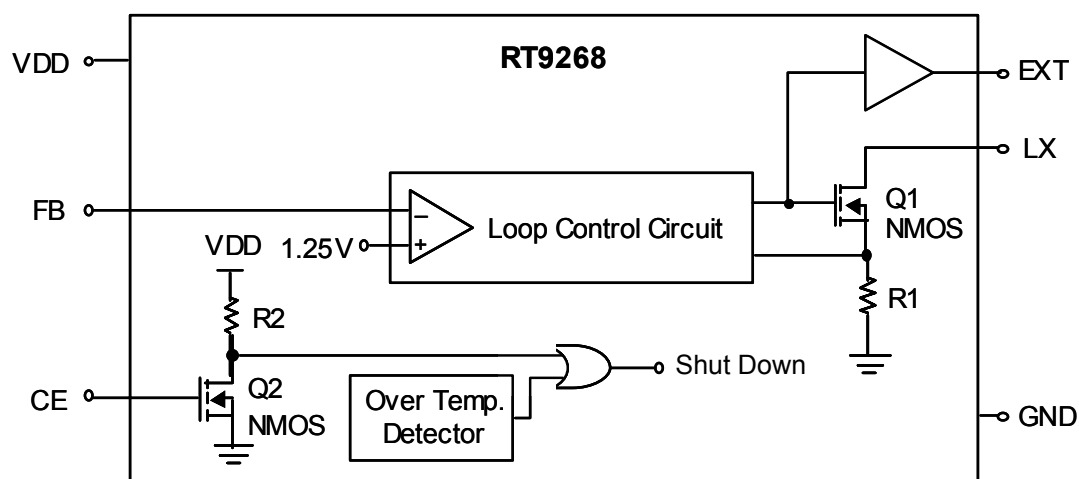
L2 : CL321611T-R22K-S/ YAGEO

Fig. 2 RT9268 Application for USB-XDSL +12V Line Drivers

Pin Description

Pin No.	Pin Name	Pin Function
1	CE	Chip enable RT9268 gets into shutdown mode when CE pin set to low.
2	EXT	Output pin for driving external NMOS
3	GND	Ground
4	LX	Pin for switching
5	VDD	Input positive power pin of RT9268
6	FB	Feedback input pin Internal reference voltage for the error amplifier is 1.25V.

Function Block Diagram



Absolute Maximum Ratings

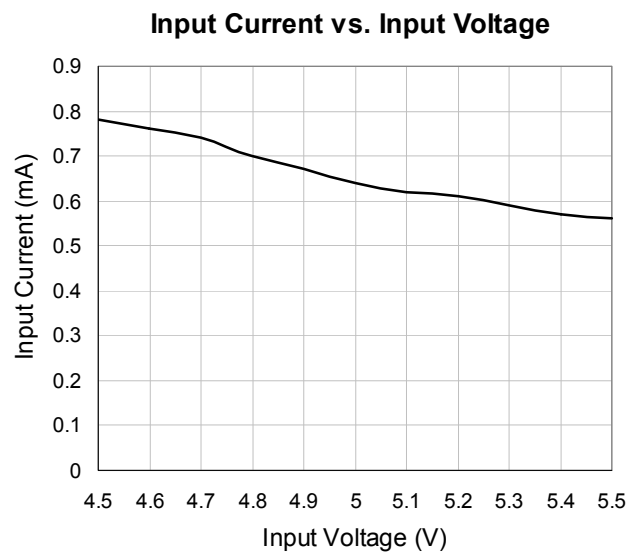
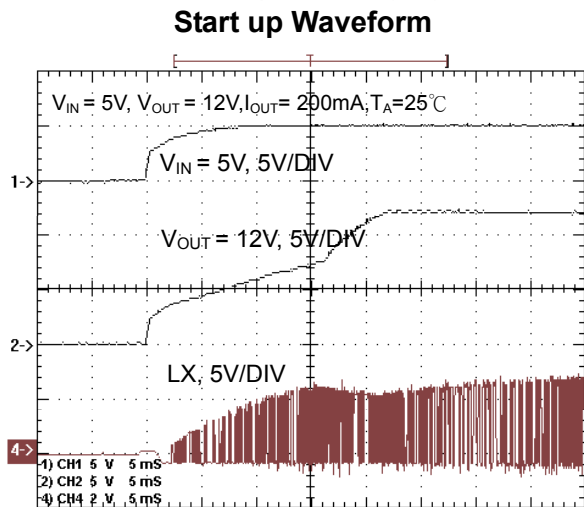
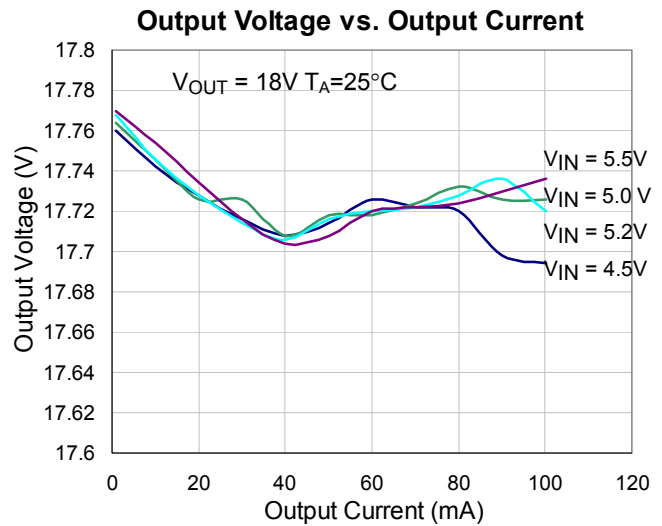
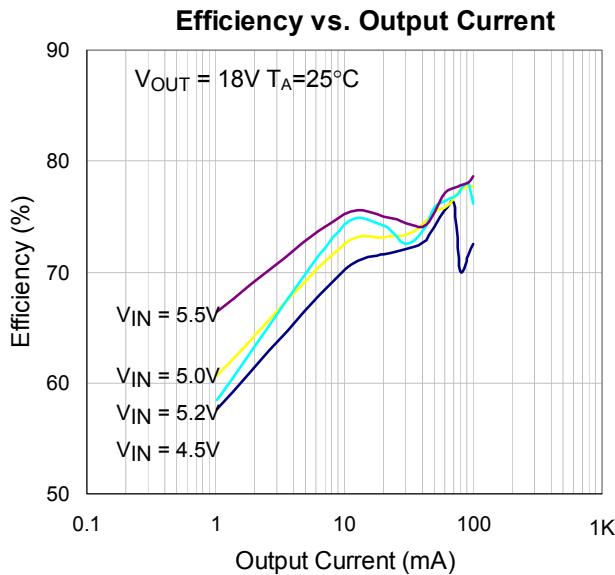
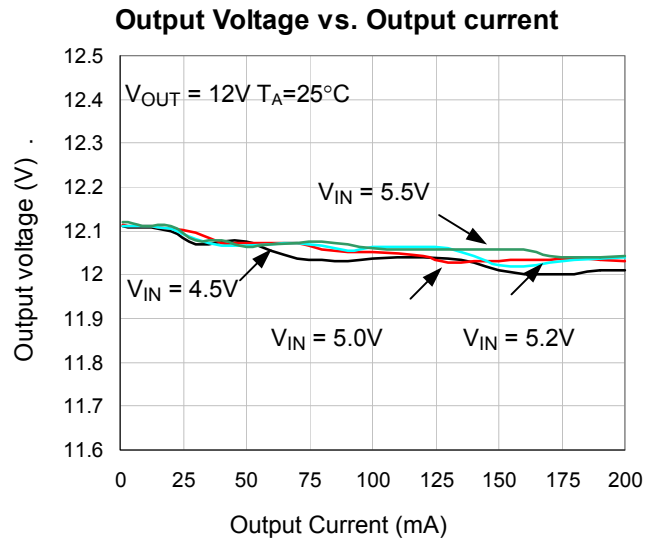
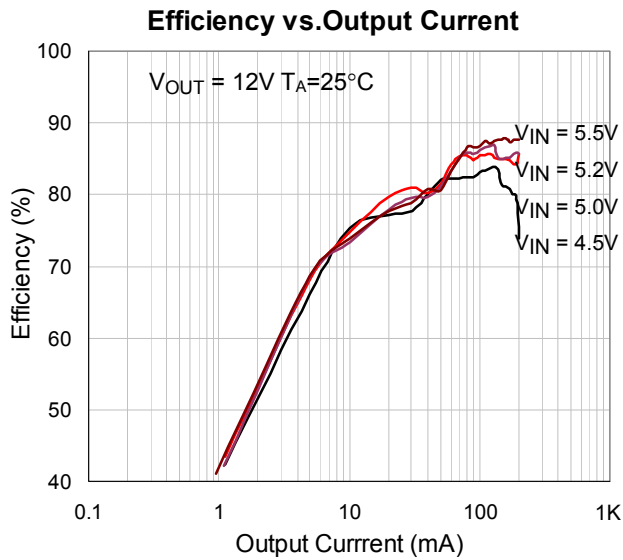
- Supply Voltage -0.3V to 7V
- LX Pin Switch Voltage -0.3V to (V_{DD} + 0.8V)
- Other I/O Pin Voltages -0.3V to (V_{DD} + 0.3V)
- LX Pin Switch Current 2.5A
- EXT Pin Driver Current 200mA
- Power Dissipation, P_D @ T_A = 25°C
SOT-26 0.25W
- Package Thermal Resistance
SOT-26, θ_{JA} 250°C/W
- Operating Junction Temperature 125°C
- Storage Temperature Range -65°C ~ +150°C

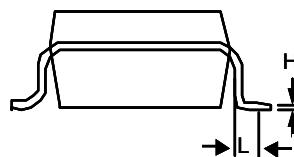
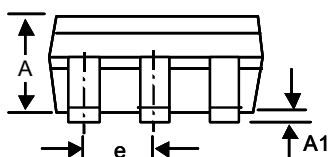
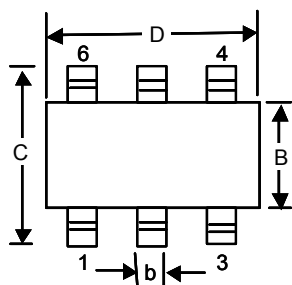
Electrical Characteristics

(V_{IN} = 3.3V, V_{DD} set to 5V, Load Current = 0, T_A = 25°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Start-UP Voltage	V _{ST}	I _L = 1mA	--	--	2	V
Operating V _{DD} Range	V _{DD}	V _{DD} pin voltage	2	--	6	V
No Load Current I (V _{IN})	I _{NO LOAD}	V _{IN} = 3.3V, V _{OUT} = 5V	--	3	--	mA
Switch-off Current I (V _{DD})	I _{SWITCH OFF}	V _{IN} = 6V	--	1	--	mA
Shutdown Current I (V _{IN})	I _{OFF}	CE Pin = 0V, V _{IN} = 6V	--	0.1	1	μA
Feedback Reference Voltage	V _{REF}		1.225	1.25	1.275	V
Switching Rate	F _S	V _{DD} = 5V	--	1.3	--	MHz
Maximum Duty	D _{MAX}	V _{DD} = 5V	--	95	--	%
LX ON Resistance		V _{DD} = 5V	--	0.3	--	Ω
Current Limit Setting	I _{LIMIT}	V _{DD} = 5V	--	2	--	A
EXT ON Resistance to V _{DD}		V _{DD} = 5V	--	5	--	Ω
EXT ON Resistance to GND		V _{DD} = 5V	--	5	--	Ω
Line Regulation	ΔV _{LINE}	V _{IN} = 2 ~ 4V, I _L = 1mA	--	10	--	mV/V
Load Regulation	ΔV _{LOAD}	V _{IN} = 3.3V, I _L = 1 ~ 100mA	--	0.25	--	mV/mA
CE Pin Trip Level		V _{DD} = 5V	0.4	0.8	1.2	V
Temperature Stability for V _{out}	T _s	Guaranteed by Design	--	50	--	ppm/°C
Thermal Shutdown	T _{SD}	Guaranteed by Design	--	165	--	°C
Thermal Shutdown Hysterises	ΔT _{SD}	Guaranteed by Design	--	10	--	°C

Typical Operating Characteristics



Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.889	1.295	0.035	0.051
A1	--	0.152	--	0.006
B	1.397	1.803	0.055	0.071
b	0.356	0.559	0.014	0.022
C	2.591	2.997	0.102	0.118
D	2.692	3.099	0.106	0.122
e	0.838	1.041	0.033	0.041
H	0.102	0.254	0.004	0.010
L	0.356	0.610	0.014	0.024

SOT- 26 Surface Mount Package

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