

DESCRIPTION

The PT 9266 is a compact, high efficiency, and low voltage step-up DC/DC converter with an Adaptive Current Mode PWM control loop, includes an error amplifier, ramp generator, comparator, switch pass element and driver in which providing a stable and high efficient operation over a wide range of load currents. It operates in stable waveforms without external compensation.

The low start-up input voltage below 1V makes PT 9266 suitable for 1 to 4 battery cells applications of providing up to 300mA output current. The 450KHz high switching rate minimized the size of external components. Besides, the 17 μ A low quiescent current together with high efficiency maintains long battery lifetime. The output voltage is set with two external resistors. Both internal 2A switch and driver for driving external power devices (NMOS or NPN) are provided.

FEATURES

- 1.0V Low Start-up Input Voltage
- High Supply Capability to Deliver 3.3V 100mA with 1 Alkaline Cell
- 17 μ A Quiescent (Switch-off) Supply Current
- Zero Shutdown Mode Supply Current
- 90% Efficiency
- 450kHz Fixed Switching Frequency
- Providing Flexibility for Using Internal and External Power Switches
- Small SOT-26 , SOT89-5 Package

APPLICATIONS

- PDA
- DSC
- LCD Panel
- RF-Tags
- MP3
- Portable Instrument
- Wireless Equipment

PACKAGE

- SOT-23-6
- SOT-89-5
- Others packages custom required.

BLOCK DIAGRAM

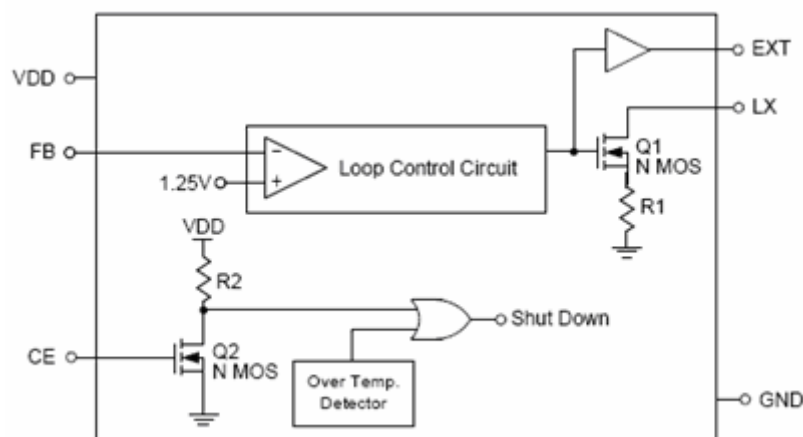


Figure 1

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MAXIMUM RATING	UNIT
Input voltage	V_{DD}	$V_{SS}-0.3 \sim V_{SS}+10$	V
Output voltage	V_{OUT}	$V_{SS}-0.3 \sim V_{SS}+10$	
	V_{LX}	$V_{SS}-0.3 \sim V_{SS}+10$	
EXT pin Driver Current	I_{EXT}	200	mA
LX pin Switch Current	I_{LX}	2.5	A
Power dissipation	PD	SOT-23-6 150	mW
		SOT-89-5 500	
Operating ambient temperature	T_{opr}	-40 ~ +80	
Storage ambient temperature	T_{stg}	-40 ~ +125	

Caution The absolute maximum ratings are rated values exceeding which the product could suffer physical damage. These values must therefore not be exceeded under any conditions.

Electrical Characteristics

($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	V_{OUT}	-	$V_{OUT}(s) \times 0.98$	$V_{OUT}(s)$	$V_{OUT}(S) \times 1.02$	V
Input Voltage	V_{IN}	-	-	-	10	
Operation start voltage	V_{ST}	$I_{OUT}=1\text{mA}$	-	0.95	1.05	
OSC start voltage	V_{ST2}	No external parts, Voltage applied to V_{OUT} , CONT pin pulled up to V_{OUT} via 300 Ω resistor	-	-	0.8	
Shut down current	I_{OFF}	$CE=0, V_{IN}=4.5\text{V}$	-	0.01	1	μA
Switch-off Current	$I_{switch-off}$	$V_{IN}=6\text{V}$	-	17	25	μA
Continuous Switching Current	I_{switch}	$V_{IN}=CE=3.3\text{V}, V_{FB}=GND$	180	250	400	μA
No load Current	$I_{no-load}$	$V_{IN}=1.5\text{V}, V_{OUT}=3.3\text{V}$	-	70	-	
Feedback Reference Voltage	V_{ref}	Close Loop $V_{dd}=3.3\text{V}$	1.225	1.25	1.275	V
Switching Frequency	F_s	$V_{dd}=3.3\text{V}$	380	450	520	KHz

Maximum Duty	D _{max}	V _{dd} =3.3V	85	95	-	%
LX on resistance		V _{dd} =3.3V	-	0.3	1.1	
Current Limit Setting	I _{limit}	V _{dd} =3.3V	1.6	2	2.6	A
EXT on resistance to VDD		V _{dd} =3.3V	-	5	8.5	
EXT on resistance to GND		V _{dd} =3.3V	-	5	8.5	
Line Regulation	V _{I line}	V _{i n} =3.5~6V, I _L =1mA	-	1.5	10	mV/V
Load Regulation	V _{I load}	V _{I N} =2.5V, I _L =1~100mA	-	0.25	-	mV/mA
CE pin Trip level		V _{DD} =3.3V	0.4	0.8	1.2	V
Temperature Stability for V _{out}	T _s		-	50	-	Ppm/
Thermal Shut down Hysterises	T _{sd}		-	10	-	

TEST CIRCUITS

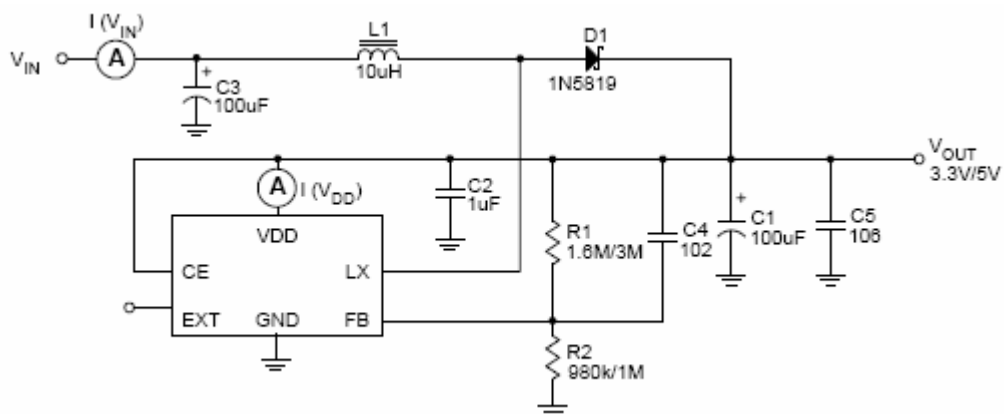


Figure 2

TYPICAL APPLICATION CIRCUIT

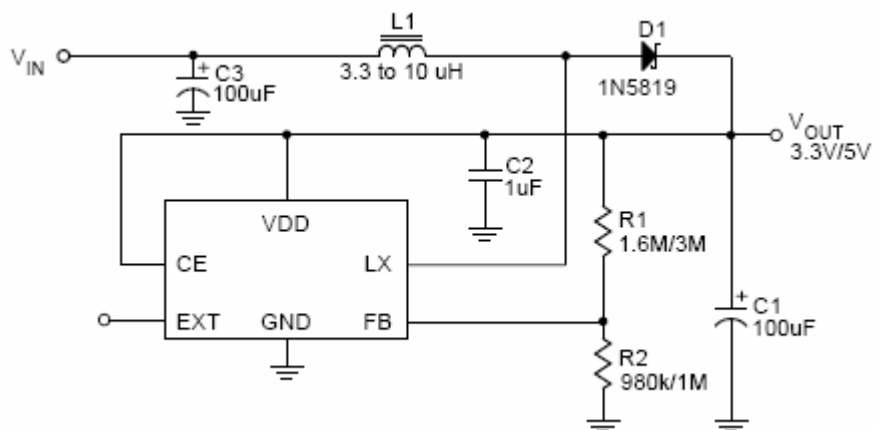


Figure 3 <A9266 Typical Application for Portable Instruments

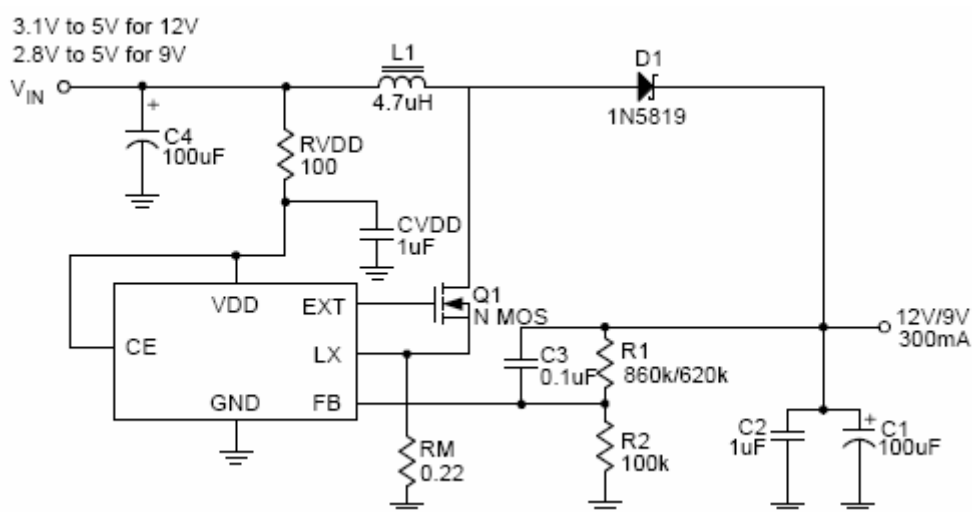


Figure 4 <A9266 High Voltage Application

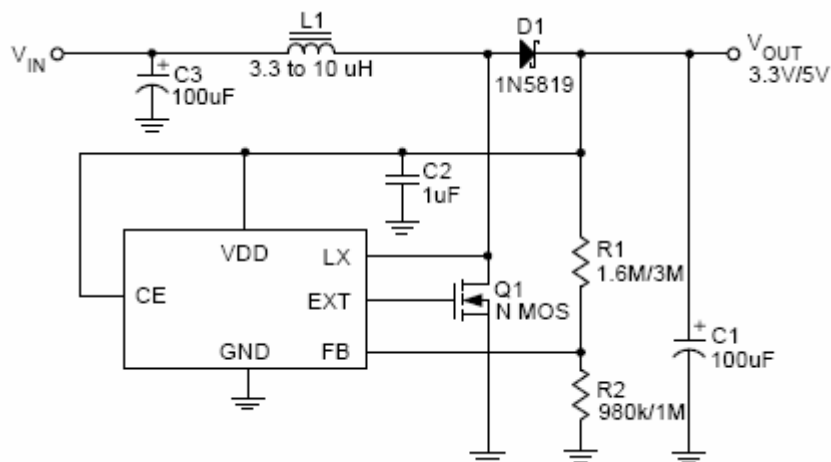


Figure 5 <A9266 for Higher Current Application

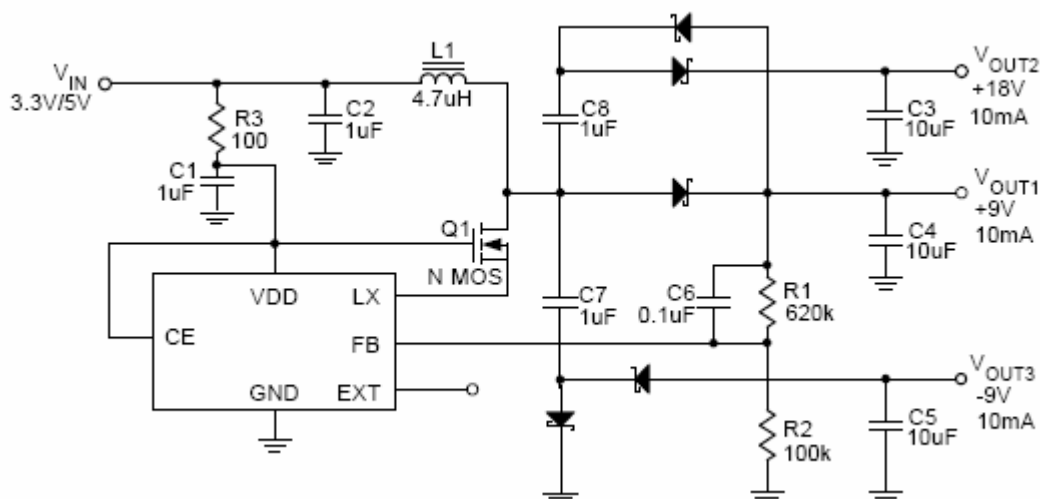
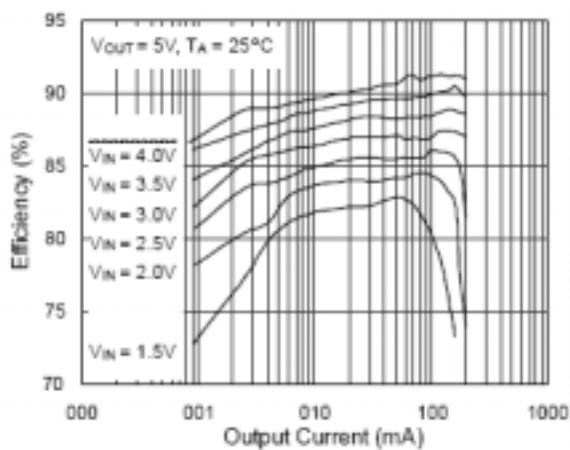


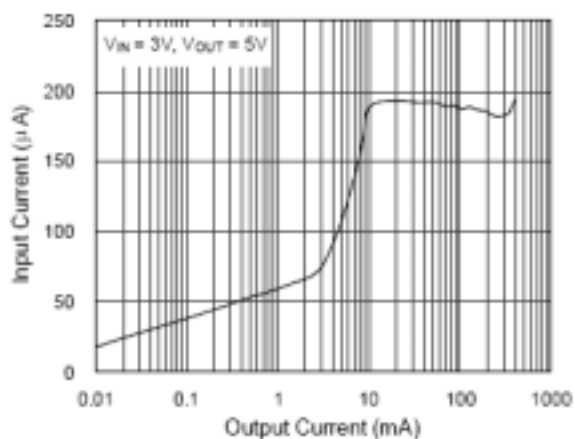
Figure 6 <A9266 for multi-output Application

TYPICAL PERFORMANCE CHARACTERISTICS

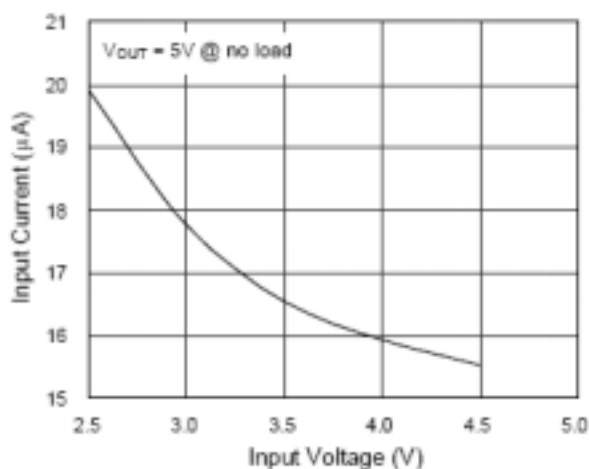
1. Efficiency vs. Output Current



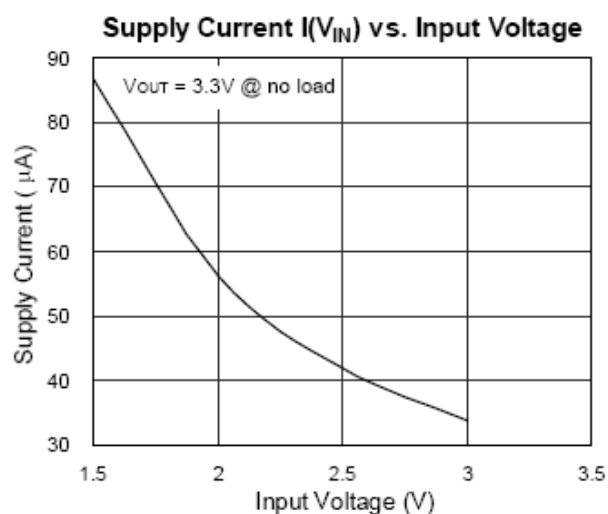
2. Input current vs. Output current



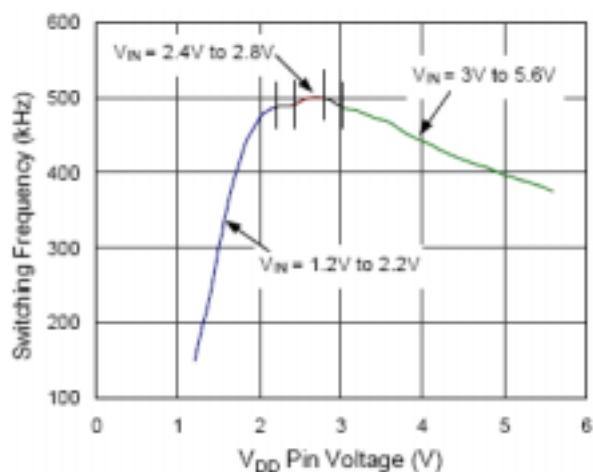
3. Input Current vs. Input Voltage



4. Supply Current vs. Input Voltage



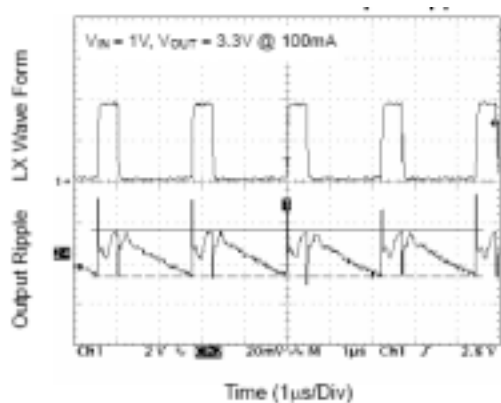
5. Switching Frequency vs. V_{DD} pin Voltage



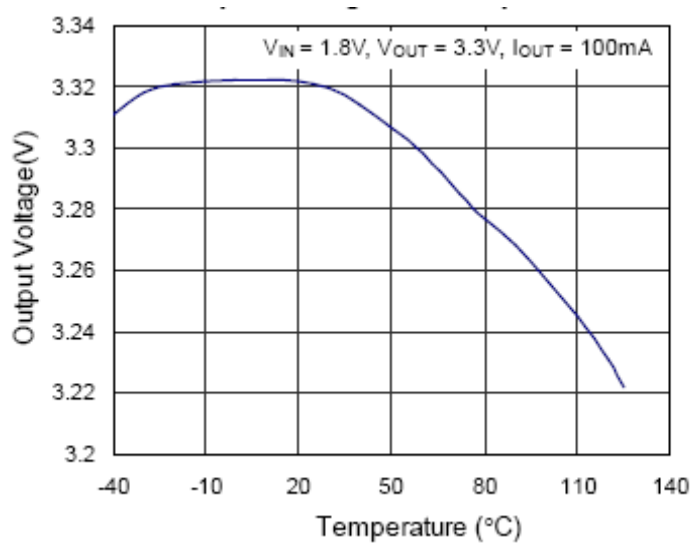
6. Start up voltage vs. Output Current

7. LX pin wave form & Output Ripple

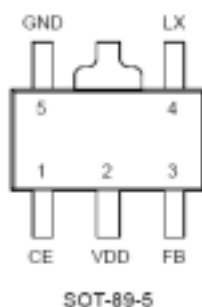
8. Transient Response



9. Output Voltage vs. Temperature



Pin Configuration



Remark Please contact the Natlinear marketing department for other packages.

Pin Assignment

PIN NUMBER		PIN NAME	FUNCTION
SOT26	SOT89-5		
1	1	CE	Chip enable
2	-	EXT	Output pin for driving external NMOS
3	5	GND	Ground
4	4	LX	Pin for switching
5	2	VDD	Input positive power pin of PT 9266
6	3	FB	Feedback input pin

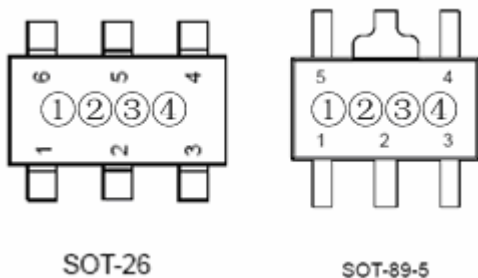
ORDERING INFORMATION

J O 9266P

DESIGNATOR	SYMBOL	DESCRIPTION	DESIGNATOR	SYMBOL	DESCRIPTION
	A	CE with EXT		M	SOT26
	B	CE without EXT		P	SOT89
	1	Reference accuracy: $\pm 1\%$		R	Embossed Tape : Standard Feed
	2	Reference accuracy: $\pm 2\%$		L	Embossed Tape : Reverse Feed
	4	Reference accuracy: $\pm 4\%$			

MARKING

- SOT26, SOT89-5



Represents the product name

SYMBOL	PRODUCT NAME
A	<A9266P****

Represents the type of regulator

SYMBOL	A	B
Type	CE with EXT	CE without EXT

Represents the accuracy of reference voltage

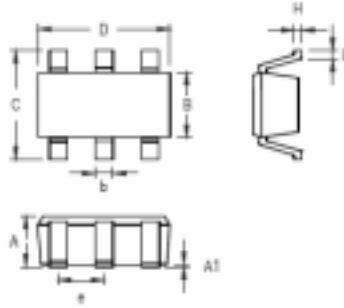
SYMBOL	Reference accuracy
1	1%
2	2%
4	4%

Represents the assembly lot No.

0 ~ 9 , A ~ Z repeated (G, I, J, O, Q, W expected)

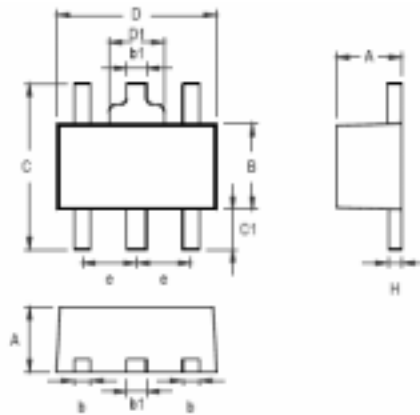
PACKAGING INFORMATION

- SOT26



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	0.889	1.295	0.035	0.051
A1	0.000	0.152	0.000	0.006
B	1.397	1.803	0.055	0.071
b	0.250	0.559	0.010	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	0.080	0.254	0.003	0.010
L	0.300	0.610	0.012	0.024

● SOT89-5



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.360	0.520	0.014	0.020
B	2.400	2.600	0.094	0.102
b1	0.406	0.533	0.016	0.021
C	--	4.250	--	0.167
C1	0.800	--	0.031	--
D	4.400	4.600	0.173	0.181
D1	--	1.700	--	0.067
e	1.400	1.600	0.055	0.063
H	0.380	0.430	0.014	0.017