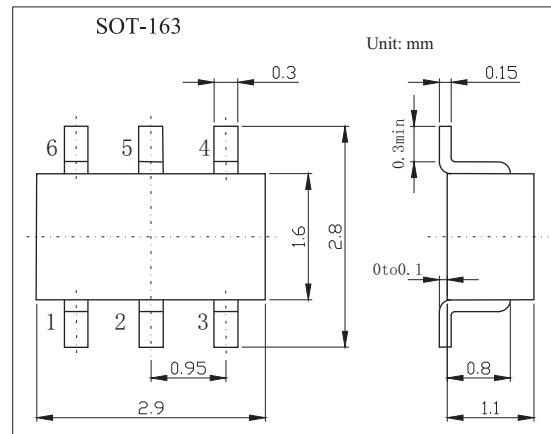


High Efficiency, Step-up DC/DC Converter

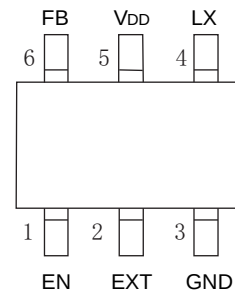
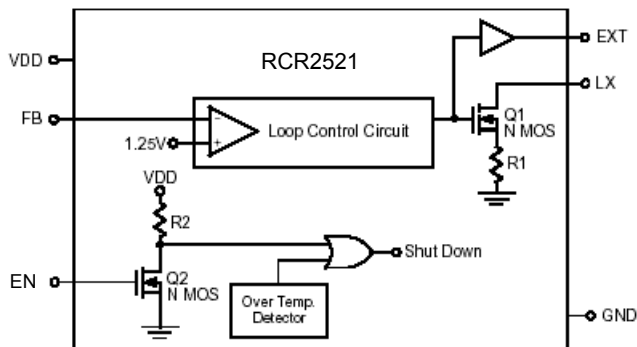
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■ Features

- 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



■ Functional Block Diagram



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Supply Voltage	V _{CC}	-0.3 to +7	V
LX Pin Switch Voltage	V _{LX}	-0.3 to +7	V
Other I/O Pin Voltages		-0.3V to (V _{DD} + 0.3V)	V
LX Pin Switch Current	I _{LX}	2.5	A
EXT Pin Driver Current	I _{EXT}	200	mA
Power Dissipation @ $T_a = 25^\circ\text{C}$	P _D	400	mW
Thermal Resistance	R _{θJA}	250	°C/W
Operating Junction Temperature	T _J	125	°C
Storage Temperature Range	T _{stg}	-65 to +150	°C

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■ Electrical Characteristics ($V_{IN} = 1.5V$, V_{DD} set to 3.3V, Load Current = 0, $T_a = 25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Test conditons	Min	Typ	Max	Unit
Start-UP Voltage	V_{ST}	$I_L = 1mA$		0.98	1.05	V
Operating V_{DD} Range	V_{DD}	V_{DD} pin voltage	2		6	V
Shutdown Current I (V_{IN})	I_{OFF}	EN Pin = 0V, $V_{IN} = 4.5V$		0.01	1	μA
Switch-off Current I (V_{DD})	$I_{SWITCH OFF}$	$V_{IN} = 6V$	0.4	17	25	μA
Continuous Switching Current	I_{SWITCH}	$V_{IN} = EN = 3.3V$, $V_{FB} = GND$		1	2	mA
No Load Current I (V_{IN})	$I_{NO LOAD}$	$V_{IN} = 1.5V$, $V_{OUT} = 3.3V$		75		μA
Feedback Reference Voltage	V_{REF}	Close Loop, $V_{DD} = 3.3V$	1.20	1.23	1.26	V
Switching Frequency	F_S	$V_{DD} = 3.3V$	425	500	575	KHz
Maximum Duty	D_{MAX}	$V_{DD} = 3.3V$	85	95		%
LX ON Resistance		$V_{DD} = 3.3V$	0.3	1.1	1.6	Ω
Current Limit Setting	I_{LIMIT}	$V_{DD} = 3.3V$		2	2.6	A
EXT ON Resistance to V_{DD}		$V_{DD} = 3.3V$		11	15	Ω
EXT OFF Resistance to GND		$V_{DD} = 3.3V$		11	15	Ω
Line Regulation	V_{LINE}	$V_{IN} = 1.5 \sim 3V$, $I_L = 1mA$		1.5	10	mV/V
Load Regulation	V_{LOAD}	$V_{IN} = 2.5V$, $I_L = 1 \sim 100mA$		0.25		mV/mA
EN Pin Trip Level		$V_{DD} = 3.3V$	0.4	0.8	1.2	V
Temperature Stability for V_{out}	T_S			50		$P_{pm}/^{\circ}C$
Thermal Shutdown Hysterises	T_{SD}			10		$^{\circ}C$

■ Marking

Marking	RCR2521
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■ Typical Application Circuit

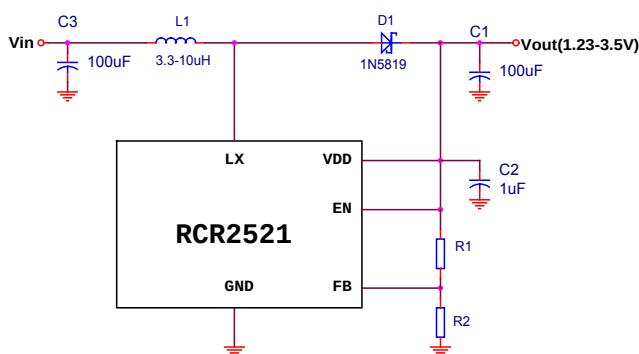


Figure 1. RCR2521 Typical Application for Portable Instruments

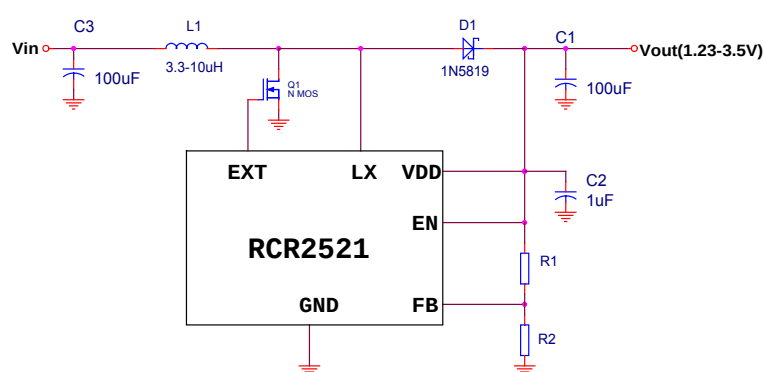
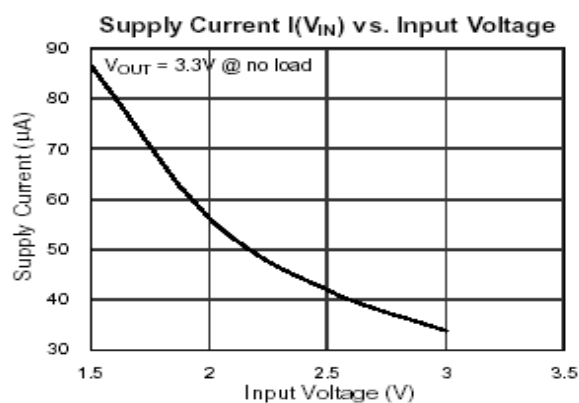
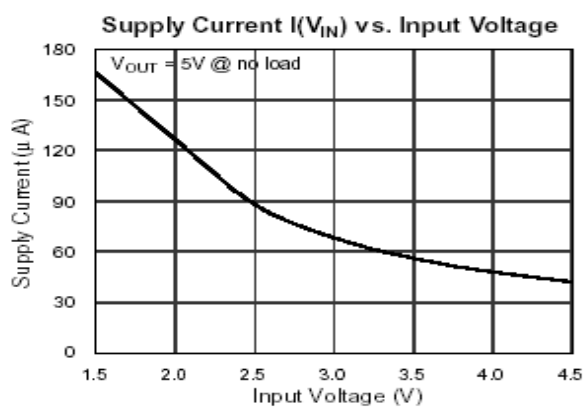
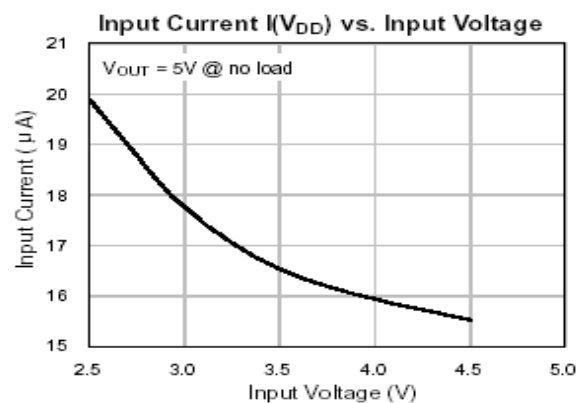
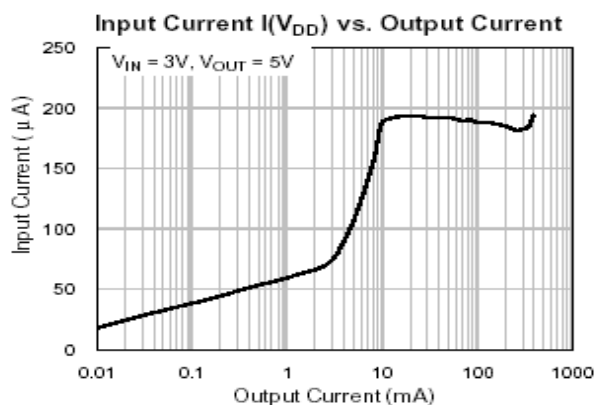
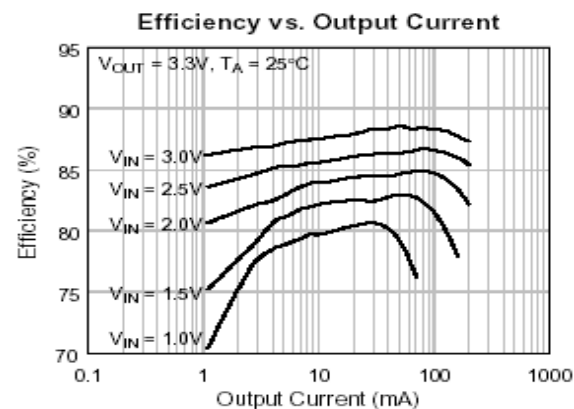
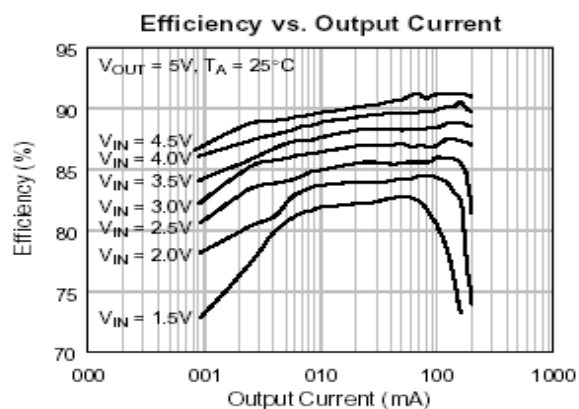


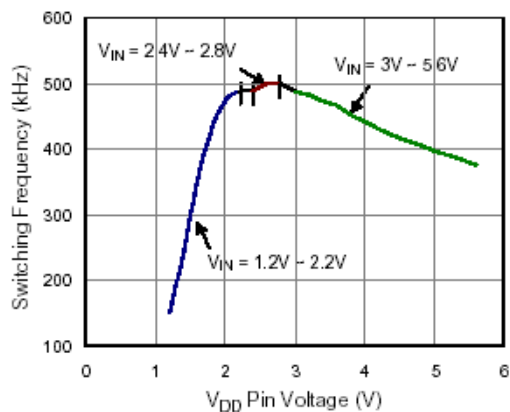
Figure 2. RCR2521 for Higher Current Applications

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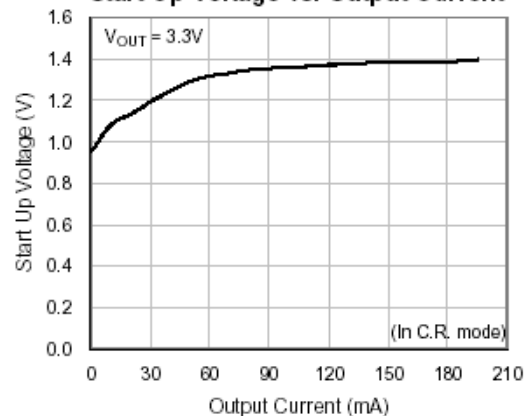
■ Typical Characteristics



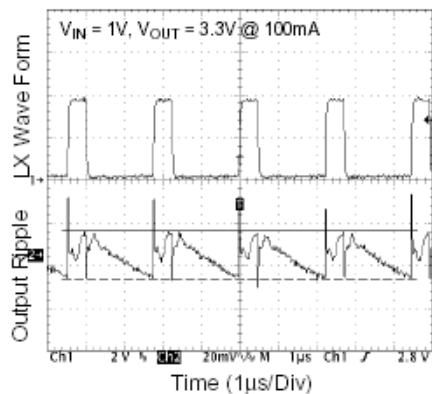
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Switching Frequency vs. V_{DD} Pin Voltage

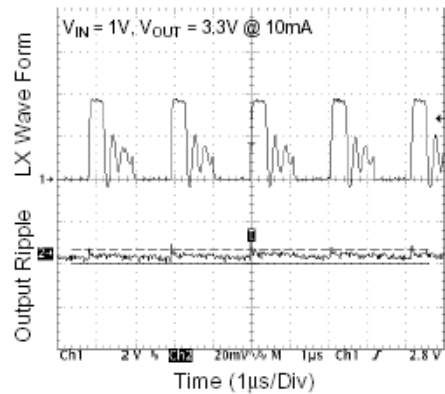
Start Up Voltage vs. Output Current



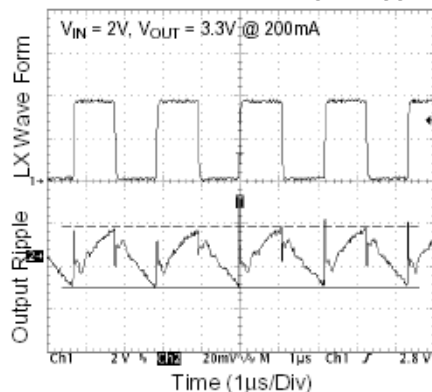
LX Pin Wave Form & Output Ripple



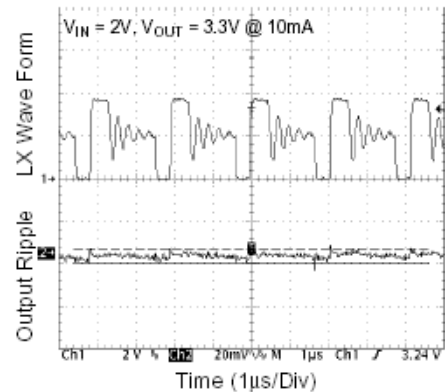
LX Pin Wave Form & Output Ripple



LX Pin Wave Form & Output Ripple

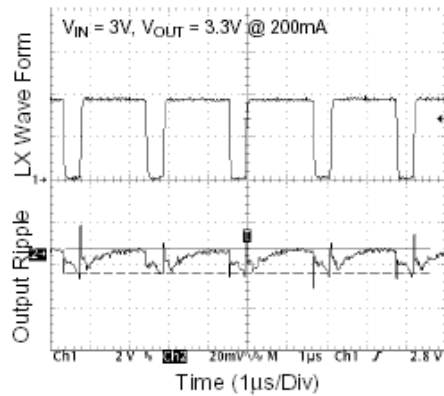


LX Pin Wave Form & Output Ripple

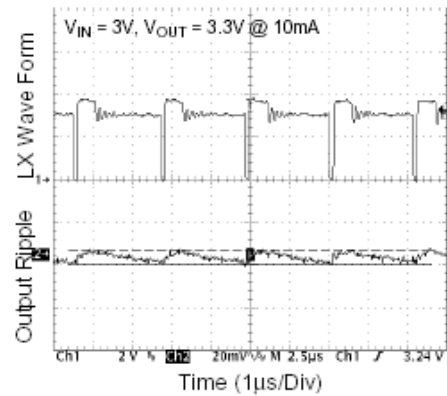


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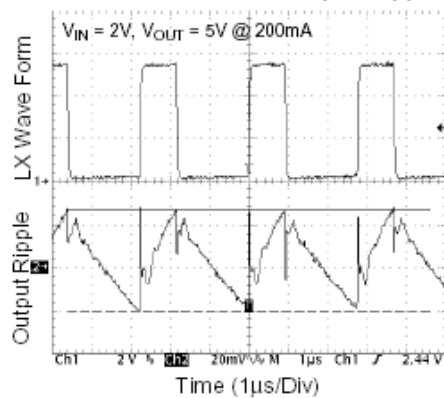
LX Pin Wave Form & Output Ripple



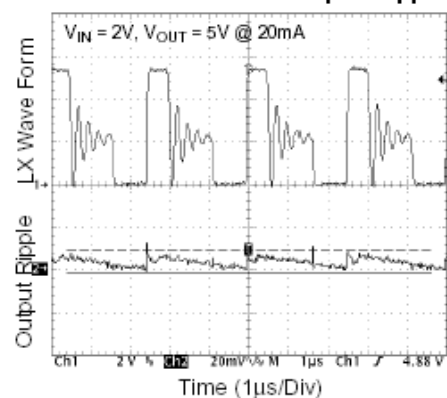
LX Pin Wave Form & Output Ripple



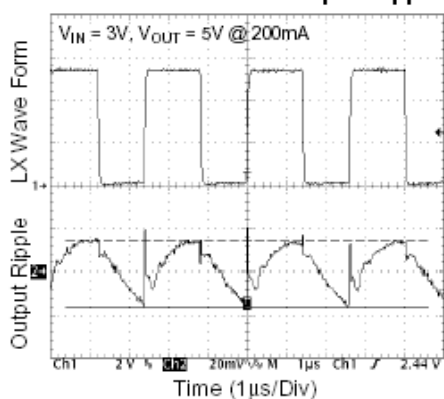
LX Pin Wave Form & Output Ripple



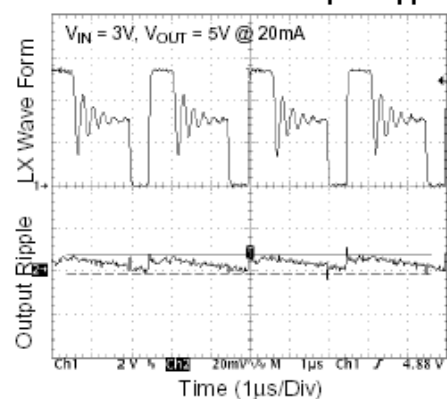
LX Pin Wave Form & Output Ripple



LX Pin Wave Form & Output Ripple



LX Pin Wave Form & Output Ripple



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