

### General Description

The low voltage charge pump IP cell LVCP XC10LV is a DC/DC voltage converter to be used in low power, low voltage single battery cell powered systems. It transforms the battery input voltage to a DC voltage of 9 to 15V. An output voltage regulation loop has to be implemented to limit this voltage to appr. 9V.

The cells primary intended purpose is to form a driver for capacitive loads. It is optimized for current consumption, not for low internal resistance as required for driving higher currents into resistive loads. In combination with an additional high voltage charge pump circuit it can even generate higher voltages to drive MEMS or similar capacitive load requiring high DC voltages.

### Ratings, Parameters and Conditions

Parameter / Condition	Symbol	Min	Typ.	Max	Unit	Comment
<b>Electrical Parameters:</b>						
Supply Voltage	$V_{dd}$	1.4	1.55	1.6	V	
Active Supply Current	$I_{dd}$		320	400	$\mu$ A	depending on input clock rate
Inactive Supply Current	$I_{ddidle}$			50	nA	
Output Voltage	$V_{out}$		9		V	without regulation higher
Clock Rate	$F_{CLK}$	500	1660	2500	kHz	non overlapping clock required
Output Voltage Rise Time	$T_{rise}$		50		$\mu$ s	capacitive load of 80pF; $V_{out}=9V$
<b>Absolute Maximum Ratings:</b>						
Operating Temperature	$T_{range}$	-40		140	$^{\circ}$ C	
Supply Voltage	$V_{dd}$	-0.3		6	V	
Input Voltage	$V_{in}$	-0.3		$V_{dd}+0.7$		
Output Voltage	$V_{out}$	-0.3		$V_{dd}+0.7$		
<b>Operating Conditions:</b>						
Ambient Temperature	$T_{amb}$	-20	27	80	$^{\circ}$ C	

### IO-Description

Interface	I/O	Function	Comment
VSSA	input	Supply	
VDDA	Input	Supply	
CLK	Input	Clock Input	nominal frequency 1.66MHz
CLKB	Input	inverted Clock Input	nominal frequency 1.66MHz
VOUT	Output	Charge Pump Output	

### Block schematic, ext. component diagram

