Analog IP Cell

EEPROM Charge Pump

CPEEPROM XL035

SERMA PRODUCTIVITY ENGINEERING

General Description

The CPEEPROM XL035 low power charge pump is an integrated high voltage generator mainly intended to be used as program voltage source for on chip EEPROM non-volatile memories. The circuit is optimized for extremely low power consumption. Safety operation is ensured by output voltage and slew rate regulation.
The cell itself comprises of the following blocks, which can be used as stand-alone cells as well: low power bias and Bandgap reference source (6µA); low power oscillator (500kHz, 1µA); 12 stage Schottky diode based DICSON charge pump (voltage multiplier).

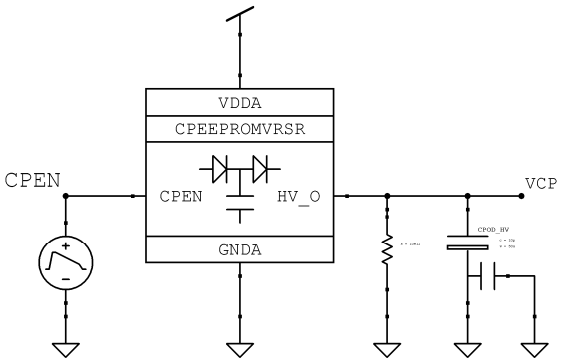
Ratings, Parameters and Conditions

Parameter / Condition	Symbol	Min	Typ.	Max	Unit	Comment
Electrical Parameters:						
Supply Voltage	V_{dd}	1.1	1.5	3.3	V	
Active Supply Current	I_{dd}	17	20	21	µA	
Inactive Supply Current	I_{ddidle}		7.5		µA	internal oscillator still running in this state; complete disable is done by supply voltage disable
Output Voltage	V_{outHV}	13.5	14	14.5	V	
Output Voltage Rise Time	T_{riseHV}	220	400	600	µs	@10pF capacitive load
Output Load	C_{load}		10		pF	
Absolute Maximum Ratings:						
Operating Temperature	T_{range}	-40		140	℃	
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		
Operating Conditions:						
Ambient Temperature	T_{amb}	-20	27	80	℃	

IO-Description

Interface	I/O	Function	Comment
GNDA	input	Supply	
VDDA	Input	Supply	
CPEN	Input	Enable signal for charge pump; HV pulse starts after L/H transition	
HV_O	Output	high voltage output pin; connected to program voltage input of EEPROM cell	

Block schematic, ext. component diagram



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