Analog IP Cell

Programmable Oscillator
RELAXOSC XC06

SERMA PRODUCTIVITY ENGINEERING

General Description

The RELAXOSC XC06 cell is a programmable relaxation oscillator primary intended to be used as clock source for a digital control core integrated in a mixed signal ASIC design. It is optimized for low power consumption and low drift of the generated output frequency over chip temperature and supply voltage. It nominal operating frequency is 20MHz and can be trimmed by a 4 Bit wide digital input port in a range between 12MHz and 25MHz.
The cell can be disabled by an additional stand-by control input.

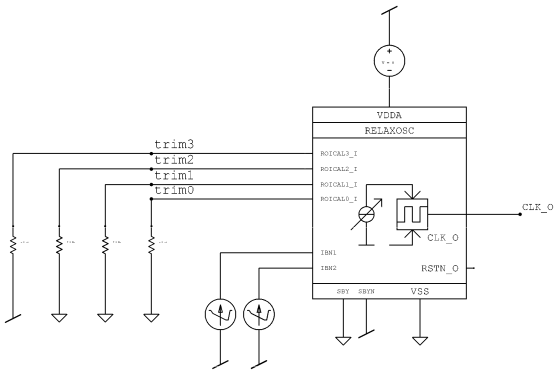
Ratings, Parameters and Conditions

Parameter / Condition	Symbol	Min	Typ.	Max	Unit	Comment
Electrical Parameters:						
Supply Voltage	V_{dd}	4.75	5	5.25	V	
Active Supply Current	I_{dd}		225	300	µA	
Output Frequency	F_{CLK}	12	20	25	MHz	
Output Frequency Drift over Supply Voltage and Temperature	DF_{CLK}			2	MHz	
Output Duty Cycle	DC_{CLK}	45		55	%	
Power Up Time	T_{PU}			1	µs	
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
VSS	input	Supply	
VDDA	Input	Supply	
SBY/SBYN	Input	Enable Signal	
IBN1/IBN2	Input	Bias current input	
ROICAL0_I – ROICAL3_I	Input	Calibration control word	
CLK_O	Output	Clock output	
RSTN_O	Output	Reset Output	

Block schematic, ext. component diagram



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