Analog IP Cell

Sinusoidal Oscillator

SINOSC1 XB06

SERMA PRODUCTIVITY ENGINEERING

General Description

The SINOSC standard cell is a versatile digital controllable sinusoidal oscillator. The operating frequency can be programmed in the range of 1 to 10MHz via a 6Bit wide control bus. The common usability of the cell is as well achieved by the abandonment of the need of any external components. A typical output amplitude in the range of 200mVpp ensures low distortion. A digital controllable amplifier for SINOSC is available.
SINOSC is mainly intended to be a stimulating source for sensor data acquisition and impedance measurements. Other fields of application are conceivable.

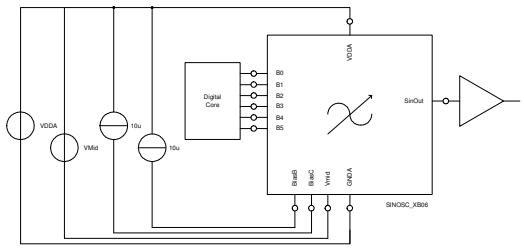
Ratings, Parameters and Conditions

Parameter / Condition	Symbol	Min	Typ.	Max	Unit	Comment
Electrical Parameters:						
Supply Voltage	V_{dd}	4.75	5	5.25	V	
Supply Current	I_{dd}	490	1200	1900	uA	typ. value @10MHz
Oscillation Frequency	F_{OSC}	500		10000	kHz	
Power Up Time	T_{up}			25	us	dependent on oscillation frequency
ClkOut Duty Cycle	DC_{ClkOut}	49	50	51	%	interpreted as square wave
Output Amplitude	V_{sinamp}	170	200	235	mV	
Damping 1. Harm.	$D_{frstharm}$		-35		dB	@5MHz
Damping 2. Harm.	$D_{scndharm}$		-38		dB	@5MHz
Damping 3. Harm.	$D_{thrdharm}$		-40		dB	@5MHz
Absolute Maximum Ratings:						
Operating Temperature	T_{range}	-20		85	°C	
Supply Voltage	V_{dd}	-0.3		7	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	°C	

IO-Description

Interface	I/O	Function	Comment
GNDA	Input	Supply	
VDDA	Input	Supply	
BiasB	Input	Supply	bias current input biasgen
BiasC	Input	Supply	bias current input core
Vmid	Input	reference	analogue reference potential
B0-B5	Input (Bus)	control	digital frequency control word
SinOut	Outout	signal out	sine oscillator output

Symbol and external Component Schematic



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