Analog IP Cell

Low Power Real Time Clock

RTCLOCK32k XL03

SERMA PRODUCTIVITY ENGINEERING

General Description

The RTClock32k is a very low power quartz crystal oscillator cell. It is designed to be used with an external 32.768 kHz crystal.
The cell contains all circuitry necessary to operate. The only needed external component is the crystal itself. Load capacitors, amplitude control and a digital pulse shaper are included inside the integrated circuit.
The generated clock signal is preferably used as time reference for low power real time clocks. Necessary digital circuits for counting of seconds, minutes … years as well as standard interfaces (for example I2C) are available. Please contact PE for further information.

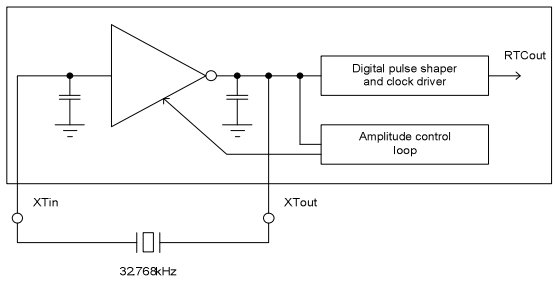
Ratings, Parameters and Conditions

Parameter / Condition	Symbol	Min	Typ.	Max	Unit	Comment
Electrical Parameters:						
Supply Voltage	V_{dd}	3	3.3	3.6	V	
Active Supply Current	I_{dd}		300	1000	nA	
Clock Speed	Fclk		32.768		kHz	determined by external crystal
StartUp Time	$T_{startup}$	275	400	1000	ms	determined by crystal Q factor
Accuracy				300	ppm	over temperature and process
Duty Cycle	T_{Duty}	30		70	%	in steady state after start up
Absolute Maximum Ratings:						
Operating Temperature	T_{range}	-20		80	°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		
Operating Conditions:						
Ambient Temperature	T_{amb}	-20	27	80	°C	

IO-Description

Interface	I/O	Function	Comment
GNDA	input	Supply	
VDDA	Input	Supply	
XTIN	Input	Crystal Pin 1	
XTOUT	Output	Crystal Pin 2	
RTCOut	Output	32k clock output; logic level	

Block schematic and external component diagram



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