Q100 Ultra-Low Power 1PPS Disciplined Oscillator

Key Features



- Ultra-low power consumption <65 mW, typical at 25C
- 1PPS input and 1PPS output for timing synchronization
- Discipline to 1 ns RMS in phase and $<1x10^{-12}$ in frequency
- 1 Second continuous phase measurement and report system, resolution ≤ 1 ns
- ToD (Time of Day)
- RS232 digital interface
- User accessible data memory, optional
- 5 MHz, 8.192 MHz, 10 MHz, 16.384 MHz, HCMOS output
- Timing model, optional

Applications

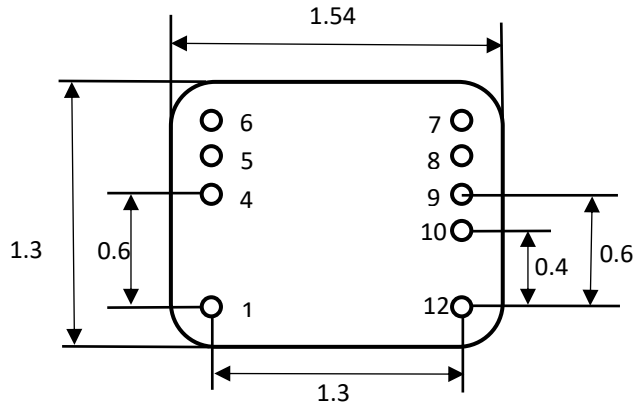
- Under water sensor and network system
- Mining and seismic research
- Oil and gas exploration

Mechanical Specifications

- **Pin Assignment (*Consulting factory for other pin compatible footprint*)**

Pin #	Assignment
1	NC
4	Oven Ready
5	Tx
6	Rx
7	+3.3 V
8	GND
9	1PPS input
10	1PPS output
12	RF output

Bottom view



- **Mechanical Dimension** 1.54” x 1.34” x 0.54”, height tolerance ±0.01”

  Pin diameter 0.03”

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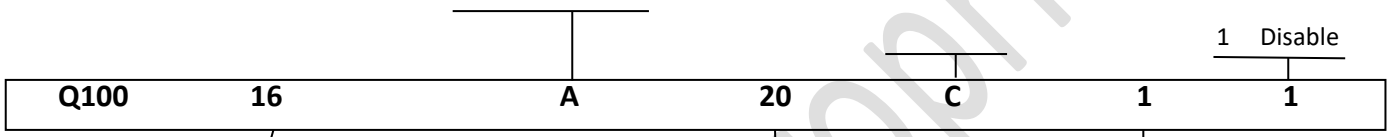
Electrical & Environmental Specifications (25 °C, +3.3 VDC input unless otherwise specified)

PARAMETERS	Unit	Min	Typ.	Max	Note	Comments
RF Output						
• Frequency	MHz		16.384		1	
• Amplitude	V		2.6		2	CMOS
• Load	MΩ//10 pf		10			
• R/F Time	ns			10		
1PPS Time Output						
• Pulse Width	µs		20			
• Amplitude	V		3.3			CMOS
• R/F Time	ns			10		
• Load	MΩ//10 pf		10			
1PPS Time Input						
• Format			Rising edge			
• Amplitude	V		3.3			CMOS
• Impedance	MΩ		10			
Digital Communication						
• Protocol			RS232			
• Logic Level	V		3.3			CMOS
• Baud Rate			57600			
Power Input						
• DC Input	V		3.3±0.1			
• Power Consumption	mW		65	75	3	Reference to +25 °C
• Warm up Power	mW			220		*Factory configurable*
• Warm up Time	Minute	1		4		*Factory configurable for fast warm up*
Environmental						
• Operating Temperature & Stability	ppb		±0.5	±1.0	4	-10 °C to +50 °C
• Mechanical Shock						Mil-STD-202, >30 G, 11 ms, half sine
• Vibration						Mil-STD-202, 5 G up to 2 kHz
Stability						
• Acceleration Sensitivity	/g			$\pm 1 \times 10^{-9}$		Worst direction
• Aging (after 30days)	/day		$\pm 7 \times 10^{-11}$	$\pm 5 \times 10^{-10}$	5	$\pm 5 \times 10^{-8}$/first year
• Frequency Control	ppm			±0.7		digital
Optional						
• 60 days, residual error, TimeCubic model, optional	ms			±1.0		Constant temperature
• User accessible data memory, optional	byte			64		

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[1]Consult factory for other frequencies; [2]Consult factory for other waveform; [3]Referring to 25 °C ambient; [4]upper operation temperature tolerance ±2C; [5]Consulting factory for other/optional specifications. Optional specifications are customer specific, not by default.

Order Information



Temperature Range

Code	Spec.
A	-10C/+50C
B	0C/+50C
C	-10C/+45C
D	0C/+45C

Frequency (MHz)

Code	Spec.
5	5
8	8.192
10	10
16	16.384

Aging/Day

Code	Spec.
50	$\pm 5 \times 10^{-10}$
20	$\pm 2 \times 10^{-10}$

Code Spec.

Output

Code	Spec.
C	CMOS

Timing Model

Code	Spec.
0	Enable
1	Disable

User Data Space

Code	Spec.
0	Enable
1	Disable

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