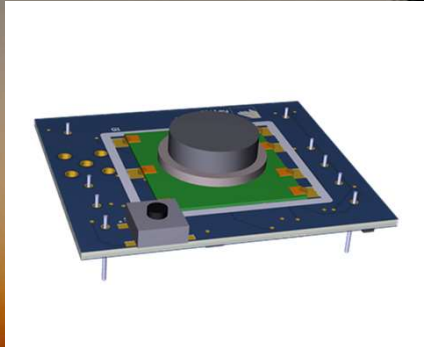


Atlas 1PPS – GPS Disciplined OCXO



FEATURES

- ✓ ± 10 PPB holdover stability
- ✓ -125 dBc/Hz phase noise @ 10Hz
- ✓ $5e-12$ ADEV @ 1sec
- ✓ 350mW steady-state power
- ✓ 450mW start-up power
- ✓ 1.6"x1.4" (41mmx36mm) package

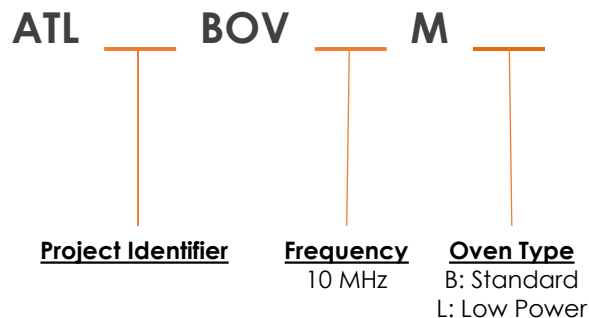
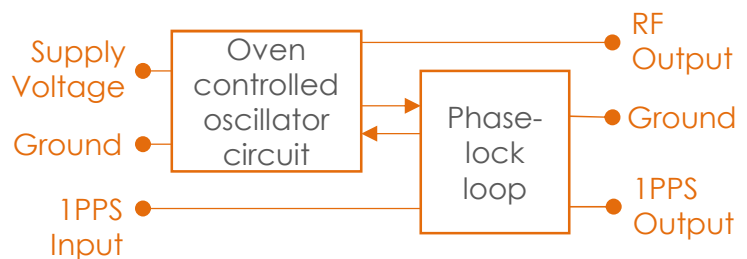
#blileytakesyoufurther

GPS Disciplined OCXO

Description

The Atlas 1PPS is a GPS disciplined OCXO designed to provide precision timing and reference frequency. The small form-factor and low-power consumption provides a lower cost precision timing source where atomic devices are cost-prohibitive.

Block Diagram



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REV 0.6 2018

Performance Specifications

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Frequency Stability					
Frequency			10		MHz
Initial Tolerance	@ +25°C±1°C			±100	ppb
Warmup	Tested at 25°C, 1PPS locked				
	Within 100 seconds		±1		ppm
	Within 5 minutes		±10		ppb
Frequency Stability					
vs. Temperature	Referenced to +25°C			±100	ppb
vs. Load	± 5% Δ in Load		±5		ppb
vs. Voltage	± 5% Δ in supply		±5		ppb
ADEV (short term stability)	1PPS locked				
	@ 1 second		5x10e ⁻¹²		
	@ 10 seconds		3x10e ⁻¹¹		
	@ 100 seconds		2x10e ⁻¹⁰		
	@ 1,000 seconds		2x10e ⁻⁹		
Aging(1 st year)	MIL-PRF-55310		±125		ppb
Holdover Stability	Constant temperature		±10		ppb
Input Power	Conditions	MIN	TYP	MAX	
Supply Voltage		3.13	3.30	3.47	Vdc
Power Dissipation (Option B)					
Start-up	@ 25°C			6.5	W
Steady-state	@ 25°C		4.5		W
Power Dissipation (Option L)					
Start-up	@ 25°C			0.45	W
Steady-state	@ 25°C		0.35		W

Note(s):

1. All values typical of 10MHz output frequency unless otherwise specified

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Performance Specifications

Parameter	Conditions	Values			Unit
RF Output Characteristics (CMOS)		MIN	TYP	MAX	
High Output Level	Logic "1"	2.7			Vdc
Low Output Level	Logic "0"			0.3	Vdc
Rise/Fall			10		nSec
Duty Cycle		45	50	55	%
Load			15		pF
BITE Output Characteristics (CMOS)		MIN	TYP	MAX	
Logic					
	Normal Operation		0		
	Alarm		1		
Impedance		0.1		1	MΩ
1PPS Output Characteristics (CMOS)		MIN	TYP	MAX	
High Output Level	Logic "1"	2.8			Vdc
Low Output Level	Logic "0"			0.3	Vdc
Rise/Fall				10	nSec
Duty Cycle		45	50	55	%
Impedance		0.1		1	MΩ
Accuracy	Relative to 1PPS input			±10	ppb
Pulse width					
	Default		100		μSec
	Programmable	Default * (N+1) N is a programmable integer from 0 to 10)			

Note(s):

1. All values typical of 10MHz output frequency unless otherwise specified

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Performance Specifications

Parameter	Conditions	Values			Unit
1PPS Input Characteristics		MIN	TYP	MAX	
Format	Rising edge				
High Input Level	Logic "1"	2.5			Vdc
Low Input Level	Logic "0"			0.5	Vdc
Impedance				1	MΩ
Digital Tuning Characteristics		MIN	TYP	MAX	
Range				±100	nSec
Resolution				1	nSec
Serial Communication Characteristics (CMOS)		MIN	TYP	MAX	
Protocol	UART/CMOS				
Impedance		0.1		1	MΩ
Baud rate	8-N-1, no flow control			57600	
Memory		MIN	TYP	MAX	
Non-volatile		20,000			Write cycles

Parameter	Conditions	Values			Unit
Phase Noise		MIN	TYP	MAX	
Phase Noise (10MHz output)	Tested at 25C				
	1Hz			-90	dBc/Hz
	10Hz			-125	dBc/Hz
	100Hz			-150	dBc/Hz
	1kHz			-155	dBc/Hz
	10kHz			-160	dBc/Hz
	100kHz			-160	dBc/Hz

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Environmental Compliance

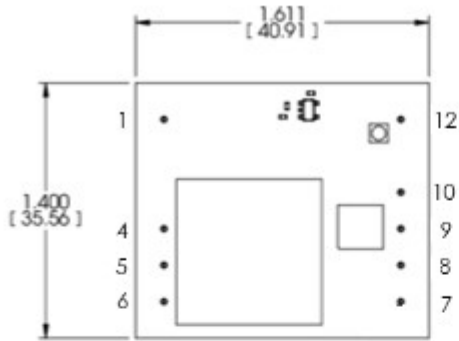
Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Environmental & Reliability		MIN	TYP	MAX	
Operating Temperature		-40°C		+85	°C
Storage Temperature		-55°C		+95	°C
Shock	MIL-STD-202G, Method 213 Test Procedure E	Survive			
Vibration	MIL-STD-810, Method 514.5, Procedure 1, maintains lock		7.7		g _{rms}
MTBF	Calculated using MIL-HDBK-217	100,000			Hrs

Note(s):

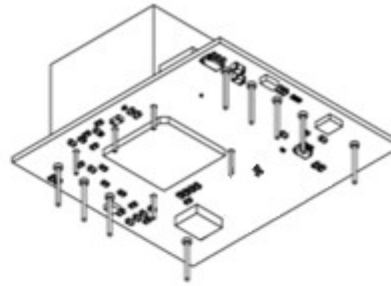
1. All values typical of 10MHz output frequency unless otherwise specified

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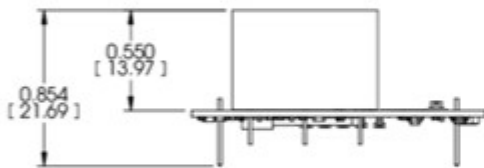
Physical Specifications



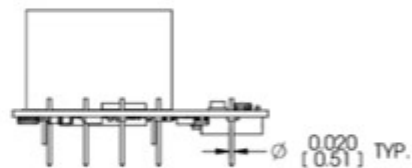
Top



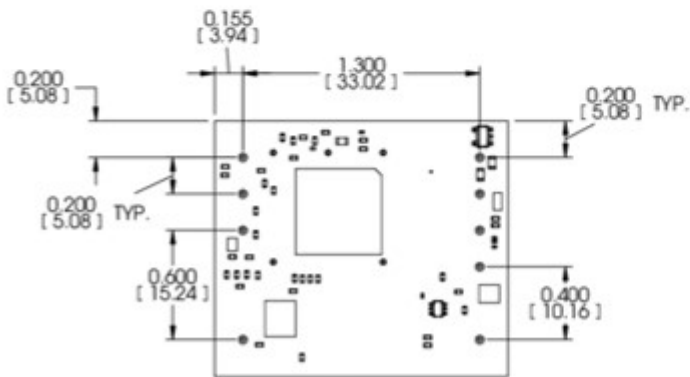
Iso Bottom



Side



End



Bottom

PIN	FUNCTION
1	N.C.
4	BITE
5	Tx
6	Rx
7	Supply Voltage
8	Ground
9	1PPS Input
10	1PPS Output
12	RF Output

Tolerances (mm) .X = ± 0.5, .XX = ±0.2 unless otherwise specified



Notes:
• None

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