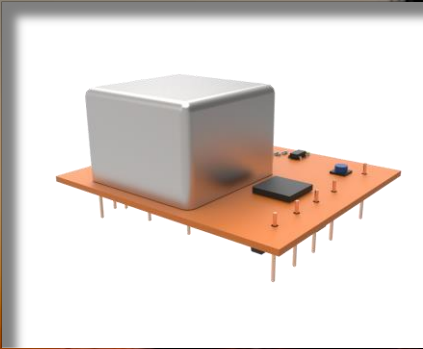


Atlas 1PPS – GPS Disciplined OCXO



FEATURES

- ✓ ± 10 PPB holdover stability
- ✓ -123 dBc/Hz phase noise @ 10Hz
- ✓ $5e-12$ ADEV @ 1sec
- ✓ 250mW steady-state power
- ✓ 350mW start-up power
- ✓ 1.6"x1.4" (41mmx36mm) package

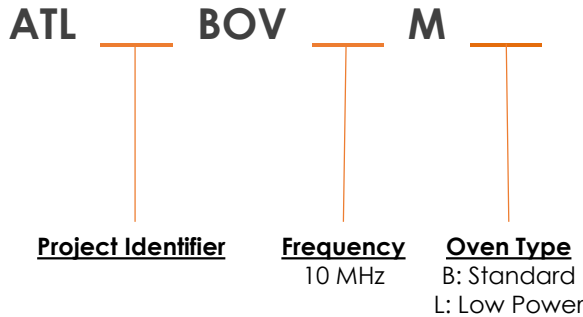
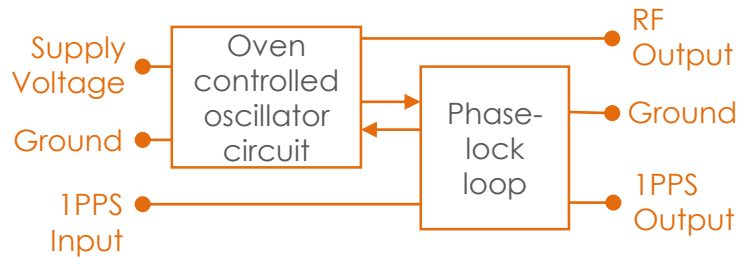
#blileytakesyoufurther

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 1.0 2018

Performance Specifications

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Frequency Stability		MIN	TYP	MAX	
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		5x10 ⁻¹²		
	@ 10 seconds		3x10 ⁻¹¹		
	@ 100 seconds		2x10 ⁻¹⁰		
	@ 1,000 seconds		2x10 ⁻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			0.35	W
Steady-state	@ 25°C		0.25		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 (Sinusoid)		MIN	TYP	MAX	
Output Level		3.0			dBm
Harmonics				-30	dBc
Spurious				-70	dBc
Load			50		Ω
BITE Output Characteristics (CMOS)		MIN	TYP	MAX	
High Output Level	Logic "1", Normal Operation	2.5		3.0	Vdc
Low Output Level	Logic "0", Alarm			0.3	Vdc
Impedance		0.1		1	M Ω
1PPS Output Characteristics (CMOS)		MIN	TYP	MAX	
High Output Level	Logic "1"	2.5		3.0	Vdc
Low Output Level	Logic "0"			0.3	Vdc
Rise/Fall				10	nSec
Duty Cycle		45	50	55	%
Impedance		0.1		1	M Ω
Accuracy	Relative to 1PPS input			± 10	ppb
Pulse width					
Default	1 second delay	100			μ Sec
Programable	Default*(N), where N is a programmable integer from 1 to 4)				

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		3.0	Vdc
Low Input Level	Logic "0"			0.3	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			-123	dBc/Hz
	100Hz			-145	dBc/Hz
	1kHz			-150	dBc/Hz
	10kHz			-160	dBc/Hz
	100kHz			-160	dBc/Hz

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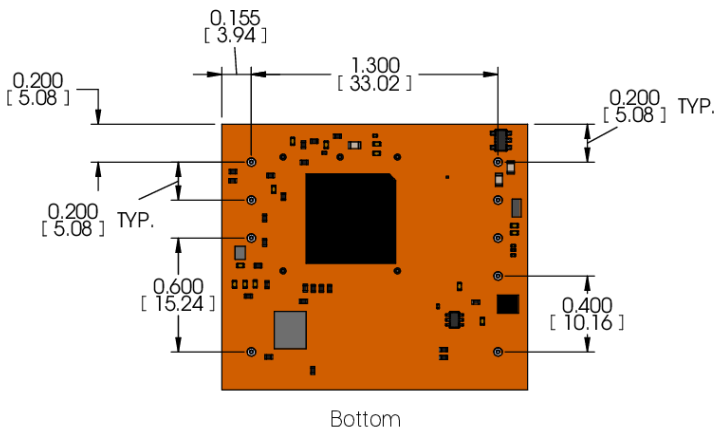
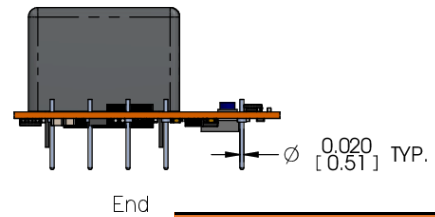
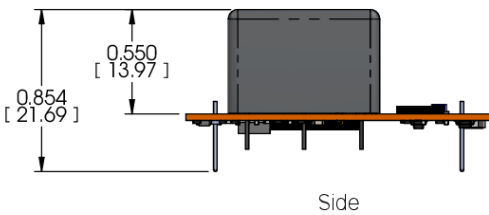
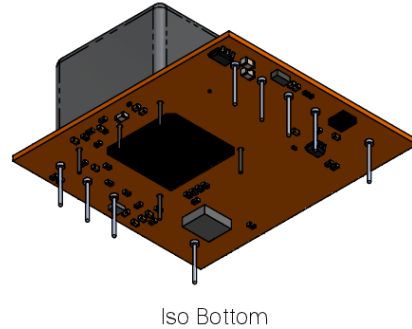
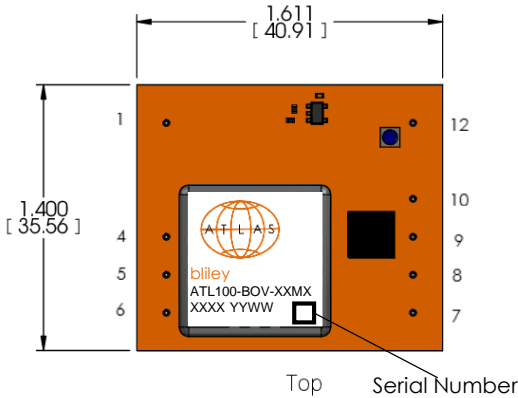
Environmental Compliance

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



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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