

FEATURES

- ✓ ± 10 PPB holdover stability
- ✓ -130 dBc/Hz phase noise @ 10Hz
- ✓ $5e-12$ ADEV @ 1sec
- ✓ 250mW steady-state power
- ✓ 350mW start-up power
- ✓ 1.6"x1.4" (41mmx36mm) package

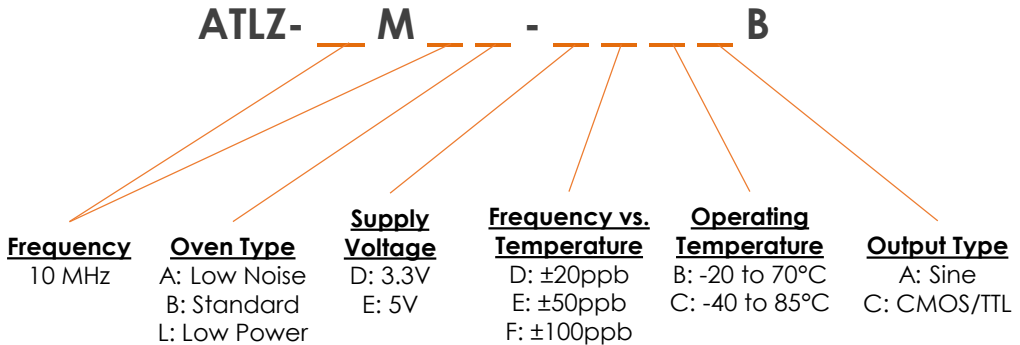
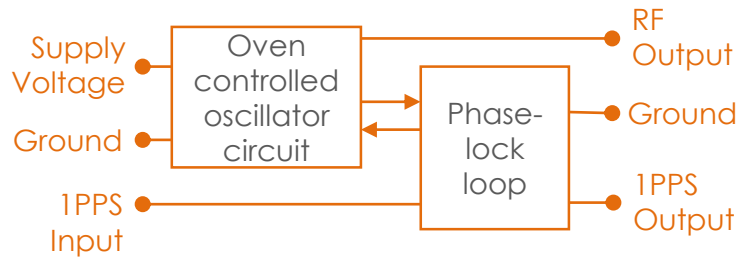
#blileytakesyoufurther

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



*Not all combinations of options may be possible
 **Other options may be available
 ***Frequency vs. Temperature is unlocked oscillator performance

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	Referenced to +25°C				
vs. Temperature	Option D			±20	ppb
	Option E			±50	ppb
	Option F			±100	ppb
vs. Load	± 5% Δ in Load		±5		ppb
vs. Voltage	± 5% Δ in supply		±5		ppb
ADEV (short term stability)	Unlocked				
τ = 1 second	Option A B (Standard Power)		8E-11		
τ = 1 second	Option L (Low Power)		8E-12		
Aging (1 st year)	After 30 Days Operation		±125		ppb
Holdover Stability	Constant temperature		±10		ppb
Input Power	Conditions	MIN	TYP	MAX	
Supply Voltage	Option D	3.13	3.30	3.47	Vdc
	Option E	4.75	5.00	5.25	Vdc
Power Dissipation	Option B (Standard Power)				
Start-up	@ 25°C			6.5	W
Steady-state	@ 25°C		4.5		W
Power Dissipation	Option L (Low Power)				
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)				

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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

Performance Specifications

Parameter	Conditions	Values	Unit
Phase Noise	Tested at +25°C	MAX	MAX
Phase Noise (10 MHz)	Option A (Low Noise)	Sinusoid	
	1Hz	-100	dBc/Hz
	10Hz	-130	dBc/Hz
	100Hz	-152	dBc/Hz
	1kHz	-160	dBc/Hz
	10kHz	-170	dBc/Hz
	100kHz	-170	dBc/Hz
Phase Noise (10 MHz)	Option B (Standard Power)	Sinusoid	CMOS
	10Hz	-118	-118 dBc/Hz
	100Hz	-137	-137 dBc/Hz
	1kHz	-143	-143 dBc/Hz
	10kHz	-150	-150 dBc/Hz
	100kHz	-155	-155 dBc/Hz
Phase Noise (10 MHz)	Option L (Low Power)	Sinusoid	CMOS
	10Hz	-123	-123 dBc/Hz
	100Hz	-145	-145 dBc/Hz
	1kHz	-150	-150 dBc/Hz
	10kHz	-155	-155 dBc/Hz
	100kHz	-160	-160 dBc/Hz

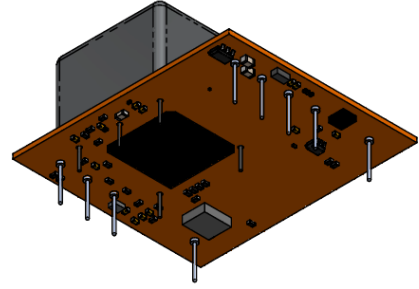
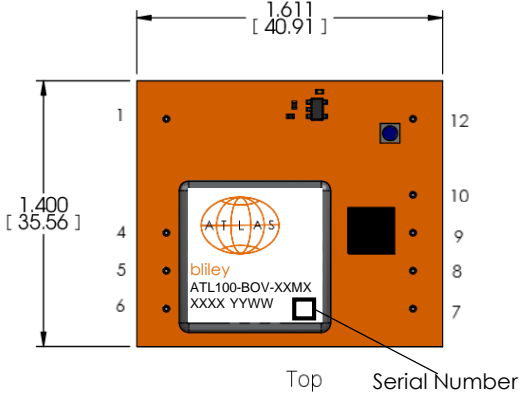
Environmental Compliance

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Environmental & Reliability		MIN	TYP	MAX	
Operating Temperature		-40		+85	°C
Storage Temperature		-55		+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

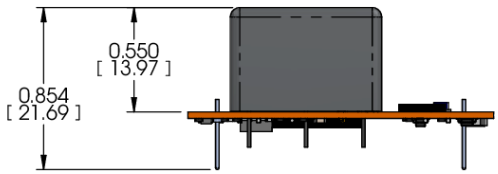
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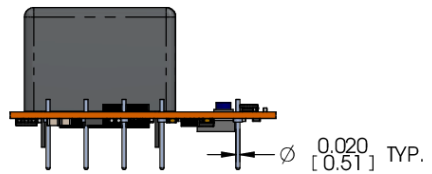
Physical Specifications



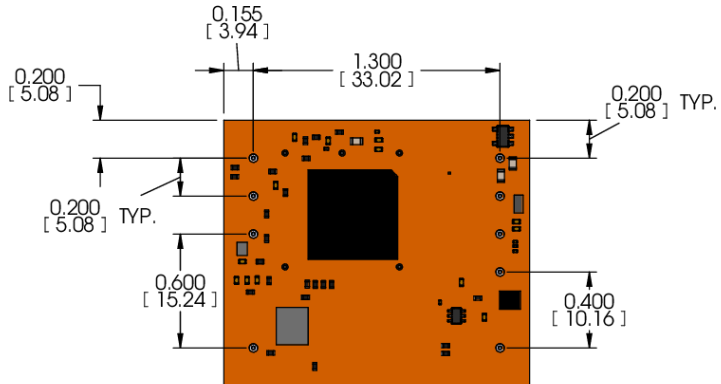
Iso Bottom



Side



End



Bottom

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

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

Notes:
 • None

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