



Features and Benefits

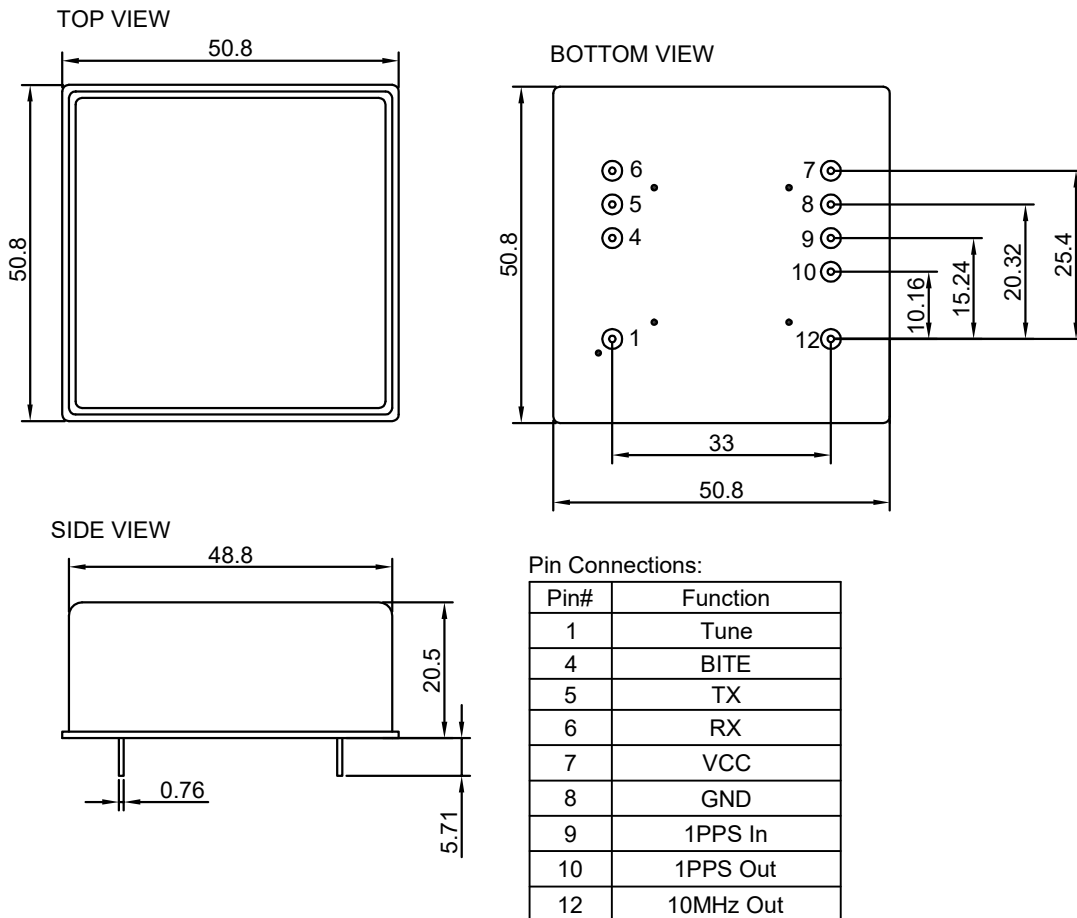
- Frequency: 10MHz
- Supply voltage: 3.3V
- Warm-up power: 170mW
- Output waveform: CMOS
- Temperature stability: $\pm 5 \times 10^{-10}$
- Accuracy: $\pm 5 \times 10^{-11}$
- Operating temperature: -10°C to +70°C
- Size: 50.8x50.8x20.5mm

Typical Applications

- GNSS Receivers
- Portable Radios
- IED Jamming System
- UAV
- Autonomous Sensor Networks

Mechanical Drawing & Pin Connections

Drawing No: MD210028-1



Unit in mm
1mm = 0.0394 inches



Specifications

Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Operational Frequency	F _{nom}			10		MHz	
RF Output							
Output wave form			3.3V CMOS				
Output Level	V _{OL}				0.4	V	
	V _{OH}		2.7			V	
Duty Cycle			40		60	%	
Rise/Fall time					10	ns	
Load			10Mohm//10pF				
1 PPS Time Output							
1 PPS			1			Hz	
Output amplitude			3.3V CMOS				
Pulse width				97.656	100	us	
Rise/Fall time					10	ns	
Load			10Mohm//10pF				
1 PPS Time Input							
1 PPS			1			Hz	
Low Level					0.5	V	
High Level			2.5		3.3	V	
Timing edge			Rising edge				
Built-In Test Equipment (BITE) Output							
Format			3.3V CMOS				
Load Impedance			1Mohm				
Logic			0=Normal operation; 1=Alarm				
Digital Communications							
Protocol			RS-232				
Logic level			3.3V CMOS				
Baud Rate			57600			bps	
Number of data bits			8				
Number of stop bits			1				
Parity			none				
Power Supply							
Supply Voltage			3.2	3.3	3.4	V	
Warm-up power					170	mW	
Steady power		-10°C to +70°C			150	mW	
Warm-up Time					150	sec	
Frequency Stability							
Versus Operating Temperature Range		-10°C to +70°C			±0.5	ppb	Temperature Slope < 0.5C /min.
Versus Supply Voltage Range					±0.4	ppb	
Frequency accuracy		At shipment			±5	10 ⁻¹¹	
Daily Aging		After 30 days of continuous operation.		±1	±3	10 ⁻¹¹	
Retrace		48 hours off			±0.5	ppb	
Short term (ADEV)		Tau=1sec			3	10 ⁻¹⁰	
		Tau=10sec			9.5	10 ⁻¹¹	
		Tau=100sec			3	10 ⁻¹¹	
		Tau=1000sec			8	10 ⁻¹²	
Frequency Control (Analog Tuning)		Resolution: 1x10 ⁻¹¹ Input: 0V ~ 2.5V into 100KΩ		±2.2		10 ⁻⁸	
Frequency Control (Digital Tuning)		Resolution: 1x10 ⁻¹²		±1		10 ⁻⁸	
Phase noise		1Hz		-52		dBc/Hz	-85 option
		10Hz		-90		dBc/Hz	-120 option
		100Hz		-122		dBc/Hz	-140 option
		1KHz		-140		dBc/Hz	-145 option
		10KHz		-150		dBc/Hz	-150 option
		100KHz		-152		dBc/Hz	-155 option
	1MHz		-152		dBc/Hz	-155 option	



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TM5050BM-LP-10MHz-A

Low Power Atomic Oscillator

Environmental, Mechanical Conditions		
Parameter	Test Condition	Reference STD.
Storage temperature	-40°C to +85°C	Nom operating
Mechanical shock	>30G, 11ms half sine	MIL-STD-202
Vibration	7G rms, maintain lock	MIL-STD-810
Humidity	0-95%, RH	
Magnetic Sensitivity	<±1x10 ⁻¹⁰ /1 Gauss	Up to 2 Gauss