

# MGPSDO - MINIATURE GPS DISCIPLINED OSCILLATOR MODULE



## Miniature GPS Referenced Commercial 10 MHz Frequency Standard Component Level Device



AS9100D Certificate Number : C0210021-AS3



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## Product Overview

The miniature GPS Disciplined Oscillator combines the power of our existing disciplined oscillators in a footprint the size of an OCXO.

Designed with interoperability in mind, the Miniature GPS Disciplined Oscillator meets military requirements such as MIL-STD-188-164A. The GPSDO supplies a low noise, precision 10 MHz frequency reference signal output. This output is accurate to  $1 \times 10^{-12}$  when slaved to a GPS source.

The frequency standard is also able to slave to an external 1PPS signal to steer and hold the internal oscillator and clock system precisely in time. Time and frequency information is maintained to a very high accuracy during by the disciplined internal oscillator even when no satellites can be tracked.

A serial data port is provided to report time, date, position, and GPS satellite health and signal strength.

Optional capabilities include automatic interface to an external military GPS receiver such as the Defence Advanced GPS Receiver (DAGR), Standard frequency output is 10 MHz, but other frequencies are possible.

## Key Feature Summary

### Timing & Interfaces

- Low Phase Noise 10MHz Output
- Internal GPS Tracking Receiver
- External 1PPS Input
- Very small footprint designed for component level easy integration
- Disciplined High Stability OCXO

### Outputs

- Low Phase Noise 10MHz Outputs
- Serial Time Of Day Message TOD
- 1PPS

Also of interest may be our 3 Output GPS reference oscillator module

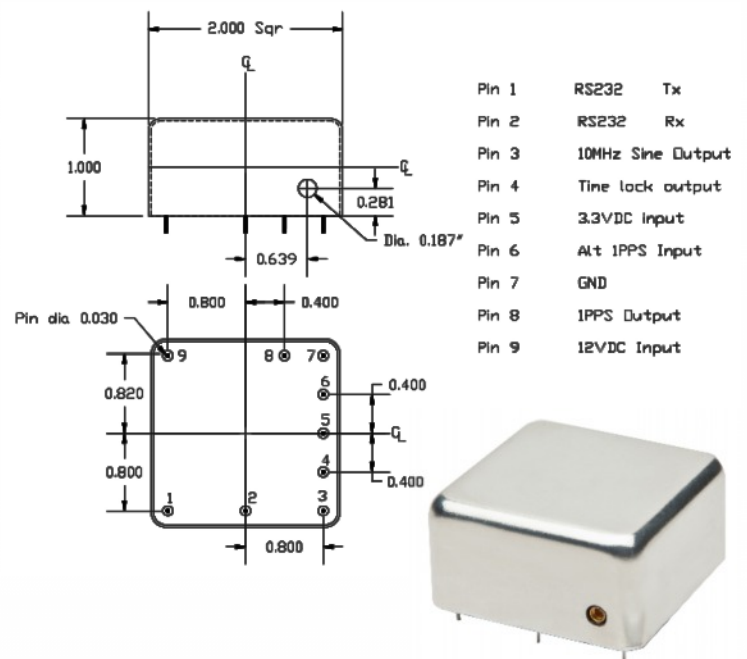


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## Specifications

Specifications - GPSDO	
<b>Reference Signal Inputs - 1PPS</b>	<b>Details</b>
Pinning	1 x Pin 6
Amplitude	0V to 5V - 50 Ohms
<b>Reference Signal Inputs - GPS</b>	
Connectors	1 x MMCX Connector
Receiver Type	Satellite Signal : 12 Channels : GPS L1 1575.42 Mhz / Satellite Code : C/A code 1.023 MHz
Sensitivity	138dBm
<b>Accuracy Details</b>	
Time Accuracy - GPS	< 30ns
Time Accuracy - 1 PPS	< 30ns
Holdover	< 20µs in 24 hrs
<b>Power Supply Details</b>	
Pinning	Pin 5 : 3.3V DC Pin 9 : 12 V DC Pin 7 : GND
Power	Warm up consumption : 15 Watts Steady State : 5 Watts
<b>Outputs</b>	
1 PPS	Pin 8 : 0 - 5V DC into 50 Ohms
10 MHz	Pin 3 : 7dBm +/- 2dBm
GPS Lock Indicator	Pin 4 : TTL
<b>Interface</b>	
RS 232, TTL levels	Pin 1 : RS232 Tx Pin 2 : RS232 Rx Pin 7 : GND
<b>Environmental</b>	
Temperature	Operational : -20°C + 60°C / Storage -40°C to + 85°C.
Humidity	95 % non condensing
Altitude	Operational to 10,000 ft - transit not operational to 50,000 ft
<b>Physical</b>	50mm x 50mm x 25mm

Phase Noise / Short Term Stability (10MHz)	
SSB Phase Noise	dBc/Hz
1 Hz	-90
10 Hz	-120
100 Hz	-145
1 KHz	-151
10 KHz	-153
100 KHz	-155
<b>STS (Allan Variance) (after 24hrs)</b>	
1 Sec	< 8.0 x 10 <sup>-12</sup>
10 Sec	< 1.0 x 10 <sup>-11</sup>
100 Sec	< 1.5 x 10 <sup>-11</sup>
1000 Sec	< 1.5 x 10 <sup>-11</sup>



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