

Micro-JLT

GNSS Disciplined Oscillator

Defense | 5G Communications | SATCOM | Transportation | Data Center Energy |
Financial | Critical Infrastructure

The VIAVI Micro-JLT is designed to be the next-generation GNSSDO™ with lower SWaP-C and higher performance than legacy GPSDOs. The unit is designed on a rugged platform for very high volume, low-cost applications. The Micro-JLT uses one of the latest generation GNSS receivers, is form and function compatible with the highly popular FireFly-IIA GPSDO, and offers variants for high-vibration/high-shock environments.

The Micro-JLT provides a sub-set of the features of the legacy FireFly-IIA and the Mini-JLT products to reduce cost, while at the same time offering comparable and higher performance, and the ability to address high volume applications with streamlined manufacturing techniques.

Key Highlights

- Latest Generation GNSS Receiver
- 10 MHz Sine with Ultra Low Phase Noise
- LVDS, RS-422, or TTL Interfacing
- Extended temperature range with Low-G variants available
- Best SWaP-C performance on the market



SOCX0 GNSSDO Module

Typical Electrical Specifications

Module Specifications	
1 PPS Stability	<10 ns to UTC RMS (1-Sigma) GPS Locked
Serial Control	GNSS NMEA and Status Output, SCPI-99 control, RS-422 Port
GNSS Frequency, antenna power	GPS/Glonass/Galileo/BeiDou/QZSS 3.3 V antenna-power built-in
GNSS Receiver	72 Channels, Auto-Survey, Position-Hold Mode, and SBAS capable
Sensitivity	
Acquisition	-148 dBm
Tracking	-167 dBm
GNSS TTFF	
Cold Start	<29 sec
Warm Start	<2 sec
Hot Start	<2 sec
ADEV	
SOCX0	
0.1 s	<3E-12
1 s	<6E-12
1K s	<9E-12
100K s	<4E-12
DOCX0	
0.1 s	<2E-12
1 s	<5E-12
1K s	<7E-12
100K s	<4E-12
Holdover (at 25.0°C, no airflow/motion/vibration, 5 days GPS locked)	
SOCX0	<2 μ s in 5 hours
DOCX0	<2 μ s in 24 hours
Warmup and Stabilization Time	
SOCX0	<12 min at +25°C to <1E-09 Accuracy to GNSS
DOCX0	<12 min at +25°C to <5E-10 Accuracy to GNSS
Supply Voltage (Vdd)	
SOCX0	5.5 V +0.5 V/-0.3 V, 5.0 V optional
DOCX0	5.0 V +0.5 V/-0.3 V

Typical Electrical Specifications continued

Module Specifications		
Temperature		
Standard Temperatures - DOCX0		
Operating Temperature	0°C to +75°C	
Storage Temperature	-40°C to +85°C	
Extended Temperature - SOCX0		
Operating Temperature	-40°C to +85°C	
Storage Temperature	-55°C to +85°C	
Extended Temperature - DOCX0		
Operating Temperature	-20°C to +75°C	
Storage Temperature	-40°C to +85°C	
Oscillator Specification		
Frequency Output	10 MHz Sine Wave	
10 MHz Retrace		
SOCX0	<±1E-09 After 1 Hour @ +25°C (no GNSS)	
DOCX0	<±5E-010 After 1 hour @ +25°C (no GNSS)	
Frequency Stability (over Temperature, over 24 hours)		
SOCX0	±6E-09, <1E-012 over 24hrs (with GNSS)	
DOCX0	±2E-010, 5E-013 over 24 hours (with GNSS)	
Output Harmonics, spurs	<-50 dBc/Hz, <-125 dBc/Hz	
OCX0 Aging (fully compensated by GNSS)		
SOCX0	<±0.1 ppm per year without GNSS	
DOCX0	<±0.05 ppm per year without GNSS	
Phase Noise	1 Hz	-100 dBc/Hz
	10 Hz	-130 dBc/Hz
	100 Hz	-140 dBc/Hz
	1 kHz	-152 dBc/Hz
	10 kHz	-156 dBc/Hz
	100 kHz	-158 dBc/Hz
Connections ¹		
10 MHz Sine Wave Out	SMA	
GNSS Antenna	SMA	
+5.5 V or +5.0 V Power	2-pin Hirose, PN: DF11-12DP-2DSA(01)	
1 PPS output	2-pin Hirose, PN: DF11-12DP-2DSA(01)	
RS-422 serial	2-pin Hirose, PN: DF11-12DP-2DSA(01)	
1 PPS Input, ISP#	3-pin 100 mil through hole	

¹ Available connections are determined by selected Mico-JLT product.

VIAVI offers the Micro-JLT in the following SOCX0 configurations:

Product Ordering Information						
Product Number	Product Description	Ext Temp	Low G	5.0 V	5.5 V	TTL
100312	MICRO-JLT GNSS SOCX0 Extended Temp 5.5V - RoHS	•			•	
100316	MICRO-JLT GNSS SOCX0 Extended Temp TTL 5.5V - RoHS	•			•	
100325	MICRO-JLT GNSS SOCX0 Extended Temp 5V OPT - RoHS	•		•		
100333	MICRO-JLT GNSS SOCX0 Extended Temp 5V OPT TTL - RoHS	•		•		
100361	MICRO-JLT GNSS SOCX0 Extended Temp Low G 5V OPT TTL - RoHS	•	•	•		•

VIAVI offers the Micro-JLT in the following DOCX0 configurations:

Product Ordering Information								
Product Number	Product Description	Std Temp	Ext Temp	Low G	5.0 V	SMP	TTL	RoHS
22174869	MICRO-JLT GNSS DOCX0 Standard Temp 5V OPT - RoHS	•			•			•
22174876	MICRO-JLT GNSS DOCX0 Ext Temp Low G TTL 5V OPT - SMP - RoHS		•	•	•	•	•	•
22174870	MICRO-JLT GNSS DOCX0 Standard Temp TTL 5V OPT - RoHS	•			•		•	•
22174871	MICRO-JLT GNSS DOCX0 Extended Temp Low G TTL 5V OPT - RoHS		•	•	•		•	•



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