

# ULN-450 PN: 1001450 DOCXO Module with ultra low-g sensitivity

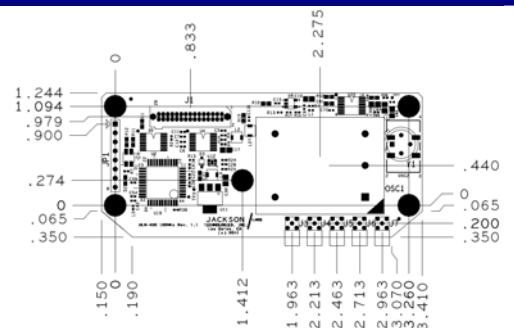


- 4x 100MHz Sine Outputs
- Phase Noise Floor -163dBc typ.
- 10MHz and 1PPS reference inputs
- Ultra low g-sensitivity, Double Oven
- preliminary specification

## ELECTRICAL SPECIFICATIONS (Typical):

Module Specification:															
1 PPS Accuracy	±25ns rms to external reference, 16.666ns resolution														
Frequency Accuracy	Better than ±2E-010 to external reference after 20 minutes														
Holdover Stability	<±10us for 3 Hour Period @25°C with 30 minute lock to reference														
ADEV	1s: <7E-12, 10s: <= 8E-12														
1 PPS Outputs (OCXO Flywheel Generated)	LVDS Rising-Edge Aligned, Ultra Low Jitter, Sawtooth removed														
100MHz Outputs GPO/MMCX	2x LVDS 100MHz, 4x 100MHz 50 Ohms 6dBm Sine														
RS-232 Control	Full control via SCPI-99 Control Commands, TTL or RS-232														
External Reference Input	1PPS LVDS or 10MHz Sine, Auto-switchover or manual select														
TTL Alarm Output	Holdover and Hardware Failure indicator (low active, 3.3V CMOS)														
Warm Up Time / Stabilization Time	<7 min at +25°C to <1E-09 Accuracy Typ. without reference														
Supply Voltage (Vdd)	13.8V to 15.5V DC, 15V nominal, <=100ms rise-time														
Power Consumption	< 4W at +25°C with DOCXO, steady-state														
Operating Temperature	-55C to +80C														
Environmental Conformance	MIL-STD-202, Method 204, Condition I-A														
Storage Temperature, Weight	-55°C to +90°C, < 60 grams														
Oscillator Specification:															
Frequency Output	4x 100MHz, GPO connectors, 2x LVDS Samtec connector														
100MHz Retrace	±2E-08 After 1 Hour, no reference lock, 24 hours off														
Frequency Stability (low-g, DOCXO option)	±2.5E-010/temp, ±3E-010/g/axis (10MHz), <±6E-010/g/axis (100MHz)														
Output Amplitude	6dBm ±1.5dBm														
Frequency adjustment range (SCPI control or to external reference)	>±100Hz @ 100MHz														
Harmonics (Sine Output)	<-45dBc														
Aging	<1ppm in 10 years														
Warm Up Time at -40C	< 5 min to ±3E-8														
Phase Noise	<table border="1"> <thead> <tr> <th></th> <th>100MHz Out</th> </tr> </thead> <tbody> <tr> <td>1Hz</td> <td>-65dBc/Hz</td> </tr> <tr> <td>10Hz</td> <td>-98dBc/Hz</td> </tr> <tr> <td>100Hz</td> <td>-118dBc/Hz</td> </tr> <tr> <td>1kHz</td> <td>-146dBc/Hz</td> </tr> <tr> <td>10kHz</td> <td>-158dBc/Hz</td> </tr> <tr> <td>100Khz</td> <td>-163dBc/Hz</td> </tr> </tbody> </table>		100MHz Out	1Hz	-65dBc/Hz	10Hz	-98dBc/Hz	100Hz	-118dBc/Hz	1kHz	-146dBc/Hz	10kHz	-158dBc/Hz	100Khz	-163dBc/Hz
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100Khz	-163dBc/Hz														
Designed Lifetime	>10 years														

## 100MHz Disciplined Oscillator part number 1001450



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## ULN-450 Connector J1

a) Connector Type: Samtec, PN: TFML-115-01-S-D-LC

b) Connector Pinout:

Pin	Description	Level	IN/OUT
1	GND	GND	IN
2	GND	GND	IN
3	+15V Power	13.8V to 15.5V	IN
4	+15V Power	13.8V to 15.5V	IN
5	GND	GND	IN
6	GND	GND	IN
7	SCPI TXD TTL	3.3V CMOS	OUT
8	SCPI TXD RS232	RS232	OUT
9	GND	GND	IN
10	SCPI RXD RS232	RS232	IN
11	SCPI RXD TTL	3.3V CMOS	IN
12	GND	GND	IN
13	RESET#	3.3V Open Collector	IN
14	100MHz LVDS-A P	LVDS	OUT
15	EVENT#	3.3V CMOS	OUT
16	100MHz LVDS-A N	LVDS	OUT
17	GND	GND	IN
18	GND	GND	IN
19	TTL#/RS232	3.3V CMOS	IN
20	100MHz LVDS-B P	LVDS	OUT
21	ENTER ISP#	3.3V CMOS	IN
22	100MHz LVDS-B N	LVDS	OUT
23	GND	GND	IN
24	GND	GND	IN
25	1PPS REF-IN P	LVDS	IN
26	1PPS OUT P	LVDS	OUT
27	1PPS REF-IN N	LVDS	IN
28	1PPS OUT N	LVDS	OUT
29	GND	GND	IN
30	GND	GND	IN

c) Connector Pinout Schematic:

