

# ULN-8R PN: 1006001 Eight Crystal Ultra-Low-Phase-Noise Oscillator



- -166dBc/Hz typ. noise floor
- Complete input circuit protection
- Significantly Lower Phase Noise than legacy products
- Integrated active power supply filters
- Preliminary Specification

## ELECTRICAL SPECIFICATIONS (Typical):

	Unit	Min	Nominal	Max	Note	
<b>NOMINAL FREQUENCY</b>	MHz	97		109.6	See table 1 for set of frequencies	
<b>TEMPERATURE RANGE</b> Operating	°C	-55		85		
<b>POWER SUPPLY</b>	V		15		±5%	
<b>CONSUMPTION</b>	mA			125		
<b>OUTPUT SIGNAL WAVEFORM</b> Level Harmonics Sub harmonics Non harmonics Load	dBm dBc dBc dBc Ohm	6 -55 None -110	50	9	Sine wave    ±10%	
<b>FREQUENCY STABILITY</b> Vs temperature range Vs power supply Vs load	±ppm ±ppm ±ppm			20 0.5 1		
<b>AGING</b> Medium/long term stability  Short term stability	±ppm  ±ppm	<b>1 day</b>  <b>1 ms</b>	<b>1 month</b>  <b>10 ms</b>	<b>1 year</b> <±1 <b>100 ms</b>	After continuous operating for: <±10 for 10 yrs (<+3 / -7 ppm typ) <b>1 S</b>	
<b>PHASE NOISE</b> Static Conditions Typical Dynamic Conditions	dBc/Hz dBc/Hz	<b>10 Hz</b> -104 -55	<b>100 Hz</b> -131 -82	<b>1 KHz</b> -150	<b>10 KHz</b> -160 <b>100 KHz</b> -166	See table 2
<b>MECHANICAL CONDITIONS</b> Shock Thermal shock Pre-aging thermal shock Vibration  Humidity	<b>Note</b> MIL-STD-202G M213 Condition C – 100 g, 6 msec ½ sine compliant to MIL-STD-202 Method 107 Condition A components cycled during manufacturing for 32 cycles -55 to 125 C, 30 min soak time Vibration per MIL-STD-202, Method 214, Cond. A, Method I, and MIL-STD-202G, M204 Condition C, 10 g peak, 55 to 2000 Hz, 1 sweep per axis Humidity per MIL-STD-202, Method 103, Cond. B					

**ULN-8R Eight Crystal Ultra Low-Phase-Noise Oscillator part number 1006001**



**1) Frequency Set – Default (any frequency set from 90MHz to 125MHz can be supported)**  
 TTL Levels with 5V CMOS Compatibility

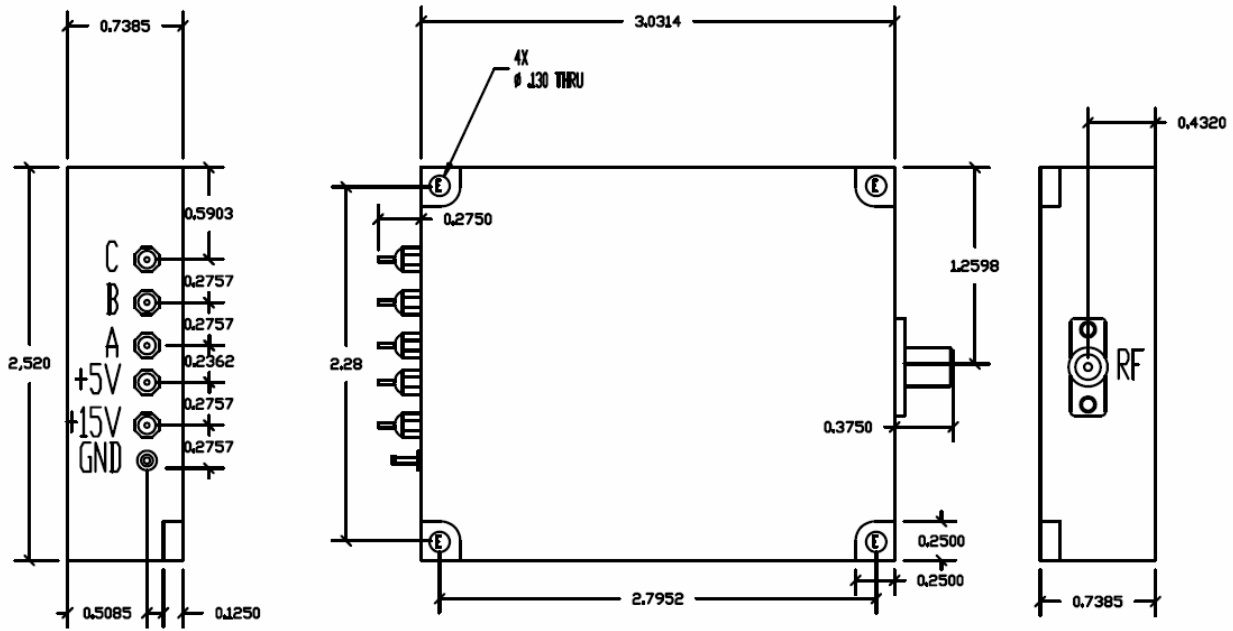
Output (MHz)	Switch C B A
106.55	H H H
106.9	H H L
107.25	H L H
107.6	H L L
107.95	L H H
108.3	L H L
108.65	L L H
109.0	L L L

**2) Phase Noise Limits**

Frequency	Phase Noise without vibration	Phase Noise under vibration	Vibration level
10 Hz	-85 dBc/Hz	-55 dBc/Hz	0.015 g <sub>z</sub> /Hz
40 Hz	-104 dBc/Hz	-67 dBc/Hz	0.015 g <sub>z</sub> /Hz
100 Hz	-118 dBc/Hz	-82 dBc/Hz	0.0028 g <sub>z</sub> /Hz
500 Hz	-137 dBc/Hz	-109 dBc/Hz	0.0015 g <sub>z</sub> /Hz
1 kHz	-145 dBc/Hz	-145 dBc/Hz	NONE
10 kHz	-160 dBc/Hz	-160 dBc/Hz	NONE
50 kHz	-160 dBc/Hz	-160 dBc/Hz	NONE
100 kHz	-160 dBc/Hz	-160 dBc/Hz	NONE

### 3) Mechanical Dimensions

- A TTL control MSB
- B TTL control
- C TTL control LSB
- +15V DC +15V
- +5V DC +5V (optional)
- RF RF output



BLOCK DIAGRAM

