

Oven Controlled Crystal Oscillator

NI-100 MHz-2900 series

2900 Series in 36.3x27.2mm DIP package

NI-100M-2900 series is a 100.000 MHz high performance (VC)OCXO offering Low Phase Noise, low G sensitivity(LGS) and tight frequency stability down to ± 50 ppb(-30°C to +70°C). The part comes in a small hermetically sealed through hole package which makes it suitable for humid environmental conditions.



FEATURES

- Low Phase Noise & Low G-Sensitivity
- Hermetically Sealed Package
- Tight Frequency Stability
- Low Power Consumption
- Fast Warm-up Time
- Electrical Frequency Tuning Input
- Reference Voltage Output
- RoHS-Compliant (lead-free)

APPLICATIONS

- Instrument Reference
- Microwave / Satellite Communication
- Clock Reference for Microwave Signal Source
- Test & Measurement
- Telecom Systems
- Radar Systems
- Medical (MRT)

RoHS Compliant Standard

ELECTRICAL SPECIFICATIONS

1. OUTPUT (PIN = "R.F. OUTPUT")

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
1.1.	Frequency	100.000			MHz	
1.2.	Initial Accuracy	-0.2		+0.2	ppm	@ +25 \pm 1°C after turn on power 30 \pm 5 minutes \leq 90 days following date code VCO Input at +4 \pm 0.001V
1.3.	Waveform	Sine wave				
1.4.	Level	+7	+9	+11	dBm	
1.5.	Load		50		Ω	
1.6.	Harmonics			-30	dBc	
1.7.	Spurious			-70	dBc	

2. FREQUENCY STABILITY

	Parameter	Min.	Typ.	Max.	Unit	Test Condition		
2.1.	Ambient	-50		+50	ppb	-30°C ~ +70°C	referenced to 25°C	
2.2.	Aging	-3		+3	ppb	per day, at time of shipment		
	Daily	-3		+3	ppb	after 30 days		
	Yearly	-0.3		+0.3	ppm			
	10 Years	-1.2		+1.2	ppm			
2.3.	Voltage	-20		+20	ppb	±5% change		
2.4.	Load	-50		+50	ppb	±5% change		
2.5.	Warm-up	-0.1		+0.1	ppb	in 10 minutes @ +25 ±1°C	referenced to 1 hour	
2.6.	Phase Noise	Option A		Option B		Refer to Table 1 : Ordering Information		
		-85		-90		dBc/Hz	@ 10Hz	
		-115		-120		dBc/Hz	@ 100Hz	
		-145		-150		dBc/Hz	@ 1KHz	Refer to Table 1 : Ordering Information
				-155			dBc/Hz	@ 10KHz
						-160		dBc/Hz
2.7.	G-Sensitivity (each axis)		0.5	1.5	ppb/g	10 ~ 700Hz.		

3. ELECTRICAL FREQUENCY ADJUSTMENT (PIN = "VCO INPUT")

	Parameter	Min.	Typ.	Max.	Unit	Test Condition	
3.1.	Tuning Range			-1.5	ppm	VCO @ 0V	Referenced to frequency at nominal Center Voltage
		+1.5			ppm	VCO @ 8V	
3.2.	Control Voltage	0		+8	V		
3.3.	Slope	Positive					
3.4.	Center Voltage		+4		V	Note 1	
3.5.	Linearity	-10		+10	%		
3.6.	Input Impedance	25			kΩ		

4. INPUT POWER (PIN = "+VDC")

	Parameter	Min.	Typ.	Max.	Unit	Test Condition	
4.1.	Voltage	+11.4	+12	+12.6	V		
4.2.	Current			350	mA	@ turn on	
4.3.	Steady State		1	1.5	W	@ +25°C	

5. REFERENCE VOLTAGE (PIN = "REFERENCE VOLTAGE")

	Parameter	Min.	Typ.	Max.	Units	Test Condition	
5.1.	Voltage	+7.6	+8.0	+8.4	V	Over temperature range in 2.1.	
5.2.	Load	9			kΩ		
5.3.	Temperature stability	-0.02		+0.02	V		

6. ENVIRONMENTAL

	Parameter	Reference Std.	Test Condition
6.1.	Operating Temperature	-40°C to +85°C	Note 2
6.2.	Storage Temperature	-55°C to +105°C	
6.3.	Humidity	MIL-STD-202, Method 103 Test Condition A	95% RH @ +40°C, non-condensing, 240 hours
6.4.	Vibration (non-operating)	MIL-STD-202, Method 201	0.06" Total p-p, 10 to 55 Hz
6.5.	Shock (non-operating)	MIL-STD-202, Method 213, Test Condition J	30g, 11ms, half-sine

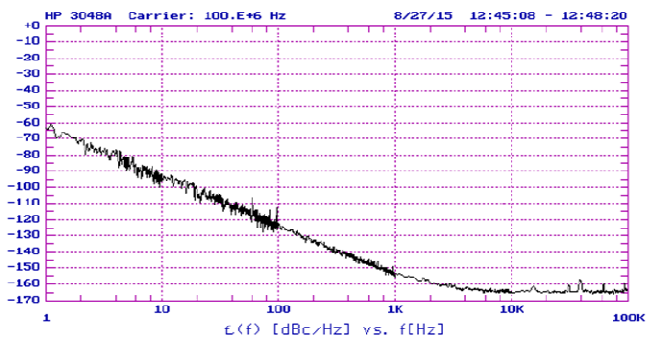
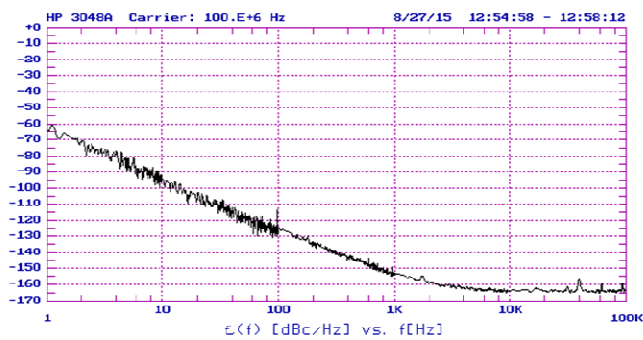
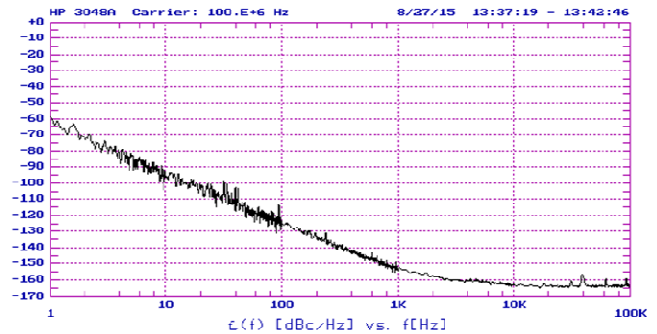
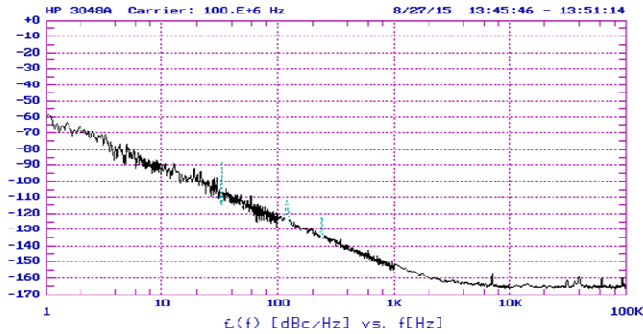
Note 1. When not connected, VCO INPUT is internally held at this voltage.

Note 2. Output maintained over this temperature range. Other requirements of this specification may not be met when operating outside the temperature range in 2.1.

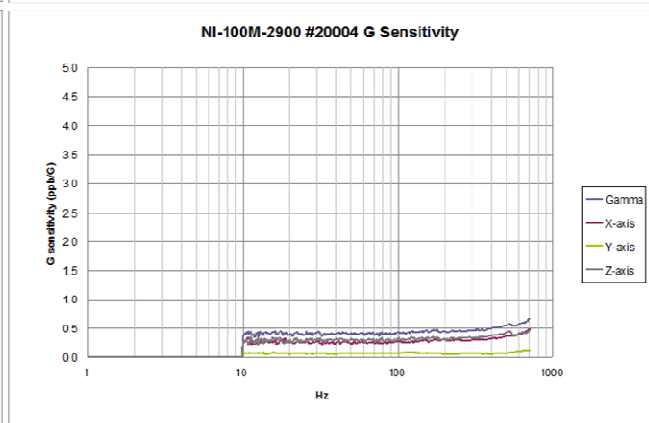
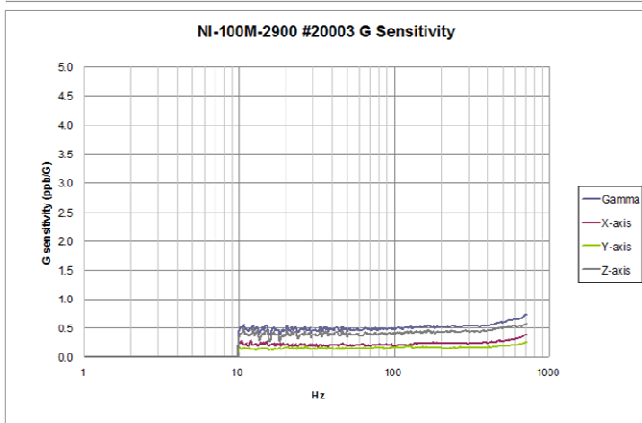
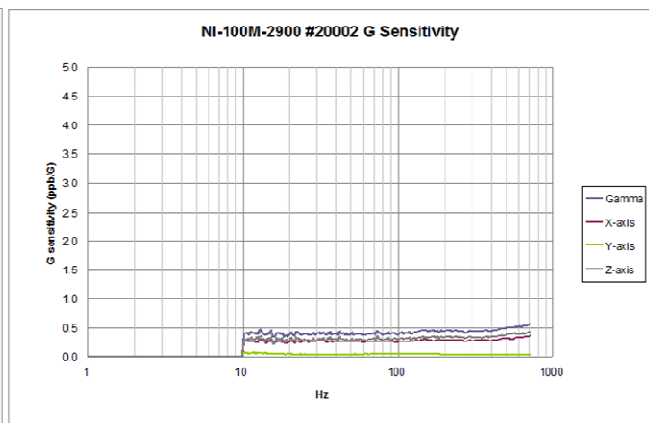
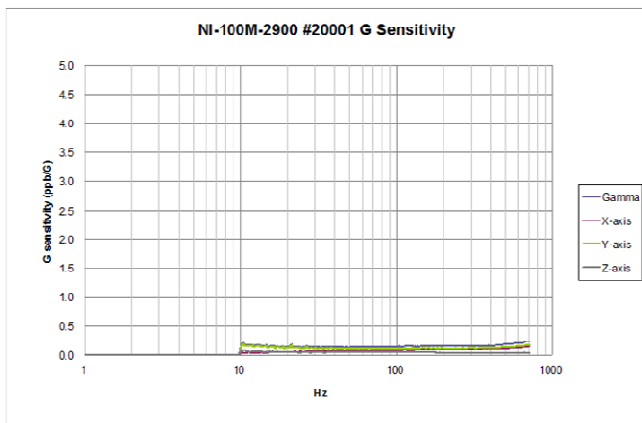
Table 1 : ORDERING INFORMATION

Phase Noise	Option A	Option B
TAITIEN P/N	NI-100M-2900	NI-100M-2901

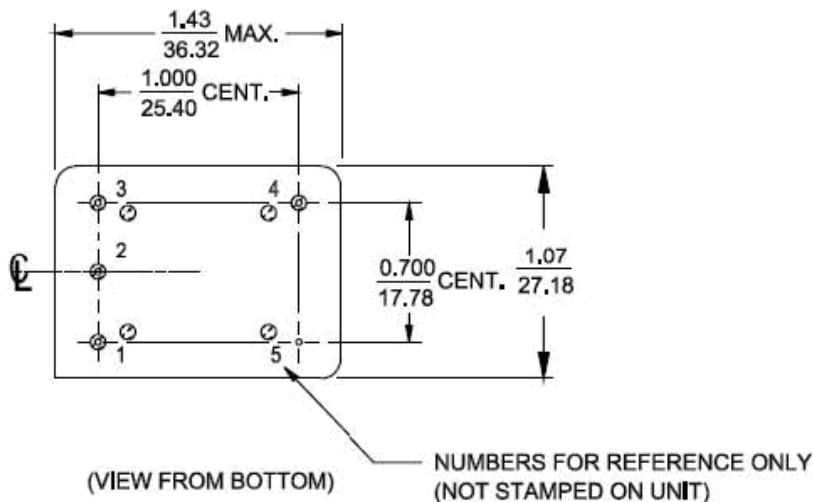
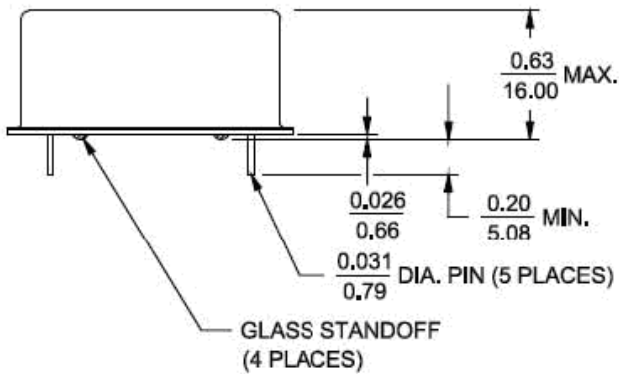
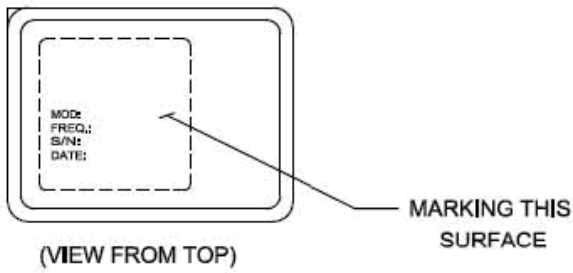
Phase Noise Test Data



G-Sensitivity Test Data



OUTLINE DRAWING



PIN CONNECTIONS	
PIN	FUNCTION
1 (See Note 1)	VCO INPUT or NOT CONNECTED
2 (See Note 1)	REFERENCE VOLTAGE or OVEN MONITOR or NOT CONNECTED
3	+VDC
4	R. F. OUTPUT
5	0 VOLTS & CASE

Note 1. If the specification does not specify parameters for either PIN1 or PIN2 then that respective PIN is NOT Internally CONNECTED.

MARKING

