TAITIEN
Our Performance Your Reputation

Oven Controlled Crystal Oscillator
NA-10 MHz-2000 series

2000 Series in 25.4x25.4mm DIP package

NA-10M-2000 series oscillators is designed for applications where space is at a premium and good frequency stability is required. The oscillators can be used in many communications applications. A choice of quartz resonators offers a variety of performance versus cost options to fit most applications.

RoHS Compliant Standard

ELECTRICAL SPECIFICATIONS

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

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
1.1.	Frequency		10.000000		MHz	
1.2.	Initial Accuracy	-0.1		+0.1	ppm	@ +25 ±1°C
						after turn on power 15 ±1 minutes
						≤ 90 days following date code
						VCO Input at Center Voltage ±0.001V
1.3.	Waveform		Rectangular			
1.4.	Level		LVTTL			
	"1" level	+2.4			V	
	"0" level			+0.4	V	
1.5.	Load		15		pF	
1.6.	Duty cycle	45	50	55	%	@ +1.65V
1.7.	Rise/fall time			6	ns	10% to 90%
1.8.	Spurious			-60	dBc	

2. FREQUENCY STABILITY

	Parameter	Min.	Typ.	Max.	Unit	Test Condition	
2.1.	Ambient		±3, ±5, ±10		ppb	referenced to 25°C	Refer to Table 1 : Ordering Information
			-30 ~ +70 -40 ~ +85		°C		
2.2.	Aging	-0.5		+0.5	ppb	per day, at time of shipment	
	Daily	-0.5		+0.5	ppb	after 30 days	
	Yearly	-50		+50	ppb		
	10 Years	-0.3		+0.3	ppm		
2.3.	Voltage	-0.5		+0.5	ppb	±5% change	
2.4.	Short term			0.05	ppb/s	root Allan variance	
2.5.	Load	-0.5		+0.5	ppb	±5% change	
2.6.	Warm-up	-10		+10	ppb	in 10 minutes @ +25 ±1°C	referenced to 1 hour

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	Parameter	Min.	Typ.	Max.	Unit	Test Condition
2.7.	Phase Noise		-95	-90	dBc/Hz	@ 1Hz
			-125	-120	dBc/Hz	@ 10Hz
			-140	-135	dBc/Hz	@ 100Hz
			-148	-145	dBc/Hz	@ 1KHz
			-156	-155	dBc/Hz	@ 10KHz
			-158	-155	dBc/Hz	@ 100KHz

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

	Parameter	Min.	Typ.	Max.	Unit	Test Condition	
3.1.	Tuning Range			-0.5	ppm	VCO @ Min. Voltage	Referenced to frequency at nominal Center Voltage
		+0.5			ppm	VCO @ Max. Voltage	
3.2.	Control Voltage	0		+3.3	V	**Optional, Refer to Table 1 : Ordering Information**	
		0		+2.8	V		
3.3.	Slope		Positive				
3.4.	Center Voltage		+1.65		V	**Optional, Refer to Table 1 : Ordering Information**	Note 1
			+1.4		V		
3.5.	Linearity	-10		+10	%		
3.6.	Input Impedance	100			kΩ		

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

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
4.1.	Voltage	+3.135	+3.3	+3.465	V	
4.2.	Current			1000	mA	@ turn on
4.3.	Steady State			1.3	W	@ +25°C

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

(Optional Function. Refer to Table 1 : Ordering Information.)

	Parameter	Min.	Typ.	Max.	Units	Test Condition
5.1.	Voltage	+2.7	+2.8	+2.9	V	Over temperature range in 2.1.
5.2.	Load	9			kΩ	

6. ENVIRONMENTAL

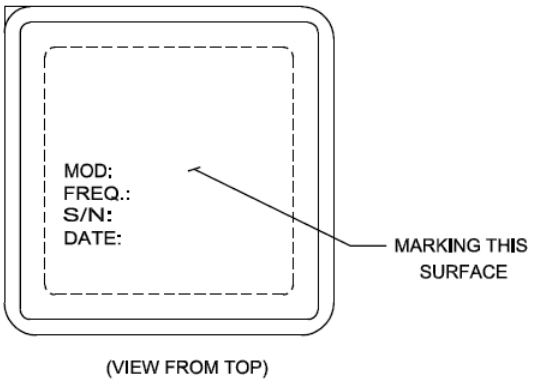
	Parameter	Reference Std.	Test Condition
6.1.	Operating Temperature	-40°C to +85°C	Note 2
6.2.	Storage Temperature	-55°C to +105°C	
6.3.	Humidity	MIL-STD-202, Method 103 Test Condition A	95% RH @ +40°C,non-condensing,240 hours
6.4.	Vibration (non-operating)	MIL-STD-202, Method 201	0.06" Total p-p, 10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

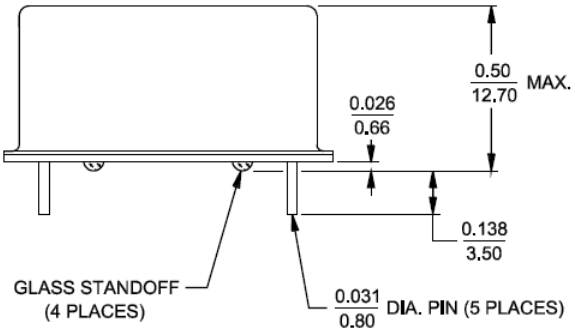
Table 1 : ORDERING INFORMATION

TAITIEN Model No. / ppb / Temp. (℃)	±3	±5	±10	Control Voltage	Reference Voltage
-30~+70	NA-10M-2000	NA-10M-2001	NA-10M-2002	+1.65V	N/A
-40~+85	NA-10M-2003	NA-10M-2004	NA-10M-2005		
-30~+70	NA-10M-2050	NA-10M-2051	NA-10M-2052	+1.4V	+2.8V
-40~+85	NA-10M-2053	NA-10M-2054	NA-10M-2055		

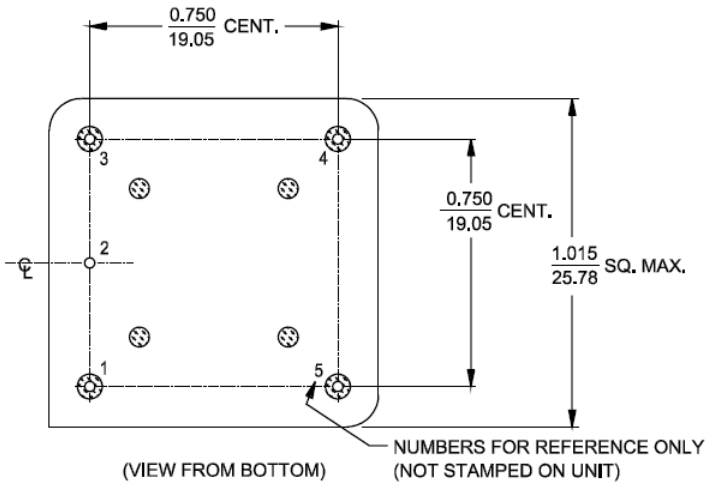
OUTLINE DRAWING



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



Note:
1. For NA-10M-2000 THRU NA-10M-2005 NOT internally CONNECTED.



TOLERANCES:
UNLESS OTHERWISE SPECIFIED:
ANGLES: ±1 DEGREE
FRACTIONS:±1/32 INCH
DECIMALS: .XX±.015, .XXX±.010 INCH
INCH / mm (REFERENCE ONLY)