



**Features and Benefits**

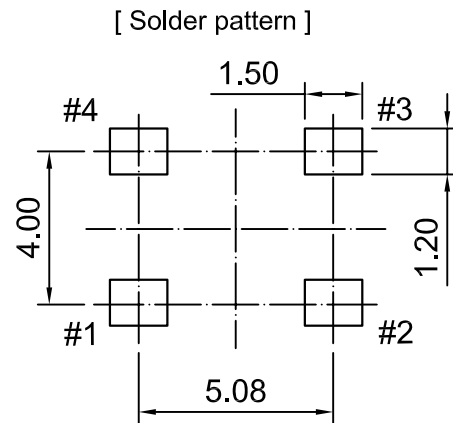
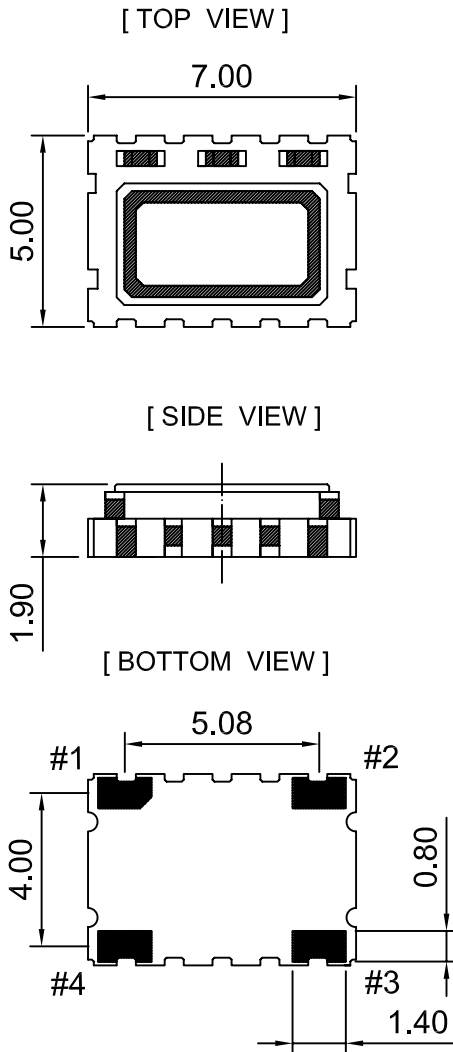
- Better than 1 ppm stability over operating temperature
- Better than ±1.0 ppm 1<sup>st</sup> year aging
- Less than 5mA current consumption
- 140 dBc/Hz @ 1 kHz phase noise

**Typical Applications**

- Location and GNSS navigation
- Communication

**Mechanical Drawing & Pin Connections**

**Drawing No:** MD150004-1



PIN	FUNCTION
#1	GND
#2	GND
#3	RF output
#4	Vdc

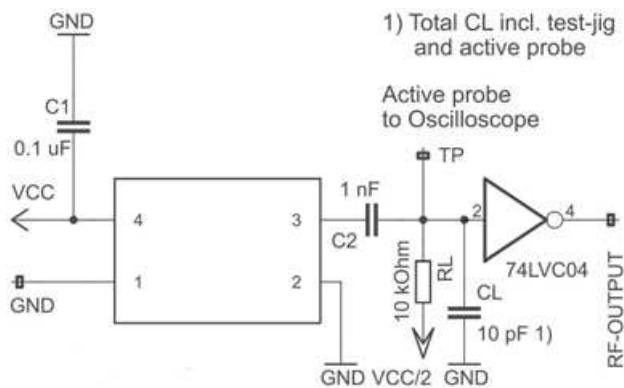
Unit in mm  
1mm = 0.0394 inches



**Specifications**

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Nominal Frequency	F <sub>0</sub>			50.0000		MHz	
<b>RF Output</b>							
Output Wave Form			Clipped Sine Wave				
Output Level			1.20 > V <sub>p-p</sub> > 0.8				
Load				10		kΩ	±10%
				10		pF	
Supply Voltage				+3.3		V	
Current Consumption				<5		mA	
<b>Frequency Stability</b>							
VS. Tolerance ex-factory		@ +25°C		0 ~ +1.00		ppm	
VS. Temperature Reference (F <sub>MAX</sub> +F <sub>MIN</sub> )/2		Over -40°C to +85°C		≤±1.00 ≤±0.50		ppm	Standard On request
VS. Supply Voltage Changes Reference to frequency at nominal supply		±5%		≤±0.10		ppm	
VS. Load Change Reference to frequency at nominal load		±10%		≤±0.02		ppm	
VS. Aging		1 <sup>st</sup> year Over 10 years		≤±1.00 ≤±4.00		ppm	
Frequency Slope		Over operating temperature		≤0.05		ppm/°C	
Short term Stability ADEV		T = 1.0 sec		<1 x 10 <sup>-10</sup>			
<b>Phase Noise</b>							
Phase noise @ 50 MHz		@ 10 Hz		-85		dBc/Hz	
		@ 100 Hz		-120			
		@ 1 kHz		-140			
		@ 10 kHz		-150			
		@ 100 kHz		-155			
<b>Environmental Conditions</b>							
<b>Parameter</b>							<b>Reference Std.</b>
Operating temperature range							-40°C to +85°C
Storage temperature range							-55°C to +105°C
Reflow Profiles as per IPC/JEDEC J-STD-020C							≤260°C over 10 sec. max.
Moisture sensitivity							Level 1 (unlimited)

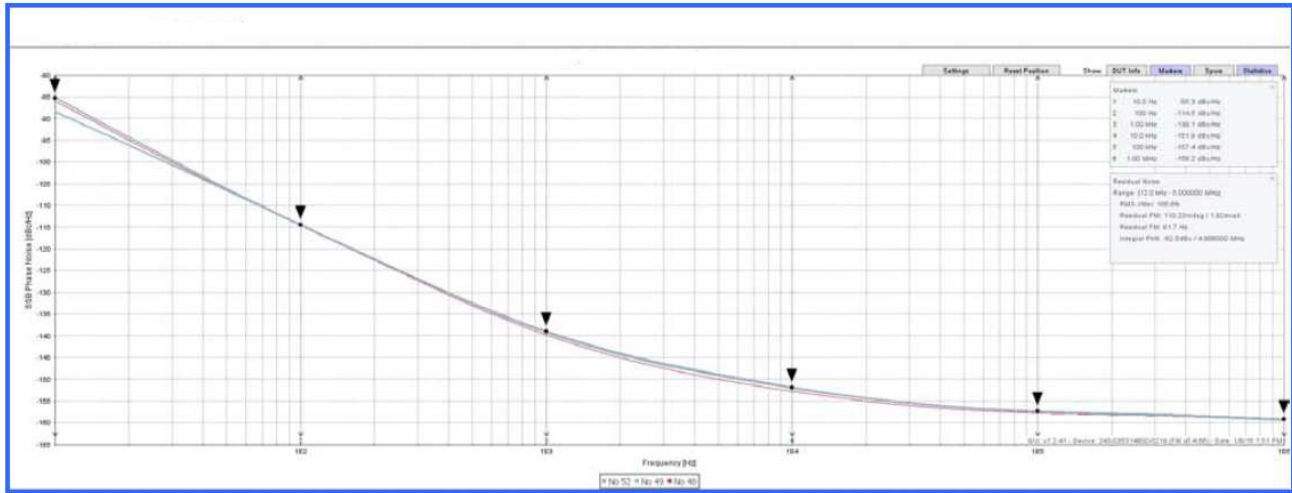
**Test Circuit**



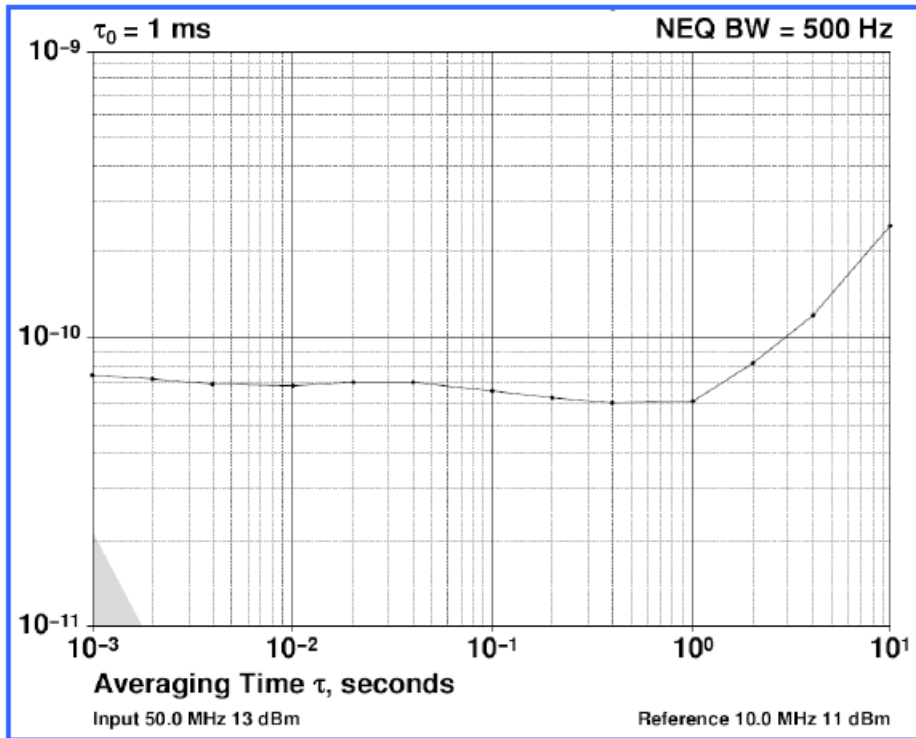


**Test Data**

Phase Noise

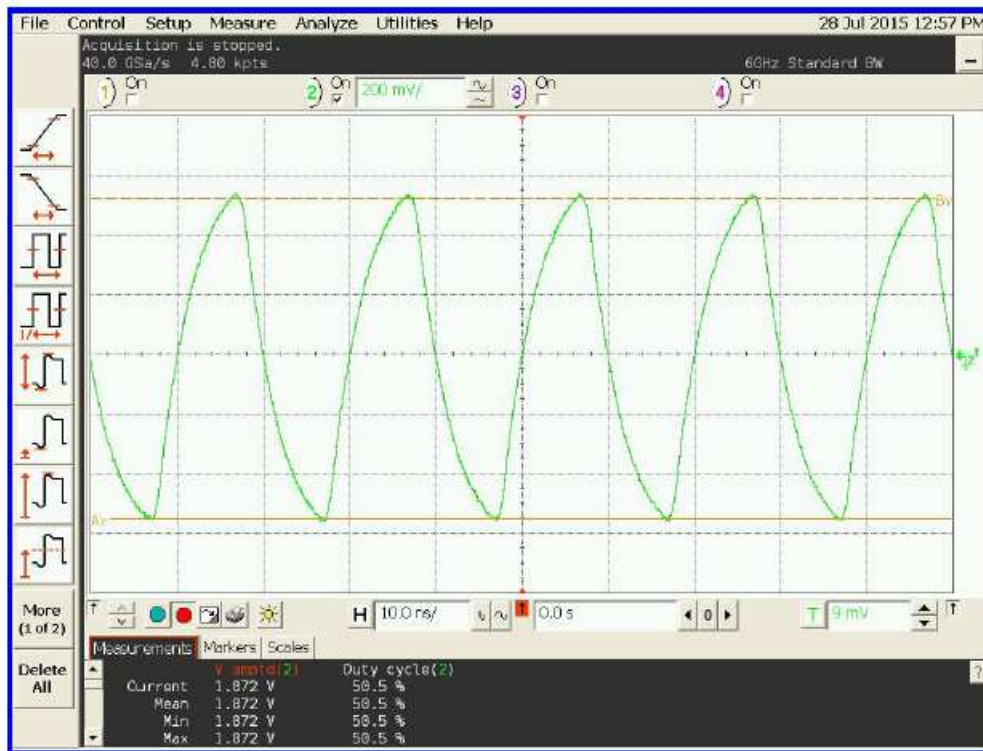


Short term stability, Allan Deviation





Output Signal



Environmental Conditions

Test	IEC 60068 Part...	IEC 60679-1 Clause	MIL-STD-202G Method	MIL-STD-810F Method	MIL-PRF-55310D Clause	Test Conditions (IEC)
Sealing tests (if applicable)	2-17	5.6.2	112E		3.6.1.2	Gorss leak: Test Qc, Fine leak: Test Qk
Solderability	2-20	5.6.3	208H		3.6.52	Test Ta method 1
Resistance to soldering heat	2-58		210F		3.6.48	Test Td <sub>1</sub> method 2 Test Td <sub>2</sub> method 2
Shock	2-27	5.6.8	213B	516.4	3.6.40	Test Ez, 2 x per axis 100g, 6 ms half-sine pulse
Vibration, sinusoidal	2-6	5.6.7.1	201A 204D	516-4-4	3.6.38.1 3.6.38.2	Test Fc, 30 min per axis, 1 oct/min 10 Hz - 55 Hz 0, 75 mm, 55 Hz - 2 kHz 10g
Vibration, random	2-64	5.6.7.3	214A	514.5	3.6.38.3 3.6.38.4	Test Fdb
Endurance tests			108A		4.8.35	
- Aging		5.7.1				30 days @ 85°C
- Extended aging		5.7.2				1000h, 2000h, 8000h @ 85°C