

100MHz Low Noise/Low G-Sensitivity OCXO NA-100MK2800 series

K2800 Series in 25.4x25.4mm DIP package

NA-100MK2800 series is a 100.000 MHz high performance (VC)OCXO offering low phase noise(LPN), low G sensitivity(LGS) and tight frequency stability down to ± 50 ppb(-20°C to +70°C). The part comes in a small hermetically sealed through hole package which makes it suitable for humid environmental conditions



RoHS Compliant Standard

FEATURES

- **Low Phase Noise & Low G-Sensitivity**
- Small 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 Communication
- Clock Reference for Microwave Signal Source
- Test & Measurement
- Telecom Systems
- Radar Systems

ELECTRICAL SPECIFICATIONS

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

	Parameter	Min.	Typ.	Max.	Unit	Test Condition	
1.1.	Frequency	100.000000			MHz		
1.2.	Initial Accuracy	-0.3		+0.3	ppm	@ +25 \pm 1°C after turn on power 60 minutes Vc=+5V	
1.3.	Waveform	Sine wave					
1.4.	Level	+10			dBm	Option C	Refer to Table 1 : Ordering Information
		+13				Option A, B	
1.5.	Load		50		Ω		
1.6.	Harmonics			-30	dBc		
1.7.	Spurious			-100	dBc		
1.8.	G-Sensitivity (all 3 axis)			1	ppb/g	Option, Refer to Table 1 : Ordering Information	

2. FREQUENCY STABILITY

	Parameter	Min.	Typ.	Max.	Unit	Test Condition		
2.1.	Ambient	±50, ±100			ppb	referenced to 25°C	Refer to Table 1 : Ordering Information	
		-20°C ~ +70°C -40°C ~ +85°C			°C			
2.2.	Aging							
	Daily	-5		+5	ppb	after 30 days		
	Yearly	-500		+500	ppb			
	15 Years	-2		+2	ppm			
2.3.	Voltage	-5		+5	ppb	±5% change		
2.4.	Short term			0.05	ppb	root Allan variance for $\tau=1$ sec		
2.5.	Load	-5		+5	ppb	±10% change		
2.6.	Warm-up	-50		+50	ppb	in 5 minutes @ +25 ±1°C	referenced to 1 hour	
2.7.	Phase Noise (Max.)	Option A	Option B	Option C		Refer to Table 1 : Ordering Information		
		-93	-97	-100	dBc/Hz	@ 10Hz		
		-125	-130	-135	dBc/Hz	@ 100Hz		
		-157	-160	-162	dBc/Hz	@ 1KHz		
		-173	-173	-170	dBc/Hz	@ 10KHz		
		-177	-175	-172	dBc/Hz	@ 100KHz		
		-180	-178	-175	dBc/Hz	@ 1MHz		

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

	Parameter	Min.	Typ.	Max.	Unit	Test Condition	
3.1.	Tuning Range			-3	ppm	VCO @ Min. Voltage	Referenced to frequency at nominal Center Voltage
		+3			ppm	VCO @ Max. Voltage	
3.2.	Control Voltage	0		+10.0	V		
3.3.	Slope	Positive					
3.4.	Center Voltage		+5		V		
3.5.	Linearity	-10		+10	%		

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

	Parameter	Min.	Typ.	Max.	Unit	Test Condition	
4.1.	Voltage	+11.4	+12	+12.6	V		
4.2.	Current						
	Steady State			1.5	W	@ +25°C, operating -20°C~+70°C	
				2.0		@ +25°C, operating -40°C~+85°C	
	During Warm-Up			300	mA	@ +25°C, operating -20°C~+70°C	
			380	@ +25°C, operating -40°C~+85°C			

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

	Parameter	Min.	Typ.	Max.	Units	Test Condition
5.1.	Voltage	+9.5	+10	+10.5	V	

6. ENVIRONMENTAL

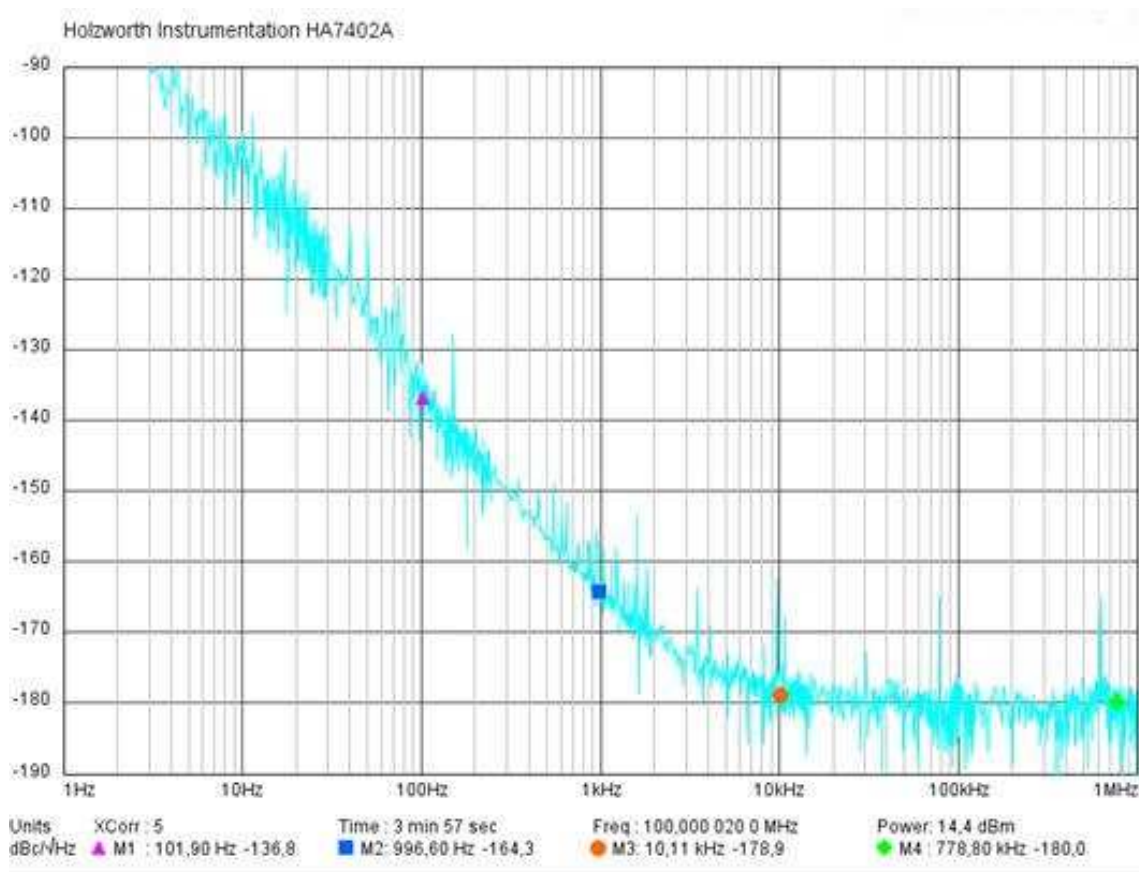
	Parameter	Reference Std.	Test Condition
6.1.	Operating Temperature	-40°C to +85°C	Note 1
6.2.	Storage Temperature	-55°C to +105°C	
6.3.	Humidity	MIL-STD-202, Method 103 Test Condition A	95% RH @ +40°C, non-condensing, 240 hours
6.4.	Vibration (non-operating)	MIL-STD-202, Method 201	0.06" Total p-p, 10 to 55 Hz
6.5.	Shock (non-operating)	MIL-STD-202, Method 213, Test Condition J	30g, 11ms, half-sine

Note 1 : 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

Ambient Temp. (°C)	Option	Phase Noise Option			G-Sensitivity Option
		A	B	C	
-20°C ~ +70°C	±100 ppb	NA-100MK2800	NA-100MK2801	NA-100MK2802	Y
		NA-100MK2805	NA-100MK2806	NA-100MK2807	N
	±50 ppb	NA-100MK2810	NA-100MK2811	NA-100MK2812	Y
		NA-100MK2815	NA-100MK2816	NA-100MK2817	N
-40°C ~ +85°C	±100 ppb	NA-100MK2820	NA-100MK2821	NA-100MK2822	Y
		NA-100MK2825	NA-100MK2826	NA-100MK2827	N
	±50 ppb	Not Available			

Phase Noise Test Data



OUTLINE DRAWING

