

100MHz Low Noise/Low G-Sensitivity OCXO

NF-100M-6800 series

NF-100M-6800 Series in 20.7x13.1mm DIP package

NF-100M-6800 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



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
- RoHS-Compliant (lead-free)

APPLICATIONS

- Instrument Reference
- Microwave Communication
- Clock Reference for Microwave Signal Source
- Test & Measurement
- Telecom Systems
- Radar Systems

RoHS Compliant Standard

ELECTRICAL SPECIFICATIONS

Test conditions: VDC = +5 V; VCO = +2.25 V; at +25 \pm 3°C unless otherwise identified

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

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
1.1.	Frequency (Fo)	100.000000			MHz	
1.2.	Initial Accuracy	-0.2		+0.2	ppm	@ +25 \pm 1°C after turn on power 30 minutes Vco=+2.25V
1.3.	Waveform	Sine wave/ HCMOS				
1.4.		Sine wave				
	Level	+8			dBm	
	Load		50		Ω	
	Harmonics			-30	dBc	
	Spurious			-80	dBc	
1.5.		HCMOS				
	Level High	3.8			V	
	Level Low			0.4	V	
	Load	1 kOhm // 10 pF				
	Duty Cycle	40%		60%		
	Rise/Fall time			3	ns	20% to 80%

2. FREQUENCY STABILITY

	Parameter	Min.	Typ.	Max.	Unit	Test Condition	
2.1.	Ambient	±50, ±100			ppb	referred to 25°C	Refer to Table 1 : Ordering Information
		-20°C ~ +70°C			°C		
2.2.	Aging						
	Daily	-5		+5	ppb	after 30 days	
	Yearly	-500		+500	ppb		
	10 Years	-1.7		+1.7	ppm		
2.3.	Voltage	-20		+20	ppb	±5% change	
2.4.	Short term			0.05	ppb	root Allan variance for $\tau=1$ sec	
2.5.	Load	-10		+10	ppb	±5% change	
2.6.	Warm-up	-50		+50	ppb	in 5 minutes @ +25 ±1°C	referred to 1 hour
2.7.	G-Sensitivity (each axis)			1	ppb/g		
2.8.	Phase Noise (Max.)	Option A		Option B			Refer to Table 1 : Ordering Information
		-100		-103		dBc/Hz	@ 10Hz
		-130		-135		dBc/Hz	@ 100Hz
		-160		-162		dBc/Hz	@ 1KHz
		-173		-173		dBc/Hz	@ 10KHz
		-177		-176		dBc/Hz	@ 100KHz
		-178		-178		dBc/Hz	@ 1MHz

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

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
3.1.	Tuning Range	±2			ppm	Referenced to frequency at nominal Center Voltage
3.2.	Control Voltage	0		+4.5	V	
3.3.	Slope	Positive				
3.4.	Center Voltage		+2.25		V	
3.5.	Linearity	-10		+10	%	

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

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
4.1.	Voltage	+4.75	+5	+5.25	V	
4.2.	Current					
	Steady State			1.2	W	
	During Warm-Up			500	mA	

5. ENVIRONMENTAL

	Parameter	Reference Std.	Test Condition
5.1.	Operable Temperature	-20°C to +70°C	Note 1
5.2.	Storage Temperature	-45°C to +90°C	
5.3.	Humidity	MIL-STD-202, Method 103 Test Condition A	95% RH @ +40°C, non-condensing, 240 hours
5.4.	Vibration (non-operating)	MIL-STD-202, Method 201	0.06" Total p-p, 10 to 55 Hz
5.5.	Shock (non-operating)	MIL-STD-202, Method 213, Test Condition J	30g, 11ms, half-sine

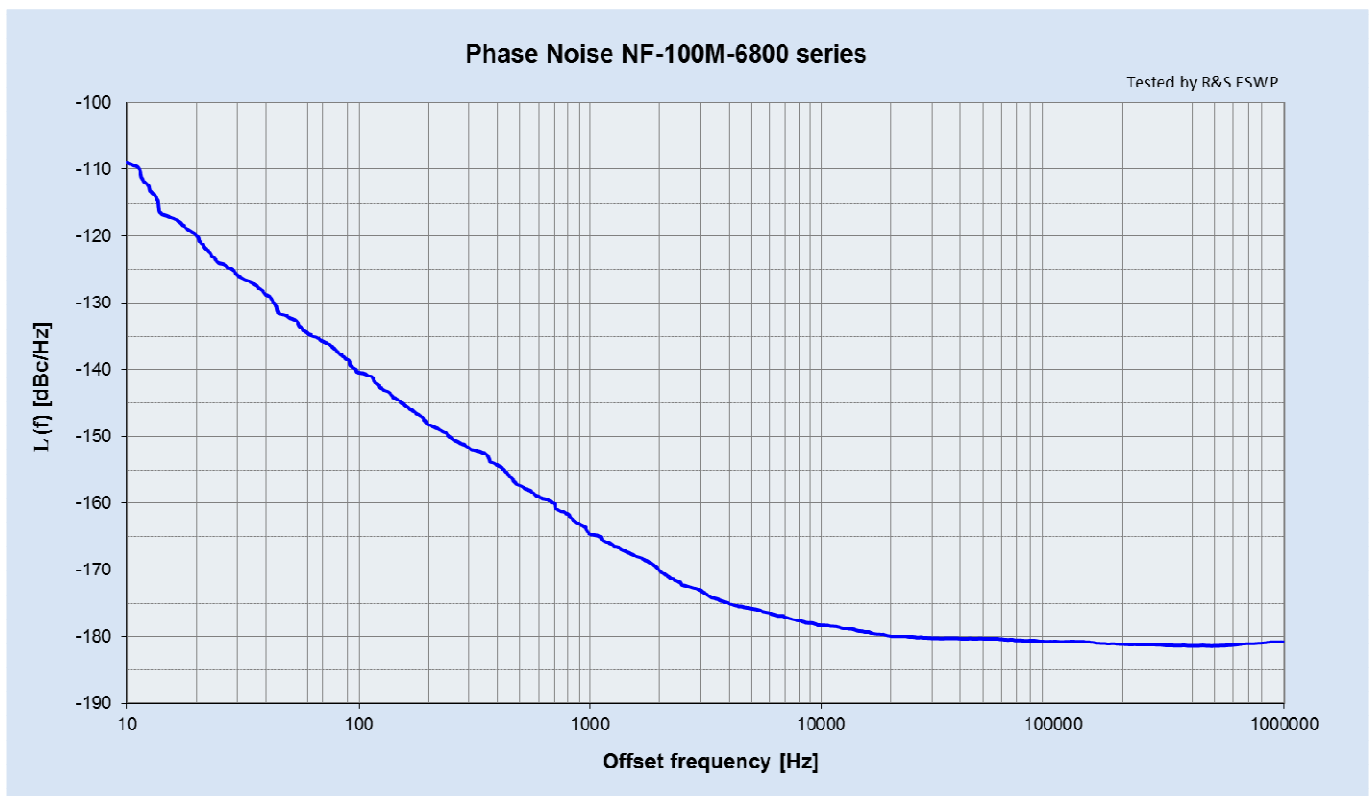
Note 1 : Output maintained over this temperature range. Other requirements of this specification may not be met when operating outside the temperature range in 2.1.

Table 1 : ORDERING INFORMATION

Ambient Temp. (°C)	Option	Output	Phase Noise Option	
			A	B
-20°C ~+70°C	±100 ppb	Sine Wave	NF-100M-6800	NF-100M-6801
	±50 ppb		NF-100M-6810	NF-100M-6811
-20°C ~+70°C	±100 ppb	HCMOS	NF-100M-6850	NF-100M-6851
	±50 ppb		NF-100M-6860	NF-100M-6861

Other specifications may be available upon request.

Phase Noise Test Data



OUTLINE DRAWING

