

HSO14

The Rakon "Ground USO" has a short-term stability (Allan Standard Deviation) of 8.10^{-14} , is in the 10^{-11} stability class over the temperature range of 0°C to +50°C and is available at 5 and 10 MHz. Its close-in phase noise @1Hz is below -130 dBc/Hz for the 5 MHz "Ground USO". Products with a short-term stability below 7.10^{-14} or even 6.10^{-14} can be provided on request.

The "Ground USO" is specially designed to meet the request of the calibration and metrology laboratories that have high stability frequency standards but also the applications that require high performance reference oscillators.

Features

- Frequency: 5 or 10 MHz
- Short-term stability: 8 x 10⁻¹⁴ (ADEV)
- Frequency stability: ± 5 x 10⁻¹¹ over 0 to +50°C
- Supply voltage: 24V
- Ageing: ± 5 x 10⁻¹¹ (±50 ppt) per day

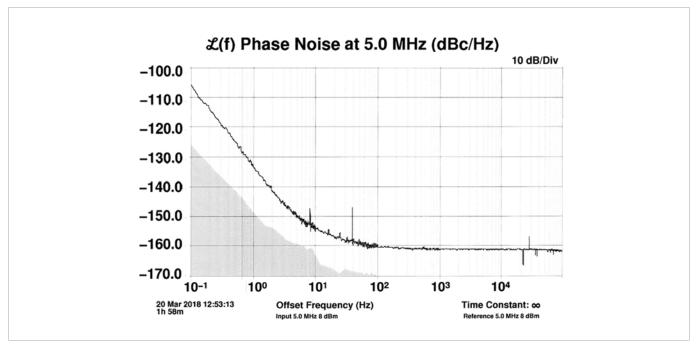
Applications

- Reference oscillator for laboratories
- Reference oscillator for Maser and Atomic fountains

SMA1: 73 x 135 x 84 mm



Highlights – Phase Noise Performance at 5 MHz



1. Environmental Conditions

Parameter	Min.	Тур.	Max.	Unit	Test Condition / Description
Operating temperature	0	25	50	°C	Max. 1°C/hour
Non-operating temperature	0	25	50	°C	
Storage temperature	0		50	°C	
Frequency stability after mechanical shocks			±10	ppb	Half sine 30g/11ms
Frequency stability after sine vibrations			±5	ppb	10 – 500Hz 10g acceleration

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Requests can be emailed to: hirel@rakon.com



2. Performance Data

Parameter	Min.	Тур.	Max.	Unit	Test Condition / Description		
Nominal frequency (Fn)		5, 10		MHz			
Relative pulling frequency range	±50		±100	ppb	With internal potentiometer		
	±20				Frequency tuning with Vc input from 0 to 10 V		
Power supply Steady state		2.4	3	W	Typical 25°C		
Warm-up			10		Achieving 5 minutes after startup @ 25°C		
Frequency warm-up time			6	mn	For frequency in the range Fn ± 1 ppm		
	1		28	day	For full performance		
Frequency stability vs. temperature			±50	ppt			
Frequency variation vs. supply voltage (Vcc)			±10	ppt	Vcc ±1% at 25°C		
Frequency variation vs. load			±20	ppt	At ±10%		
Ageing			±50 ±1.5	ppt/day ppb/month	After a minimum of 21 days of continuous operation		
			±10	ppb/year			
			±50	ppb/10 years	According to the MIL-PRF-55310 version C		
g-sensitivity			±1	ppb/g	Quadratic sum		
Output level	7	8	9	dBm	Output waveform: Sinewave		
Harmonics			-40	dBc			
Spurious			-80	dBc			

3. Electrical Interface

Parameter	Min.	Тур.	Max.	Unit	Test Condition / Description
Power supply	21.60	24	26.40	V	24 V
Load impedance	47.5	50	52.5	Ω	
Reference voltage (Vref)		8		V	Output current: 0 to 1 mA max.

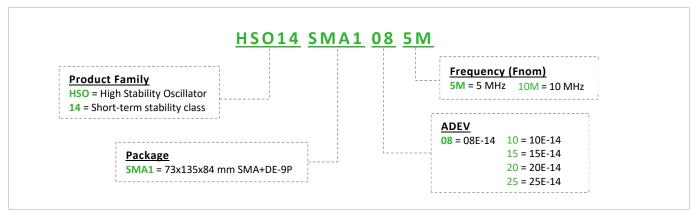
4. Short-term Stability Options and Phase Noise

ADEV Option	Remarks	Tau=1s	Tau=3 -30s	Frequency	1Hz	10Hz	100Hz	1kHz	10kHz
08	ADEV = 08E-14	1E-13	08E-14	5 MHz 10 MHz	-130 -123	-150 -141	-157 -143	-160 -143	-160 -143
10	ADEV = 10E-14	10	DE-14	5 MHz 10 MHz	-128 -121	-148 -141	-155 -143	-160 -143	-160 -143
15	ADEV = 15E-14	15E-14		5 MHz 10 MHz					
20	ADEV = 20E-14	20E-14		5 MHz 10 MHz					
25	ADEV = 25E-14	25E-14		5 MHz 10 MHz					

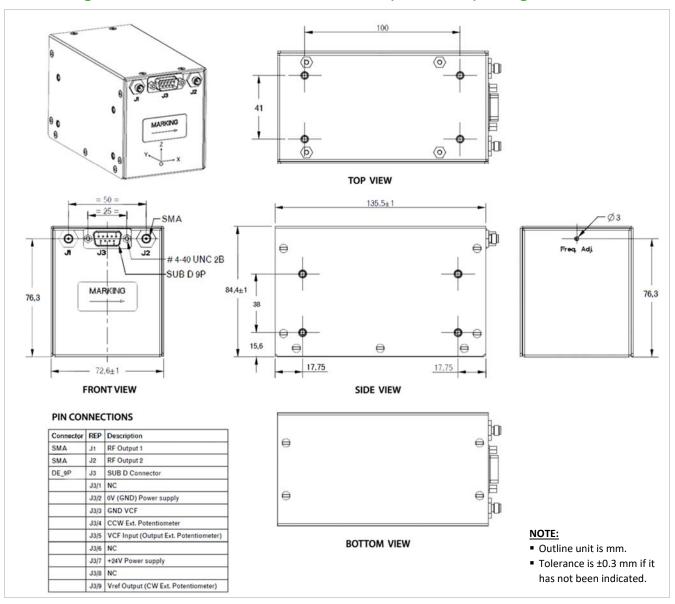
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5. Ordering Part Example



6. Ordering Model Outline and Pin Connections - SMA1 (SMA+DE-9P) Package



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