

RMO1490A (Hermetic)

Using Rakon's proprietary Mercury ASIC, the OCXO is capable of short term ageing of typically less than ± 2 ppb per day, with temperature stability down to ± 10 ppb. The miniature, highly integrated oven used ensures short warm up times with a typical power consumption of only 440 mW at room temperature. The RMO1490A features a typical noise floor of -166dBc/Hz .

Features

- Frequency stability over temperature as low as ± 10 ppb
- Excellent phase noise performance

Applications

- Small Cells
- Base stations
- Time & frequency reference
- Network timing, synchronisation and IP timing

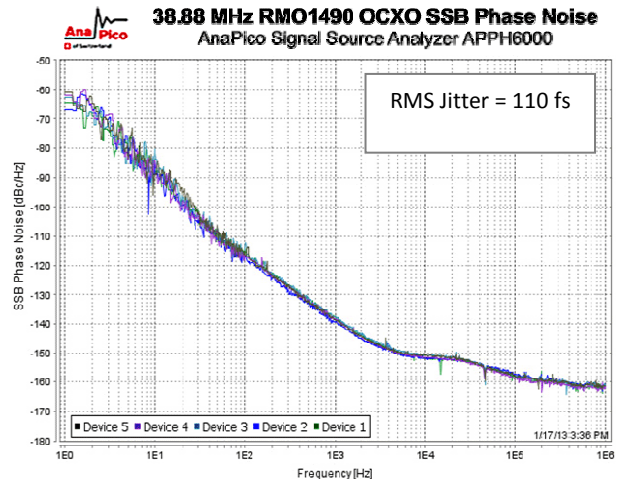
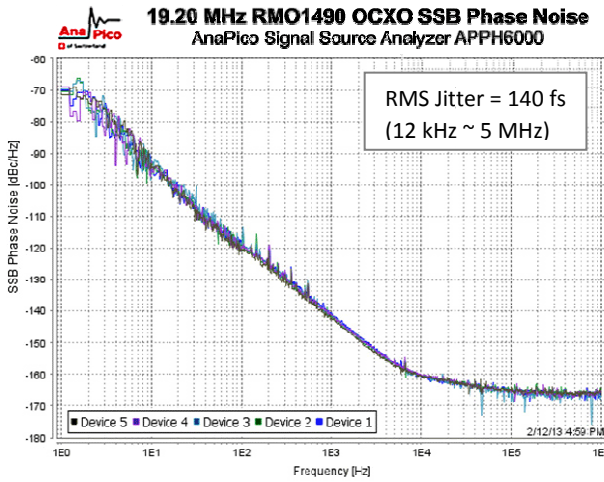
14.4 x 9.5 x 6.7 mm max.



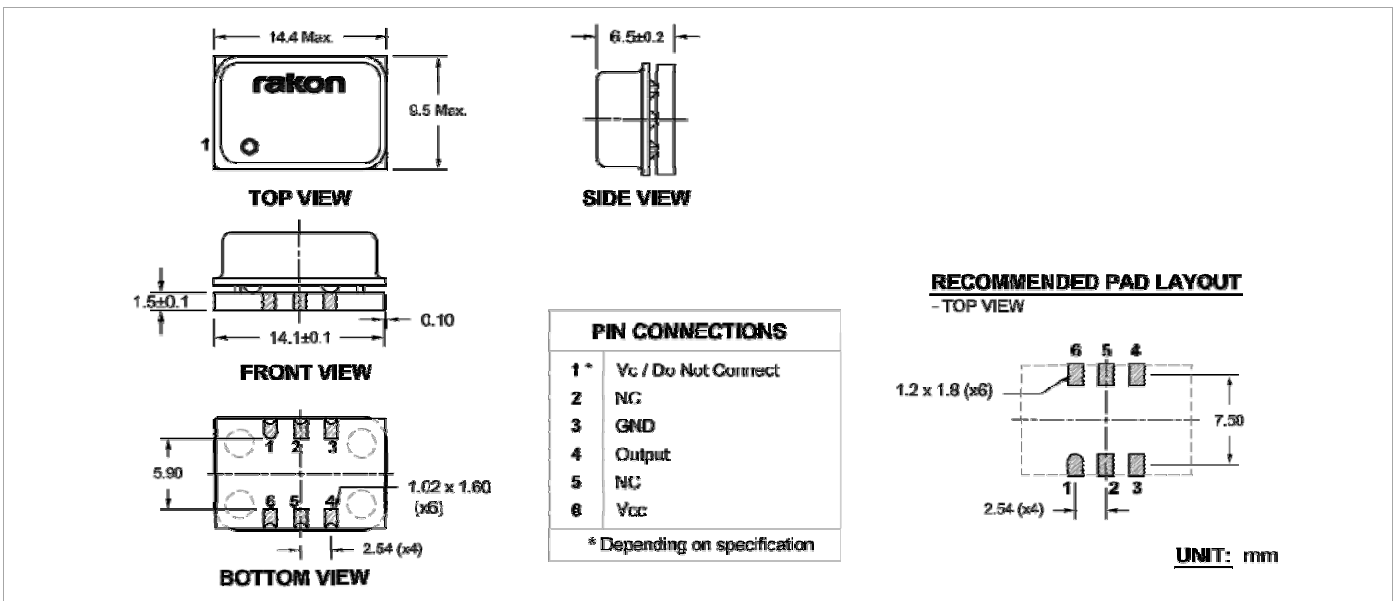
Standard Specifications

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency		5 - 50		MHz	Standard frequencies: 10, 12.8, 19.2, 20, 25, 26 and 38.88MHz
Frequency calibration			± 0.5	ppm	Initial accuracy at $25^\circ\text{C} \pm 2^\circ\text{C}$
Reflow shift			± 1	ppm	Pre to post reflow ΔF (measured ≥ 60 minutes after reflow)
Frequency stability over temperature in still air			$\pm 10 - \pm 100$	ppb	Reference to $(F_{\text{max}} + F_{\text{min}})/2$
Frequency slope $\Delta F/\Delta T$ in still air			$\pm 1 - \pm 3$	ppb/ $^\circ\text{C}$	Temperature ramp $\leq 1^\circ\text{C}/\text{minute}$
Operating temperature range	-40		85	$^\circ\text{C}$	
Supply voltage stability		± 10		ppb	$\pm 5\%$ variation, frequency $\leq 26\text{MHz}$
Load sensibility		± 10		ppb	$\pm 5\text{pF}$ variation, reference to frequency $\leq 26\text{MHz}$ at 15pF
Warm-up time		< 3		minutes	The time needed for the frequency to be within ± 20 ppb of the frequency after 1 hour, at 25°C . This parameter is frequency, assembly and operating history dependent
Acceleration sensitivity		< 2		ppb/g	Gamma vector of all 3 axes from 30 to 1500Hz
Long term stability (Ageing) Frequency $\leq 26\text{MHz}$		$< \pm 2$	± 1 ± 3	ppb ppm ppm	Per day First year 10 years
Root Allan Variance (20 MHz)		7		10^{-11}	$\tau = 1.0\text{s}$
Supply voltage (Vcc)		2.7 – 5.5		V	$\pm 5\%$
Input power (warm up)		1500 1200		mW mW	Warm up, -40 to 85°C devices Warm up, -20 to 70°C devices
Input power (Steady state in still air at 25°C)			500 440	mW mW	Steady state in still air at 25°C , -40 to 85°C devices Steady state in still air at 25°C , -20 to 70°C devices
Control voltage (Vc)		0.5 – 2.5		V	The GND of the control voltage needs to be connected directly to pin 3 as ground lead impedance may cause performance degradation
Frequency tuning		± 5		ppm	Reference to frequency at $V_c = 1.5\text{V}$
Slope		+7		ppm/V	
Linearity			1	%	Deviation from linear over control voltage range in accordance with MIL-PRF-55310
Port input impedance	80			k Ω	
Modulation bandwidth		3.5		kHz	
Oscillator output – HCMOS					
Output voltage level high (V_{OH})			10% Vcc	V	
Output voltage level high (V_{OL})	90% Vcc			V	
Duty cycle	45		55	%	At 50% level
Rise and fall times			4	ns	10 to 90%
Load	0	15	30	pF	

SSB Phase Noise (Typical value at 25°C)



Model Outline and Recommended Pad Layout



Model Code Builder

