

## Low phase noise

### Crystal Oscillators

#### Product profile

The CX2119A is a low phase noise 10MHz thermostatic oscillator in a standard 36\*27mm package that operates at temperatures ranging from -20° C to +70° C, with an aging rate of better than 5E-10/day. It has excellent near-end and far-end phase noise metrics, and is suitable for use in low-phase noise phase-locked-loop local oscillators, and for connecting to the rear of atomic clocks to greatly improve short-stability and phase noise metrics and to clean up atomic clock clutter.

#### Product features

- Near-end phase noise down to -110dBc/Hz@1Hz
- Frequency stability ADEV up to 1E-12 /1s
- + 12VDC power supply
- Standard 36mm×27mm Package

#### Application area



Wireless base station



Radar



Communication



Reconnoiter

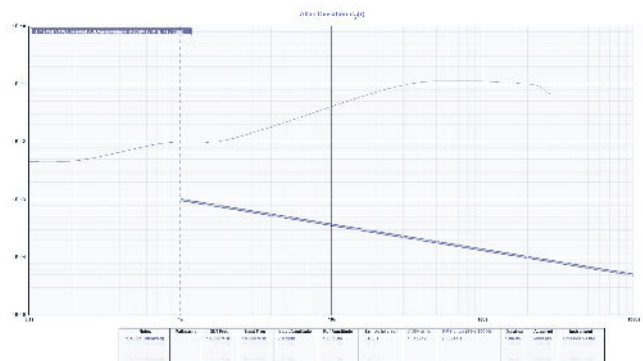


Atomic Signal Purification Phase-Locked Loop

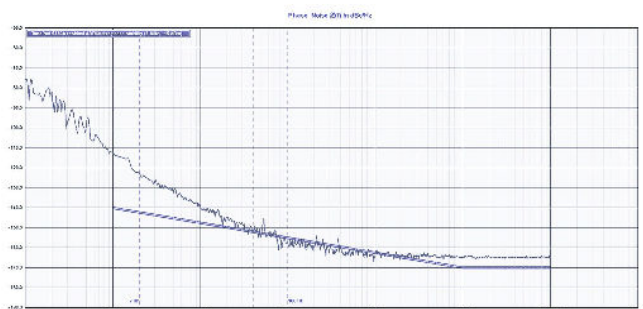


Instrumentation Low Phase Noise Signal Source

#### Typical curve



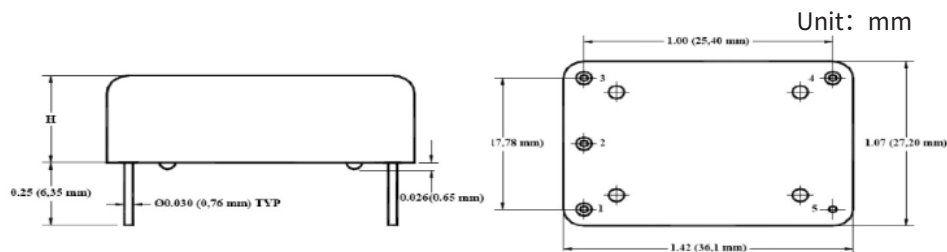
Typical value of the frequency stability: 100ms:  $5.5 \times 10^{-13}$  1s:  $1.0 \times 10^{-12}$   
10s:  $4.0 \times 10^{-12}$



Typical values of the phase noise: 1Hz: -110dBc/Hz 10Hz: -138dBc/Hz  
100Hz: -157dBc/Hz 1kHz: -162dBc/Hz  
10kHz: -164dBc/Hz 100kHz: -164dBc/Hz

Test Item		Technical Indicators	
Output frequency		10MHz or 10.23MHz	
Allan variance	1s	Nominal value	Typical value
		$\leq 3 \times 10^{-12}$	$1 \times 10^{-12}$
Phase noise dBc/Hz		Nominal value	Typical value
	1Hz*	$\leq -100$	$\leq -110$
	10Hz	$\leq -130$	$\leq -137$
	100Hz	$\leq -150$	$\leq -155$
	1kHz	$\leq -157$	$\leq -161$
	10kHz	$\leq -160$	$\leq -165$
	100kHz	$\leq -160$	$\leq -165$
Aging rate (Measured after 30day of continuous aging)	1day	$\leq 5 \times 10^{-10}$	
	1 month	$\leq 5 \times 10^{-9}$	
	The first year	$\leq 5 \times 10^{-8}$	
	Ten years	$\leq 2.5 \times 10^{-7}$	
Frequency control	Pressure control voltage range	0~5V, Positive slope	
	Frequency regulation range	$\geq \pm 4 \times 10^{-7}$	
Temperature frequency characteristics		$\leq \pm 3 \times 10^{-8}$	
Voltage frequency characteristics		$\leq \pm 5 \times 10^{-9}$	
Load frequency characteristics		$\leq \pm 5 \times 10^{-9}$	
Wave shape		Sine wave	
Output power		$\geq 7\text{dBm}$	
Harmonic		$\leq -30\text{dBc}$	
Clutter		$\leq -70\text{dBc}$	
Starting time		$\leq 5\text{min}$ (+25°C Atmosphere, $\pm 1 \times 10^{-6}$ )	
Working temperature		-20°C ~+70°C	
Storage temperature		-40°C ~+85°C	
Power supply		+12VDC	
Electric current		$\leq 0.5\text{A}$	
External Dimension		36mm×27mm×16mm	

External Dimension



Unit: mm

Pin Definition:

- 1: EFC
- 2: + 10Vref
- 3: POWER
- 4: 10MHz-OUT
- 5: GND