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OSA OCXO 8607
Oven Controlled Crystal Oscillator

Powered by OSCILLOQUARTZ

The 8607-B series is the second generation of OCXO's developed by Oscilloquartz using the technique of housing a state-of-the-art BVA SC-cut crystal resonator and its associated oscillator components in double oven technology. This has resulted in a significant improvement in overall frequency stability corresponding to more than 10 times better performances than any other OCXO's available on the market. The BVA itself consists of an electrodeless, SC-cut, 3rd overtone quartz crystal resonator, decoupled from its mounting structure by four rigid bridges. This unique design has resulted in substantial features by eliminating:

1. The perturbing surface contacts between electrodes and resonator
2. The contamination problems linked to ion migration in the resonator
3. The constraints in the mounting connections

Based on the production and delivery of more than 10'000 units in BVA technology, the 8607-B features enhanced performances it comes with different versions to suit a wide variety of applications.

Furthermore, the 8607-B BVA quartz crystal oscillator represents an excellent alternative to compact atomic standards.

Features

- Ultra high long term stability
- Excellent frequency stability over temperature range.
- Ultra low phase noise and outstanding short term stability
- Excellent static "g " sensitivity Benefits
- Ideal as a stand-alone reference clock with reduced calibration intervals
- Excellent immunity to temperature gradients
- Ultra-clean signal generation for frequency multiplication
- Reduced effects on phase noise characteristics
- Compatible with CCITT level 2 recommendations and
- T1X1 Stratum 2 requirements

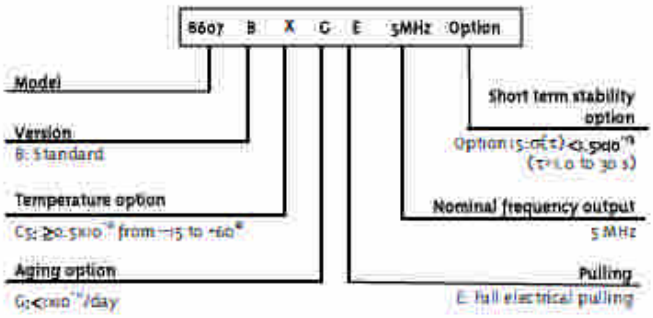
Applications

- Synchronization of digital networks and switching equipment
- Frequency distribution systems for satellite ground stations
- Radio navigation and positioning equipment
- GPS and Loran-C receivers
- Atomic fountain , Cesium and Hydrogen atomic frequency standards
- Measuring and calibration equipment
- Frequency synthesizers

Satellite communications
Very Long Base Interferometry (VLBI)

Phase noise (BW = 1 Hz)				
Frequencies	5 MHz		10 MHz	
Standard / Option L	Standard	Option L	Standard	Option L
Phase noise 1 Hz	- 125 dBc	- 130 dBc	-118 dBc	- 122 dBc
10 Hz	- 145 dBc	- 145 dBc	-137 dBc	- 137 dBc
100 Hz	- 153 dBc	- 153 dBc	-143 dBc	- 143 dBc
1'000 Hz	- 156 dBc	- 156 dBc	-145 dBc	- 145 dBc
10'000 Hz	- 156 dBc	- 156 dBc	- 145 dBc	- 145 dBc

Ordering Information



1153 Warner Ave. ● Tustin, CA 92780 ● 714-755-1050 phone ● 714-755-0175 fax
www.brandywinecomm.com info@brandywinecomm.com

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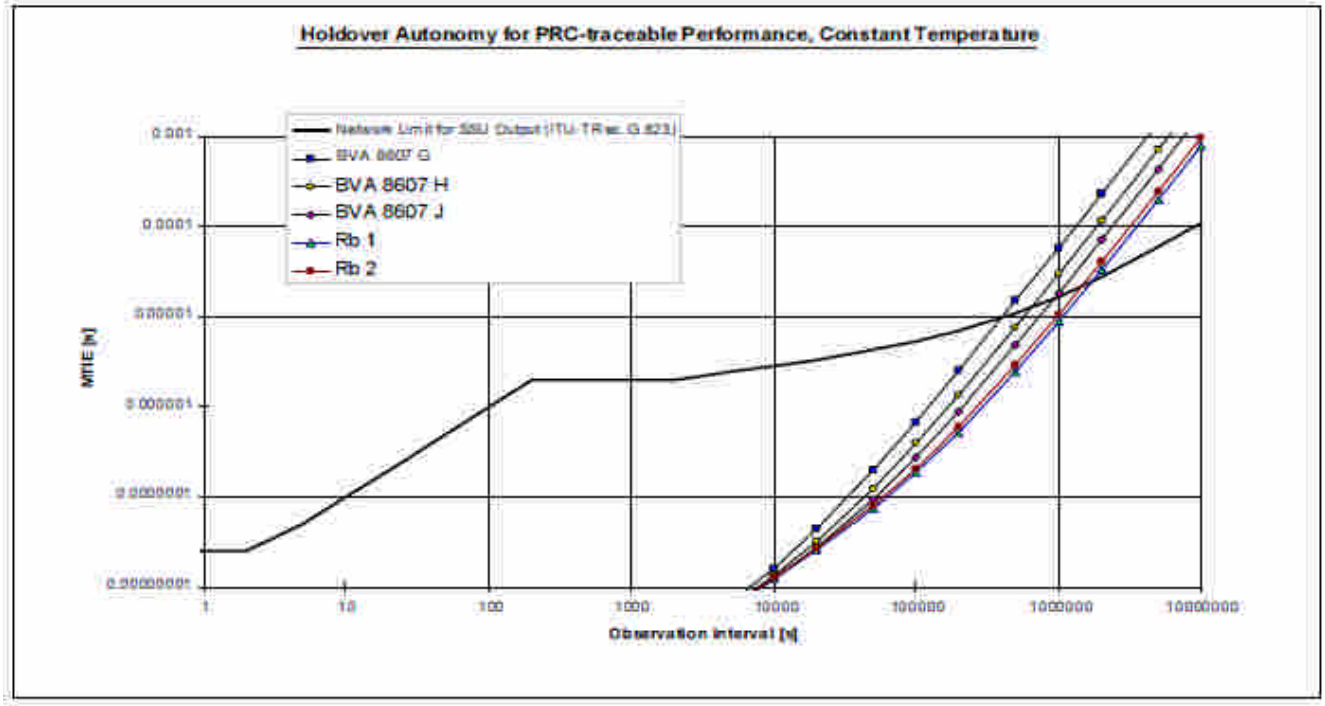

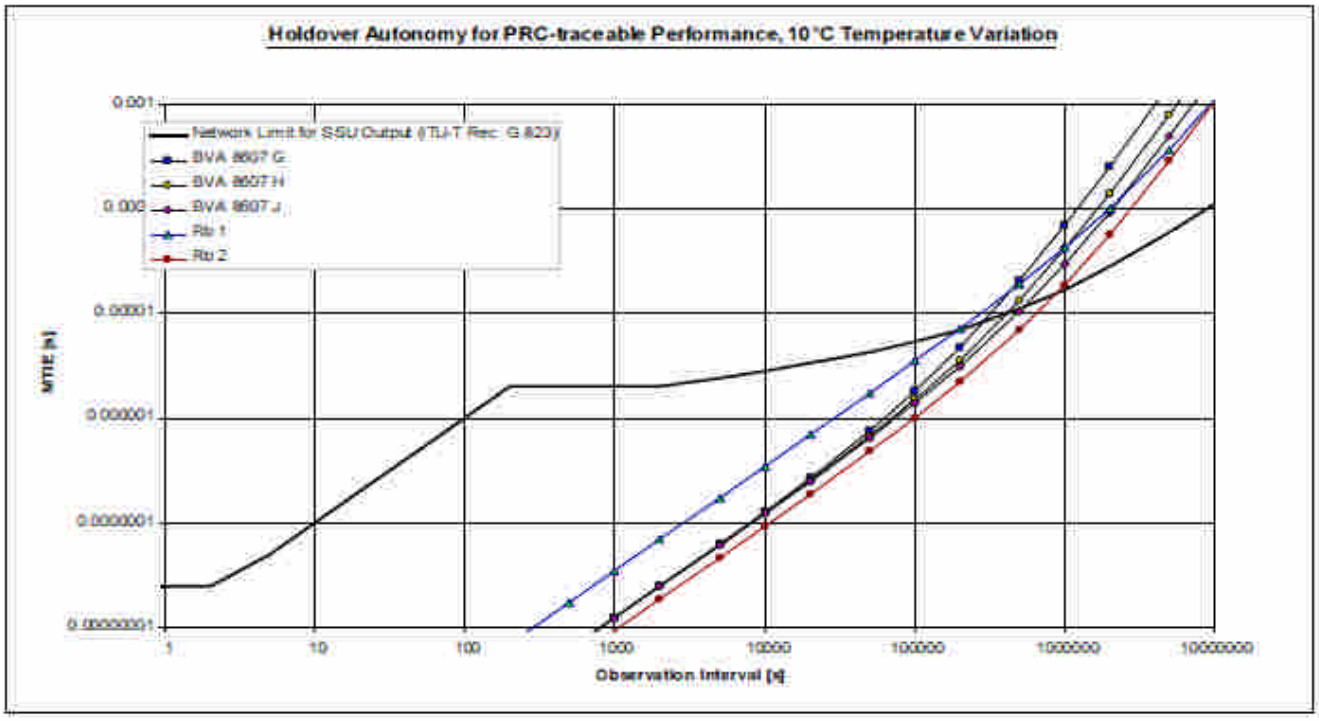

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Version	B	Option
	Standard	
Crystal resonator	SC Cut BVA technology	
Standard frequencies	5 MHz	
Optional frequency	10 MHz	
Operating temperature range (X)	-30°C to +60°C	See table
Frequency stability (Δ f/f)		
Long term stability (aging after 30 days of continuous operation)	$2x10^{-9}$/day $5x10^{-8}$/month $4x10^{-7}$/year	G: $1x10^{-11}$/day H: $5x10^{-12}$/day J: $3x10^{-12}$/day See table
Over temperature range(γ)	≤ $2x10^{-8}$ peak to peak	See table
Versus power supply	$5x10^{-11}$ (Vcc ±10%)	
Versus load changes	$2x10^{-11}$ (50Ω ±10%)	
Short term stability σ (τ)	$5x10^{-13}$ (1-30s)	Lower value : see table
g sensitivity	< $5x10^{-10}$ / g	
Frequency control range	Standard : E Full Electrical	Option : M Mechanical
Fine adjustment option E	> ± $1x10^{-7}$ < ± $1.5x10^{-7}$ by external control voltage 0 to +10 Volts	
Coarse adjustment option M	>= ± $1x10^{-7}$ by built-in 10 turn pot. with external control voltage at +5 Volts	
Fine adjustment option M	> ± $2x10^{-8}$ by external control voltage 0 to +10Volts (with built-in potentiometer centered for nominal frequency at +5 Volts)	
Output specifications	On both SMA connectors	
Wave form	Sine	
Level / Impedance	7 dBm ± 1/50Ω	
Phase noise at 5 MHz & 10 MHz (Bw= 1Hz)	See table page 1	
Harmonics	< -40 dBc	
Spurious	< -70 dBc	
Power supply		
Input voltage range (DC)	+24V DC ± 10%	
Power consumption	< 3W after warm-up at 25°C, < 10W during warm-up	
Environment		
Storage temperature	-30°C to 85°C	
Vibration	MIL STD 167-1	
Shock	30g, 11ms, 3 shocks in each direction of the main axis	
Size (LxWxH)	138 x 73 x 88 mm	
Weight	900 g	
Outline & electrical connections	See drawing page 4	

Short term stability option	Tau = 1.0 S	Tau = 3.0s — 30s	Option
Sigma Tau < 0.8 x 10^{-13} .(option valid only @ 5 MHz)	1.3 x 10^{-13}	8 x 10^{-14}	Option 08

Short term stability option	Tau = 1.0 S — 30s	Option
Sigma Tau < 2.5 x 10^{-13}	2.5 x 10^{-13}	Option 25
Sigma Tau < 2.0 x 10^{-13}	2.0 x 10^{-13}	Option 20
Sigma Tau < 1.5 x 10^{-13}	1.5 x 10^{-13}	Option 15
Sigma Tau < 1.0 x 10^{-13}	1.0 x 10^{-13}	Option 10

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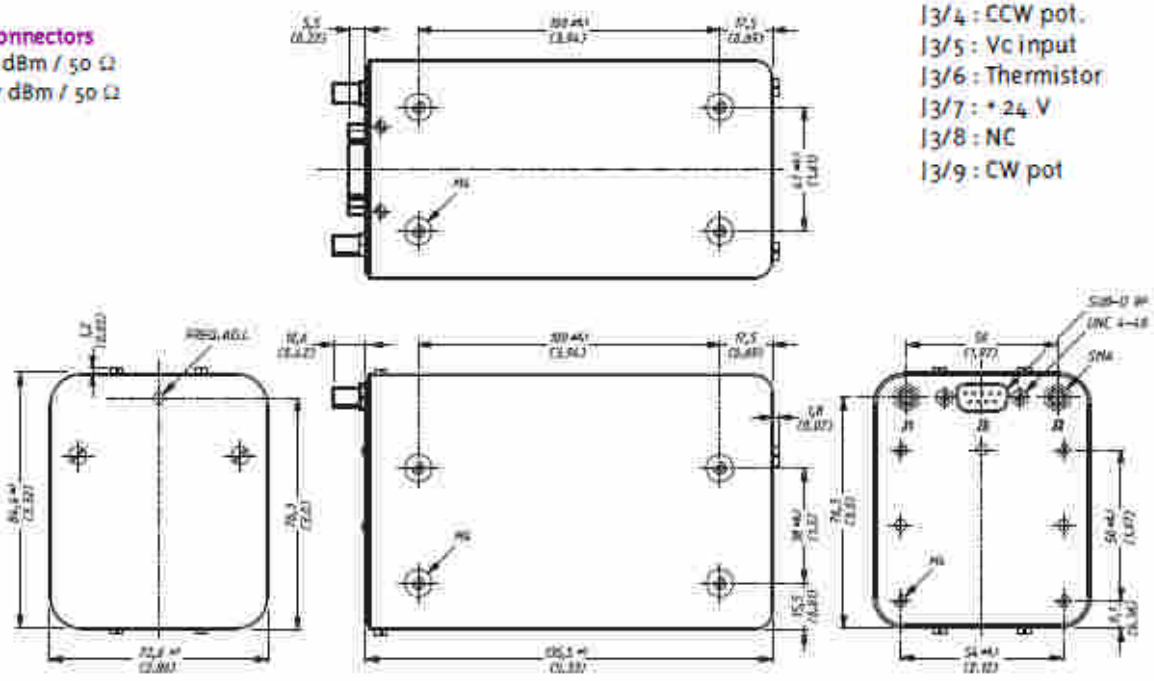
Aging				
Standard / Option	Standard	Option G	Option H	Option J
Aging per day	2×10^{-11} pp	1×10^{-11} pp	5×10^{-12} pp	3×10^{-12} pp
Aging per year	4×10^{-9} pp	3×10^{-9} pp	2×10^{-9} pp	1×10^{-9} pp
After continuous operation of	30 days	60 days	90 days	90 days

Frequency option over temperature range	Option
1×10^{-7} peak to peak from −30°C to +60° C	Option B1
1×10^{-7} peak to peak from −15°C to +60° C	Option C
0.5×10^{-7} peak to peak from −15°C to +60° C	Option C5

Outline and electrical connections (all dimensions in mm & inches)

SUB D connector
J3/1 : Thermistor
J3/2 : 0V (GND)
J3/3 : Ground
J3/4 : CCW pot.
J3/5 : Vc input
J3/6 : Thermistor
J3/7 : + 24 V
J3/8 : NC
J3/9 : CW pot

SMA connectors
J1 : + 7 dBm / 50 Ω
J2 : + 7 dBm / 50 Ω



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UNITRONIX Pty Ltd
PO Box 486, Morisset NSW 2264
NSW: Tel: 61 2 4977 3511 Fax: 61 2 4977 3522
WA: Tel: 61 8 9455 2424 Fax: 61 8 9455 2458
unitsyd@unitronix.com.au www.unitronix.com.au