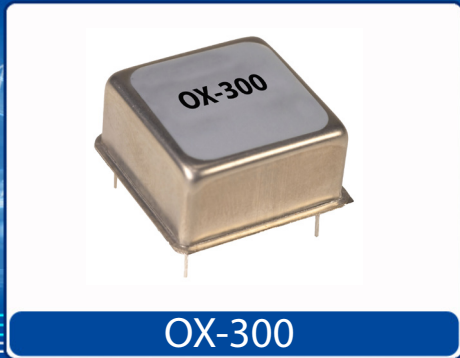


Helping Customers Innovate, Improve & Grow



Features

- Reflow Process Compatible
- SC_CUT Crystal
- Low Profile Compact Package
- standard frequency: 10 & 20 MHz

Applications

- Base stations
- Test equipment
- Synthesizers
- Military communication equipment
- Digital Switching

Performance Specifications

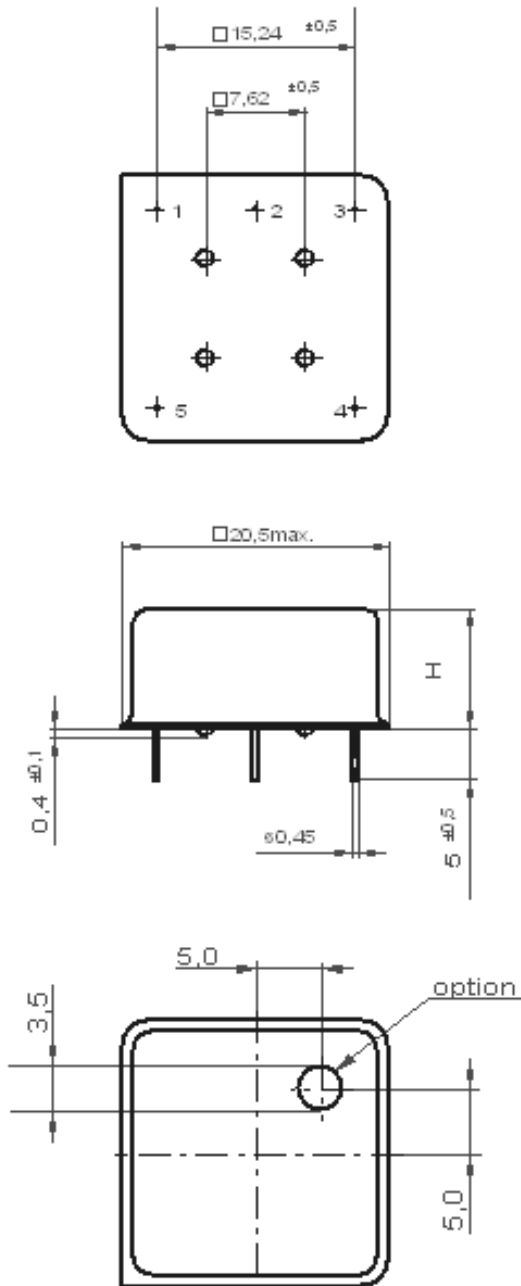
Frequency Stabilities ¹ (SC-Cut Crystal - 10 & 20 MHz)					
Parameter	Min	Typical	Max	Units	Condition
vs. operating temperature range (referenced to +25°C)	-3 -3		+3 +3	ppb ppb	-20 to +70°C --40 to +85°C
Initial tolerance	-0.2		+0.2	ppm	at time of shipment, nominal EFC
vs. supply voltage change	-2		+2	ppb	V _s ±5% static
vs. load change	-2		+2	ppb	Load ±5% static
vs. aging / day	-0.5		+0.5	ppb	@ 10 Mhz after 30 days of operation
vs. aging / day	-1		+1	ppb	@ 20 Mhz after 30 days of operation
vs. aging / year	-60		+60	ppb	@ 10 Mhz after 30 days of operation
vs. aging / year	-100		+100	ppb	@ 20 Mhz after 30 days of operation
holdover	-10		10	µsec	over 8 hours and 5°C temp jump @ T ₀
start up time					
Warm-up time			5	minutes	to ±100ppb of final frequency (1 hour reading) @ +25°C

Performance Specifications

Supply Voltage (Vs)						
Parameter	Min	Typical	Max	Units	Condition	
Supply voltage (standard)	3.135	3.3	3.465	VDC		
Power consumption			4.0	Watts	during warm-up	
			1.35	Watts	steady state @ +25°C	
RF Output						
Signal [standard]	HCMOS					
Load		15		pF		
Signal Level (Vol)			0.4	VDC	with Vs=3.3V and 15pF Load	
Signal Level (Voh)	2.4			VDC	with Vs=3.3V and 15pF Load	
rise time			5	ns		
fall time			5	ns		
Duty Cycle	45		55	%	@ (Voh-Vol)/2	
Frequency Tuning (EFC)						
Tuning Range	Fixed OCXO; No adjust					Option ³
	±0.4		±1.0	ppm	@ 10 MHz	
	±0.8		±2.4	ppm	@ 20 MHz	
Linearity	10%					
Tuning Slope	Positive					
Control Voltage Range	0.0	1.4	2.8	VDC	with Vs=3.3V	
Reference Voltage Output (Vref)						
Reference Voltage	2.75	2.8	2.85	VDC	only EFC Version Vs = 3.3 VDC	
Additional Parameters						
Phase Noise ³		-95	- 80	dBc/Hz	1 Hz	@ 10MHz
		-122	-110	dBc/Hz	10 Hz	
		-133	-130	dBc/Hz	100 Hz	
		-143	-140	dBc/Hz	1 kHz	
		-151	-145	dBc/Hz	10 kHz	
		-154	-154	dBc/Hz	100 kHz	
Weight			14	g		
Processing & Packing	Handling & Processing Note					

Absolute Maximum Ratings					
supply voltage (Vs)			5.5	V	with Vs=3.3 & 5.0VDC
Output Load			50	pF	
Operable Temperature Range	-45		+85	°C	
Storage Temperature Range	-45		+85	°C	

Outline Drawing / Enclosure



OX-300	
Height "H"	Pin Length "L"
10.0	4.5 min.

Pin Connections	
1	Supply Voltage Input (VS)
2	RF Output
3	Ground (Case)
4	Electronic Frequency Control Input (EFC)
5	N.C or Reference Voltage Option (must remain un connected)

Dimensions in mm

Standard Shipping Method (OX-300)

Enclosure Type	Method	colloums	rows	Quantity per Tray
Typ OX-300	Tray	10	5	50

Recommended solder Profile

IPC/JEDEC J-STD-020 (latest revision)

Additional Environmental Conditions

Parameter	Description
Rapid temperature changes	MIL-883-1010 Cond B 1000 cycles -55/125C
Vibration	MIL-STD-883 Meth 2007 Cond A 20G 20-2000Hz 4x in each 3axis 4 min
Shock	Mech.Shock MIL-STD-202 Meth 213 Cond.C 100G 6ms 6 shocks in each direction
Solderability	J_STD_002C Cond A, Through hole device/ Cond. B, SMD 255C (diving time 50,5sec.) Dip+Look with 8h damp pre-treatment: solder wetting >95%
Solvent resistance	MIL-STD-883 Meth 2015 Solv. 1,3,4
ESD	HBM JESD22-A114-F Class 1C 10* 1000V
Moisture Sensit.	Level 1 JESD22-A113-B
RoHS compliance	100% RoHS 6 compliant
Washable	washable device

Note: All temperatures refer to topside of the package, measured on the package body surface.

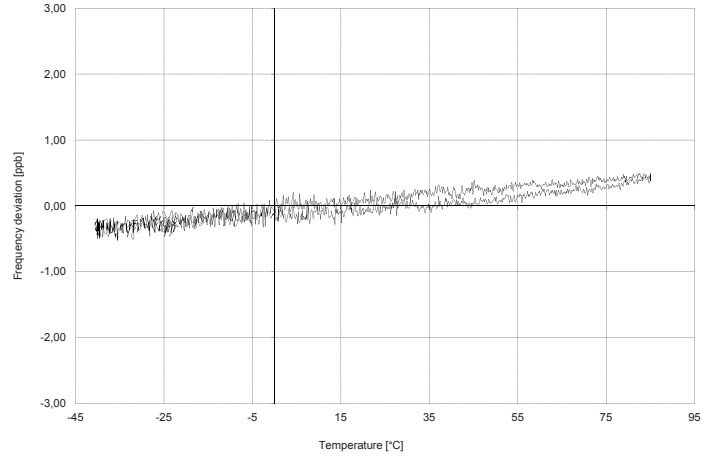
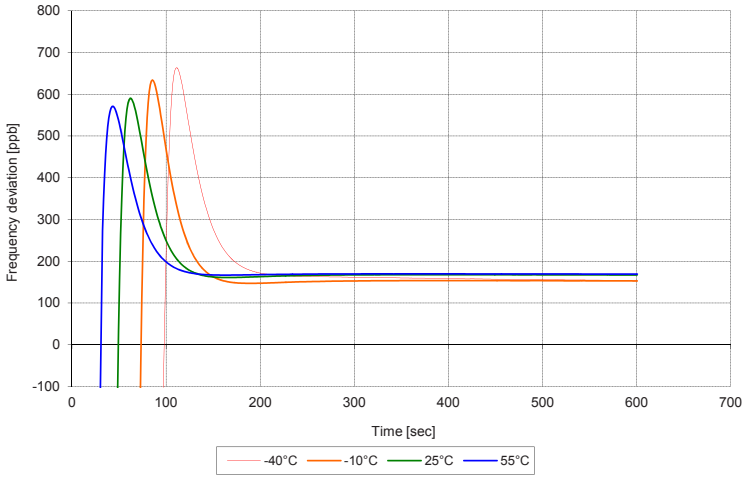
typical performance data

typical warm up

@ OX-3000-EAE-3090-10M000

typical temp stability

@ OX-3000-EAE-3090-10M000

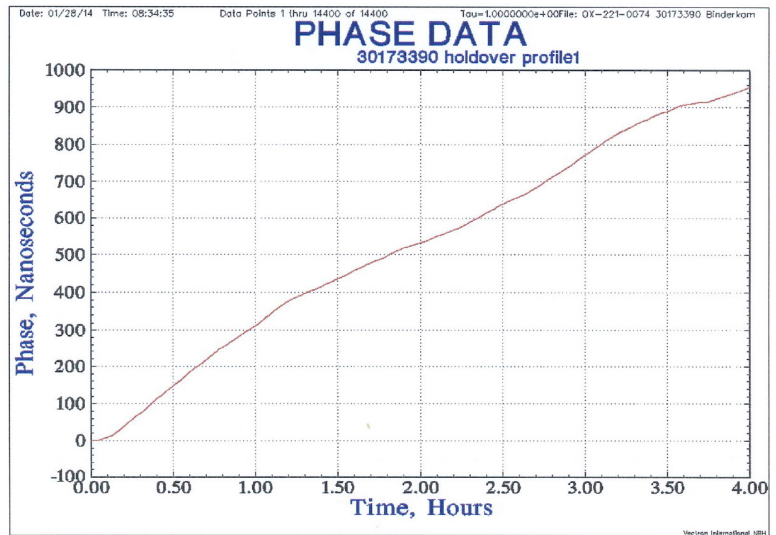
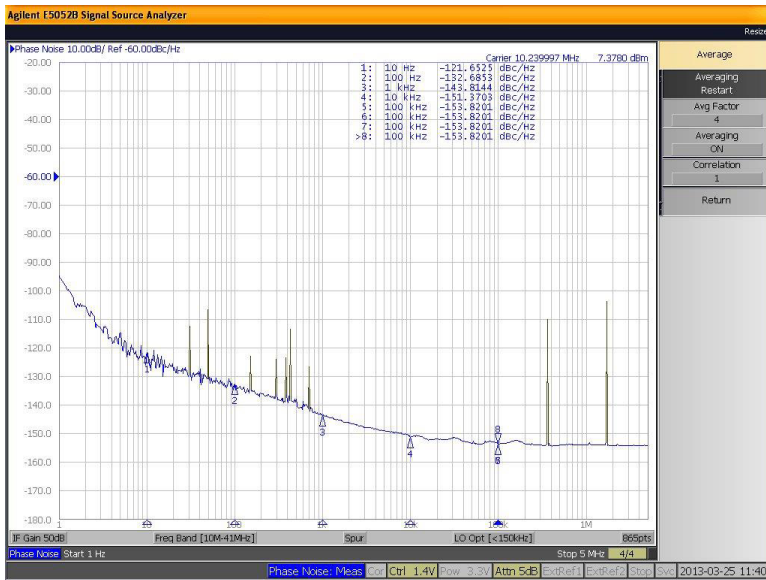


typical Phase Noise

@ OX-3000-EAE-3090-10M000

typical holdover over 4 hour +5°C temp jump

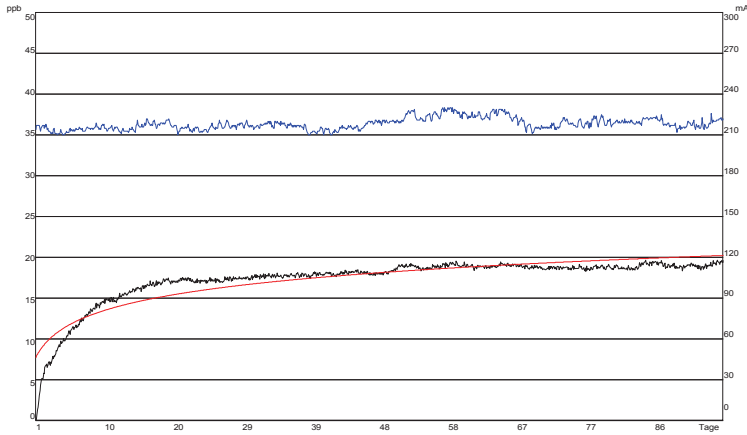
@ OX-3000-EAE-3090-10M000



typical performance data

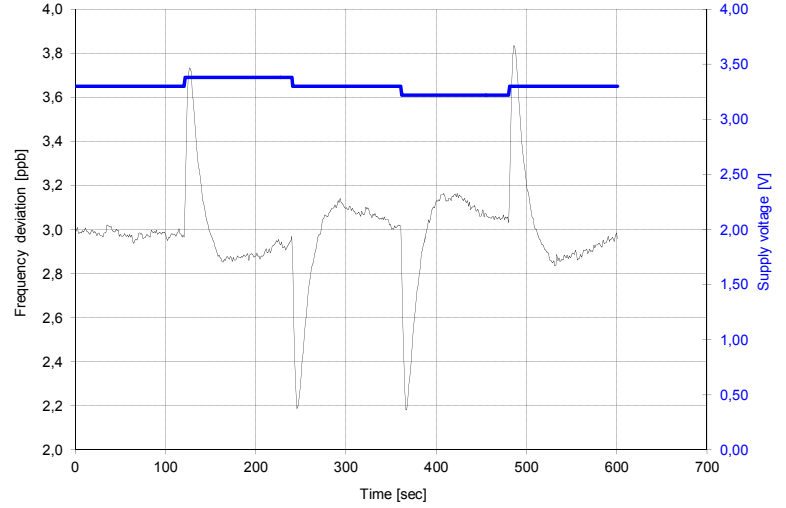
typical aging data

@ OX-3000-EAE-3090-10M000



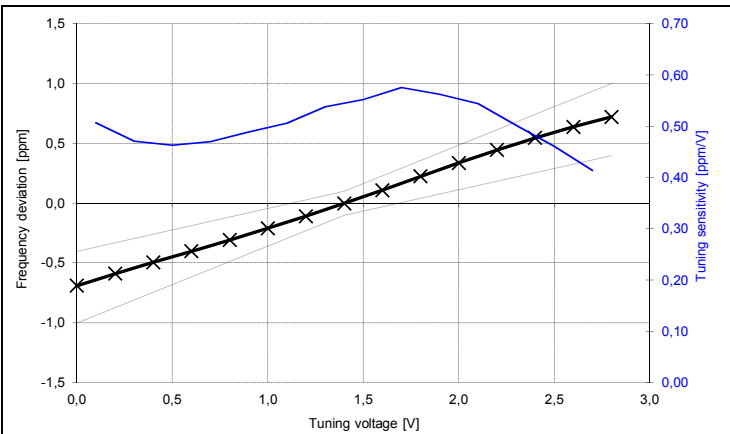
typical frequency vs. supply voltage

@ OX-3000-EAE-3090-10M000



typical frequency tuning

@ OX-3000-EAE-3090-10M000



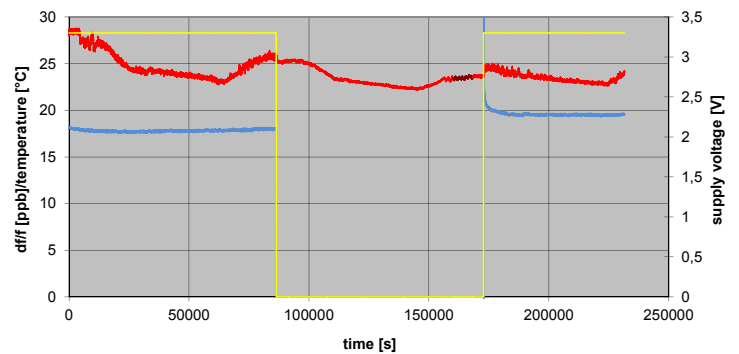
Frequency deviation [ppm]			Tuning sensitivity [ppm/V]			Non-linearity [%]
dfmin/f0	df/f0	dfmax/f0	Minimum	Average	Maximum	
-0,685	0,004	0,726	0,414	0,515	0,576	1,44

typical retrace

@ OX-3000-EAE-3090-10M000

blue: frequency yellow: supply voltage red: ambient temperature
retrace cycle: 24 h power on ; 24 h power off ; 16 h power on

OX-300-EAE-0808 typical retrace



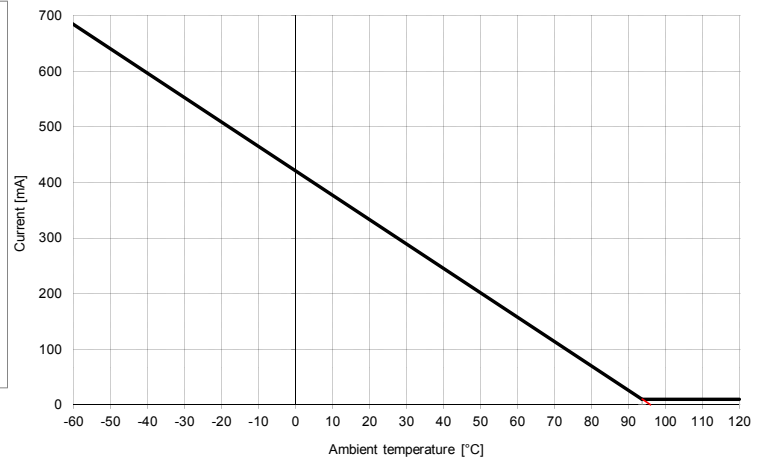
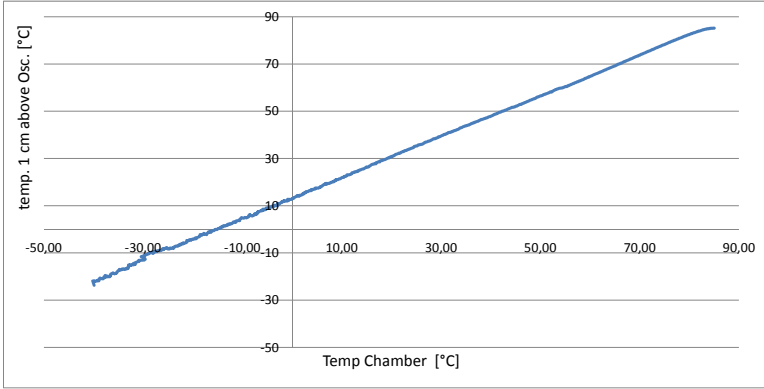
typical performance data

typical case temperature vs. outside temperature

@ OX-3000-EAE-3090-10M000

typical power consumption vs. operating temperature

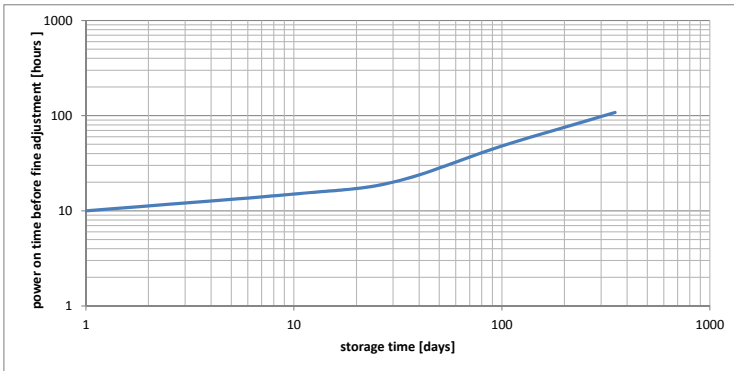
@ OX-3000-EAE-3090-10M000



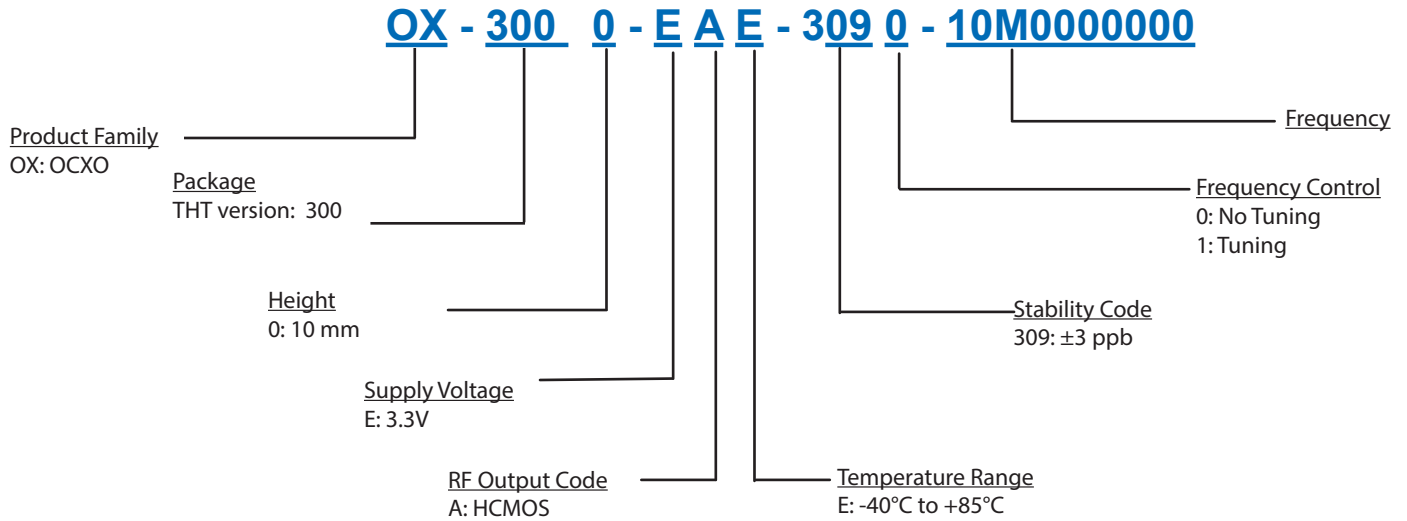
recommended power on time after x days of power off

@ OX-3000-EAE-3090-10M000

@ OX-3000-EAE-3090-10M000



Ordering Information



Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Unless other stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).
3. Phase noise degrades with increasing output frequency.
4. Subject to technical modification.
5. Contact factory for availability.

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