

Helping Customers Innovate, Improve & Grow



Features

- 4-Pin Dip
- Fast warm-up
- TCXO replacement for better short term stability
- Frequency Range, 10 MHz to 40 MHz
- Standard frequencies, 10,19.44,20,24.576,25,26,38.88, 40 MHz);

Applications

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

Performance Specifications

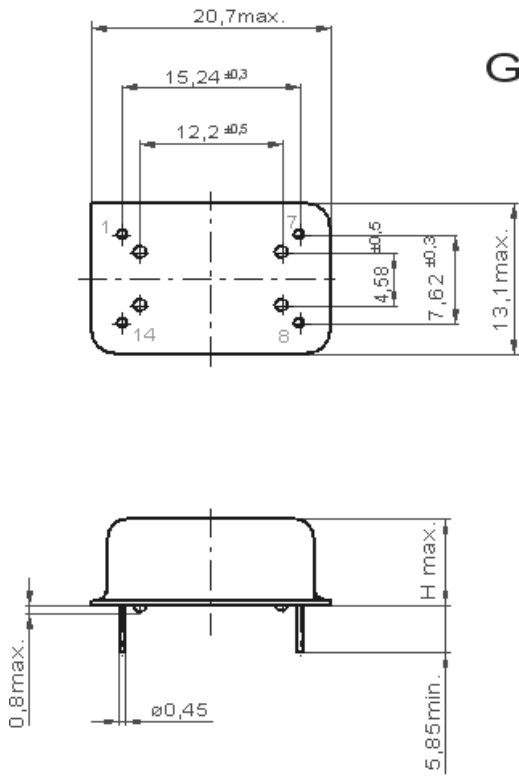
Frequency Stabilities ¹ (SC-Cut Crystal 10 to 40 MHz)					
Parameter	Min	Typical	Max	Units	Condition
vs. operating temperature range (referenced to +25°C)	-5		+5	ppb	-20 to +70°C
	-10		+10	ppb	-20 to +70°C
	-5		+5	ppb	-40 to +85°C
	-10		-10	ppb	-40 to +85°C
	-10		-10	ppb	-40 to +95°C
Initial tolerance	-0.2		+0.2	ppm	at time of shipment, nominal EFC
vs. supply voltage change	-10		+10	ppb	V _s ±5% static
vs. load change	-10		+10	ppb	Load ±5% static
vs. aging / day	-1.0		+1.0	ppb	after 30 days of operation
vs. aging / year	-100		+100	ppb	after 30 days of operation
vs. aging / 10 years	-1000		+1000	ppb	after 30 days of operation
hold over					
start up time					
Warm-up time			3	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	
	4.75	5.0	5.25	VDC	
Power consumption			2.5	Watts	during warm-up
			1.0	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 (Vol)			0.5		with Vs=5.0V and 15pF Load
Signal Level (Voh)	2.4			VDC	with Vs=3.3V and 15pF Load
Signal Level (Voh)	3.5				with Vs=5.0V 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				Opti- on ^s
	±1.0		±3	ppm	
Linearity	10%				
Tuning Slope	Positive				
Control Voltage Range	0.0	1.4	2.8	VDC	with Vs=3.3V
	0.0	2	4.0	VDC	with Vs=5.0V
Additional Parameters					
Phase Noise ³		-85 -121 -140 -152 -155		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	1 Hz 10 Hz 100 Hz 1 kHz 10 kHz
Weight			8.0	g	@ 20MHz
Processing & Packing	Handling & Processing Note				
Absolute Maximum Ratings					
supply voltage (Vs)			5.5	V	with Vs=3.3 & 5.0 VDC
Output Load			50	pF	
Operable Temperature Range	-45		+85	°C	
Storage Temperature Range	-45		+85	°C	

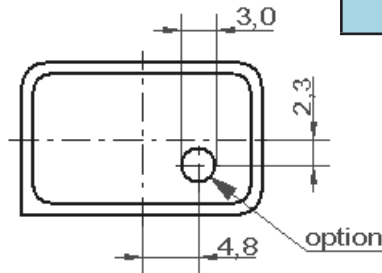
Outline Drawing / Enclosure

G 125

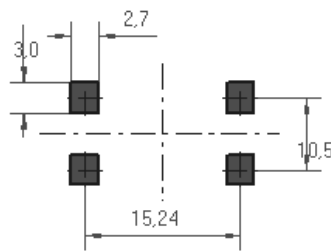
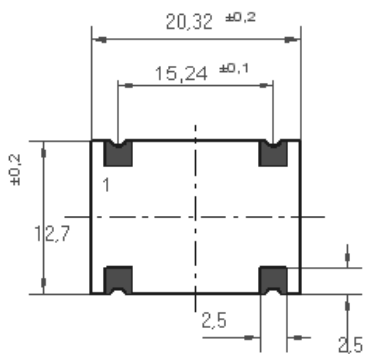
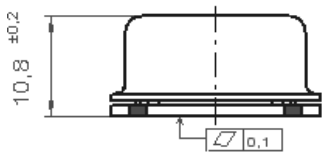
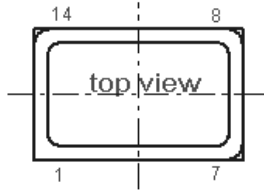


OX-400	
Height "H"	Pin Length "L"
8.5	5.85min.

Pin Connections	
1	Electronic Frequency Control Input (EFC)
7	Ground (Case)
8	RF Output
14	Supply Voltage Input



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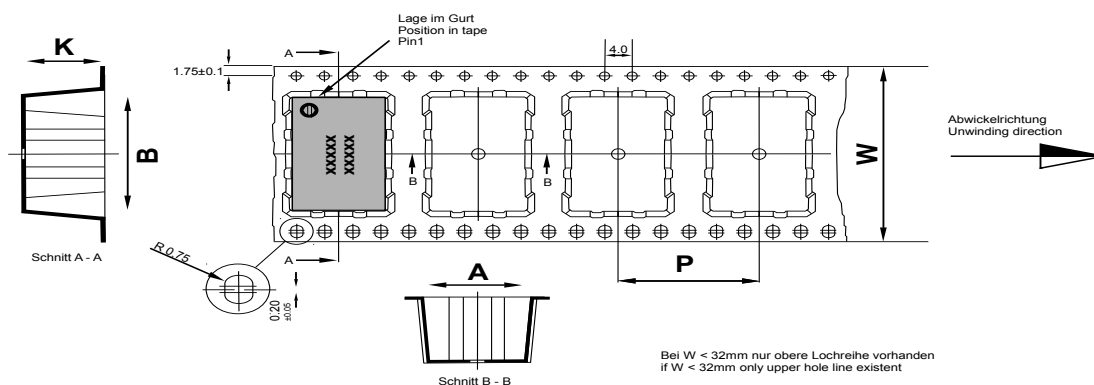
Padvorschlag
PCB Layout

OX-401	
Height "H"	Pin Length "L"
10.8	N/A

Pin Connections	
1	Electronic Frequency Control Input (EFC)
7	Ground (Case)
8	RF Output
14	Supply Voltage Input

Dimensions in inches mm

Standard Shipping Method (OX-401)



Maßangaben in mm: A, B und K Maße von Bauelement abhängig Fertigungstoleranzen entsprechen der DIN IEC 286-3	Dimension in mm: A, B und K are dependent upon component dimensions production tolerance complying DIN IEC 286-3
All dimensions in millimeters unless otherwise stated	

Enclosure Type	Tape Width W (mm)	Quantity per meter	Quantity per reel	Dimension P
Typ OX-401	44	50	300	20

Standard Shipping Method (OX-400)

Enclosure Type	Method	columns	rows	Quantity per Tray
Typ OX-400	Tray	10	8	80

Recommended Reflow Profile

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

Additional Information:

This SMD oscillator has been designed for pick and place reflow soldering.

SMD oscillators must be on the top side of the PCB during the reflow process.

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	JESD22-B104-B 100G 1,5ms 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-E Class 2 10* 2000V
Moisture Sensit.	Level 1 JESD22-A113-B
RoHS compliance	100% RoHS 6 compliant
Washable	washable device

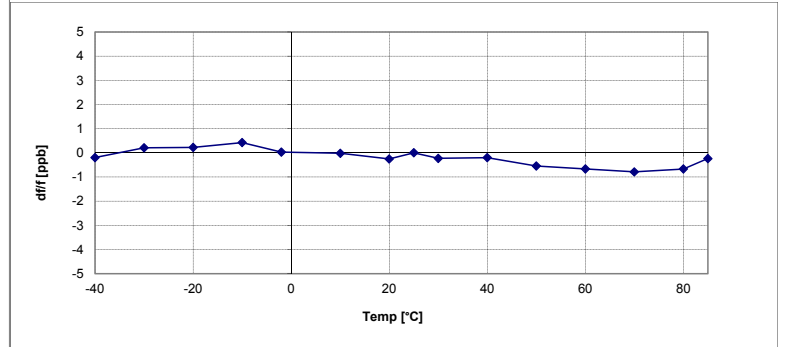
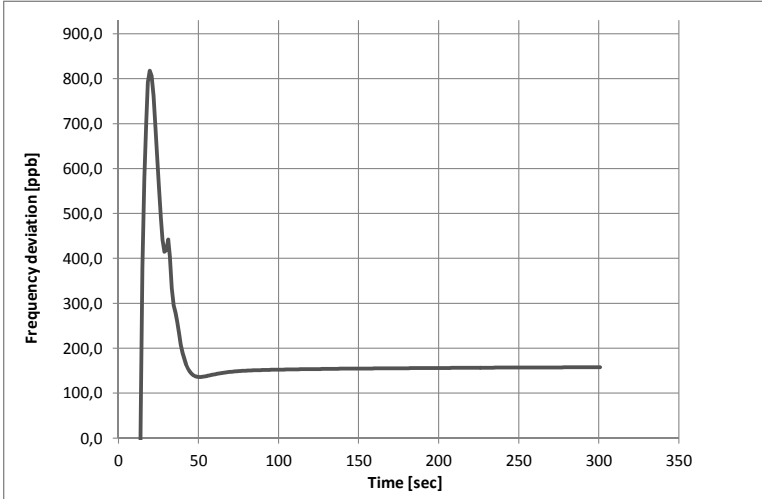
typical performance data

typical warm up

@ OX-400-EAE-1080-20M000

typical temp stability

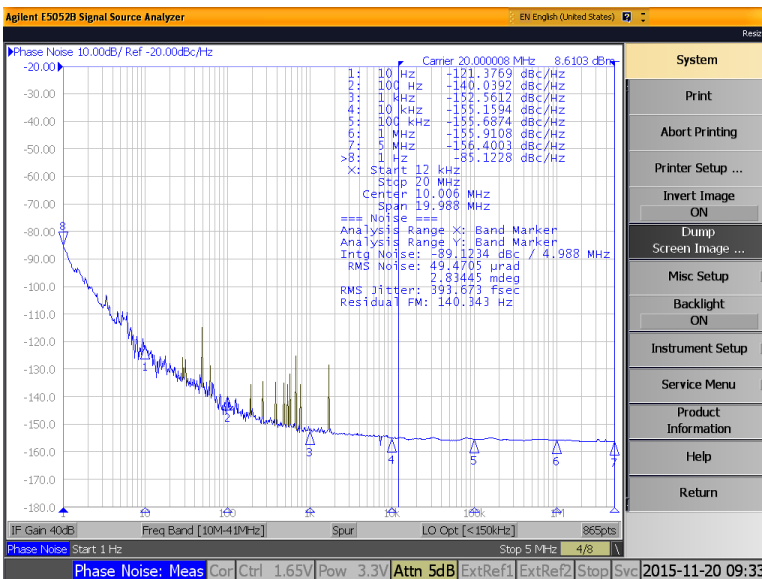
@ OX-400-EAE-1080-20M000



typical Phase Noise

@ OX-400-EAE-1080-20M000

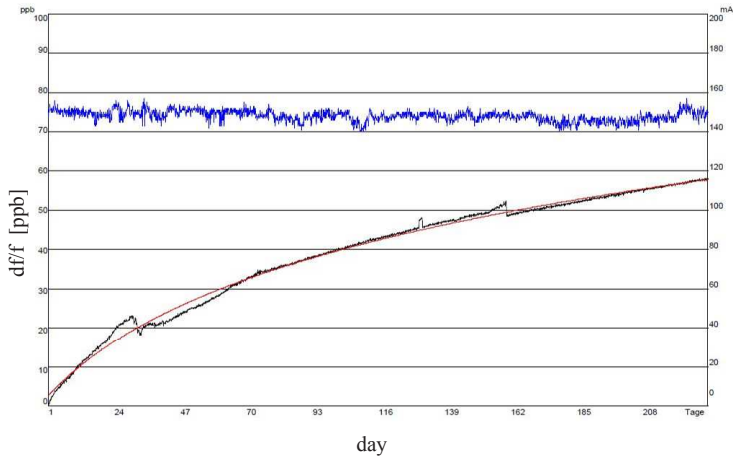
@ OX-400-EAE-1080-20M000



typical performance data

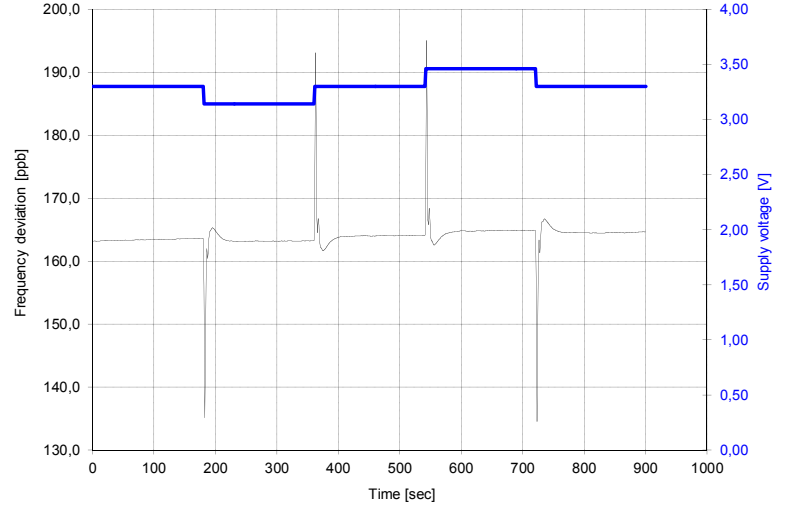
typical aging data

@ OX-400-EAE-1080-20M000



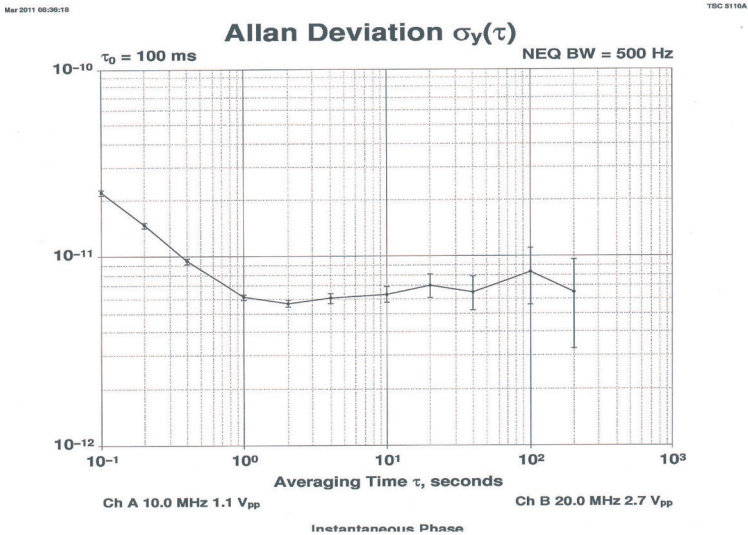
typical frequency vs. supply voltage

@ OX-400-EAE-1080-20M000



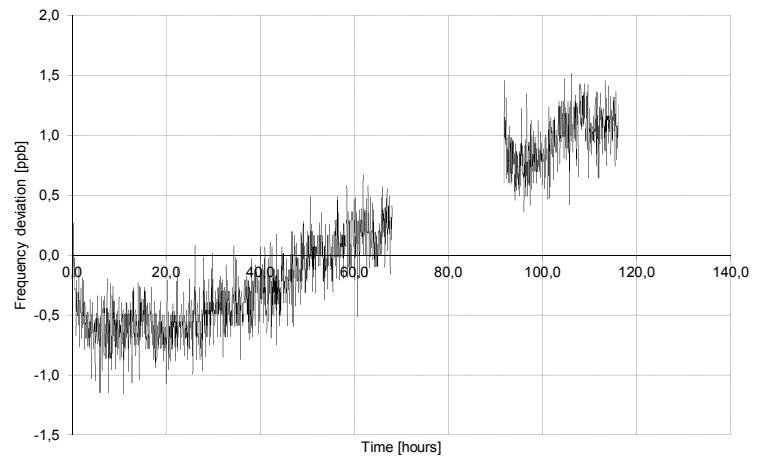
typical ADEV

@ OX-400-EAE-1080-20M000



typical retrace

@ OX-400-EAE-1080-20M000



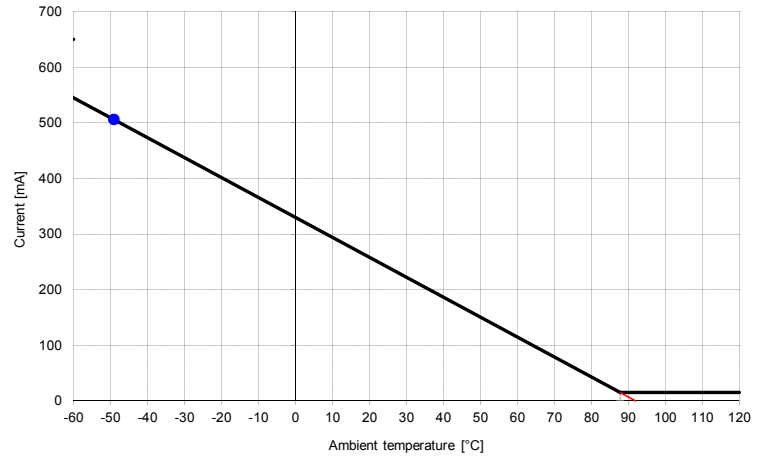
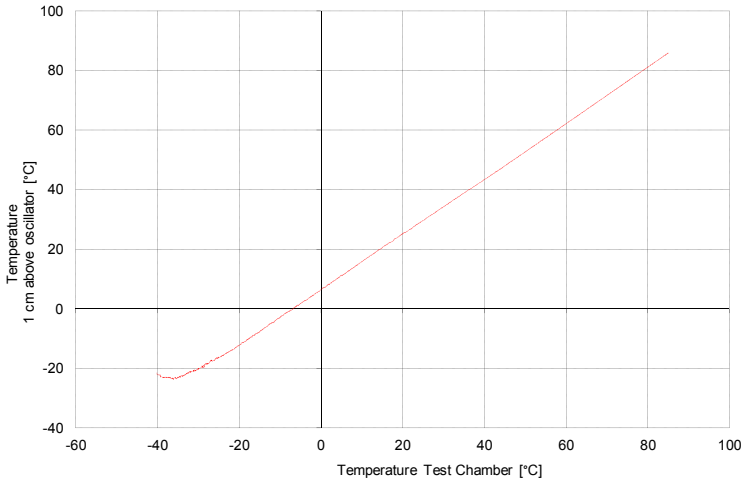
typical performance data

typical case temperature vs outside temperature

@ OX-400-EAE-1080-20M000

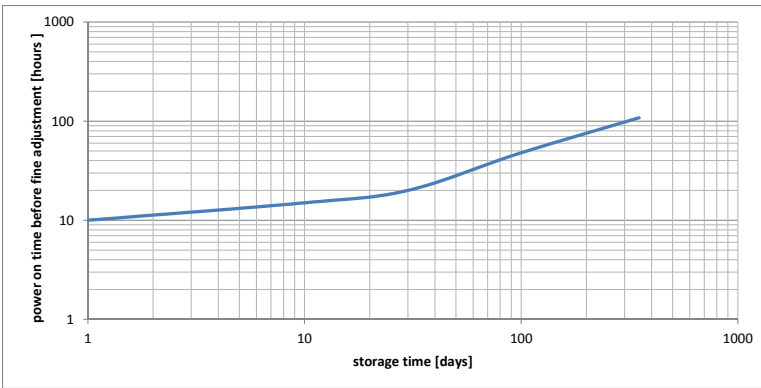
typical power consumption vs operating temperature

@ OX-400-EAE-1080-20M000



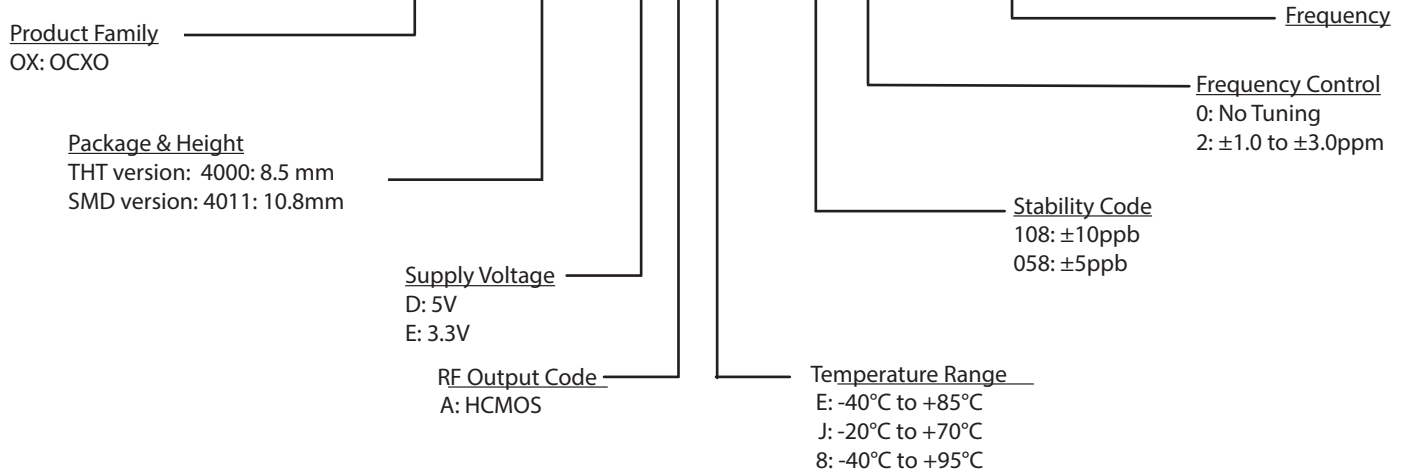
recomended power on time after x days of power off

@ OX-400-EAE-1080-20M000



Ordering Information

OX - 4000 - D A E - 108 0 - 10M0000000



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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