FCD-Tech

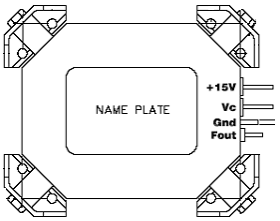
PACKAGED OCXO

Datasheet

AXIOM260 — OCXO WITH LOW PHASE NOISE UNDER VIBRATION

FEATURES

- Packaged holder with vibration absoption
- Low Phase Noise under Vibration
- Sine Wave output, typical +13 dBm (R 50Ω)
- Frequency: 100 & 120 MHz
- Optional Screening to MIL-PRF-55310



Parameter	min.	typ.	max.	Unit	Condition
Nominal frequencies		100.000 / 120.000		MHz	
Frequency stability					
Initial tolerance at delivery		± 10	± 50	ppb	@+25°C
vs. temperature in operating temperature range			± 50	ppb	-20°C~+70°C
vs. supply voltage variation			± 0.5	ppb	V_S ± 5%
vs. load change			± 0.5	ppb	R_L ± 10%
Long term (aging) per day			± 2	ppb/day	
Long term (aging) 1st year			± 50	ppb	
Long term (aging) following 9 years			± 200	ppb	
Frequency adjustment range					
Electronic Frequency Control (EFC)		N.A.			
RF output					
Signal waveform		Sine wave			
Load R_L		50		Ω	
Output level	+ 12	+13	+14	dBm	
Harmonics			-35	dBc	
Spurious			-80	dBc	
Warm-up time @+25°C			20	min	$\Delta f/f_0 < \pm 1$ ppb
Phase noise under rest @ 100 MHz			-100	dBc/Hz	@ 10 Hz
			-130	dBc/Hz	@ 100 Hz
			-153	dBc/Hz	@ 1 kHz
			-160	dBc/Hz	@ 10 kHz
			-165	dBc/Hz	@ 100 kHz
Phase noise under random vibration				dBc/Hz	Note 3
Short term stability (Allan deviation)		$1 \cdot 10^{-10}$			@ τ = 1 sec, under rest
G-sensitivity		$1 \cdot 10^{-10}$			Note 4
Supply voltage V_S	11.4	12	12.6	V	
Current consumption (steady state)		350		mA	@ +25°C
			450	mA	@ -20°C
Current consumption (warm-up)			800	mA	
Operable temperature range	-30		+75	°C	
Storage temperature range	-40		+85	°C	
Enclosure		see drawing		mm	
Weight		40		gram	
Finish		Electroless Ni			
Inspection to MIL-PRF-55310 (optional)		Screening			See Note 2

Notes:

1. Terminology and test conditions are according to IEC standard IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Classification (MIL-PRF55310): Type 4 (OCXO), Class 1 (discrete technology), Product level B, see order code and page 4
3. Phase noise under random vibration depends on the vibration profile and level. Please consult factory
4. Overall G-sensitivity is a function of vibration frequency. Roll-off above 200 Hz.

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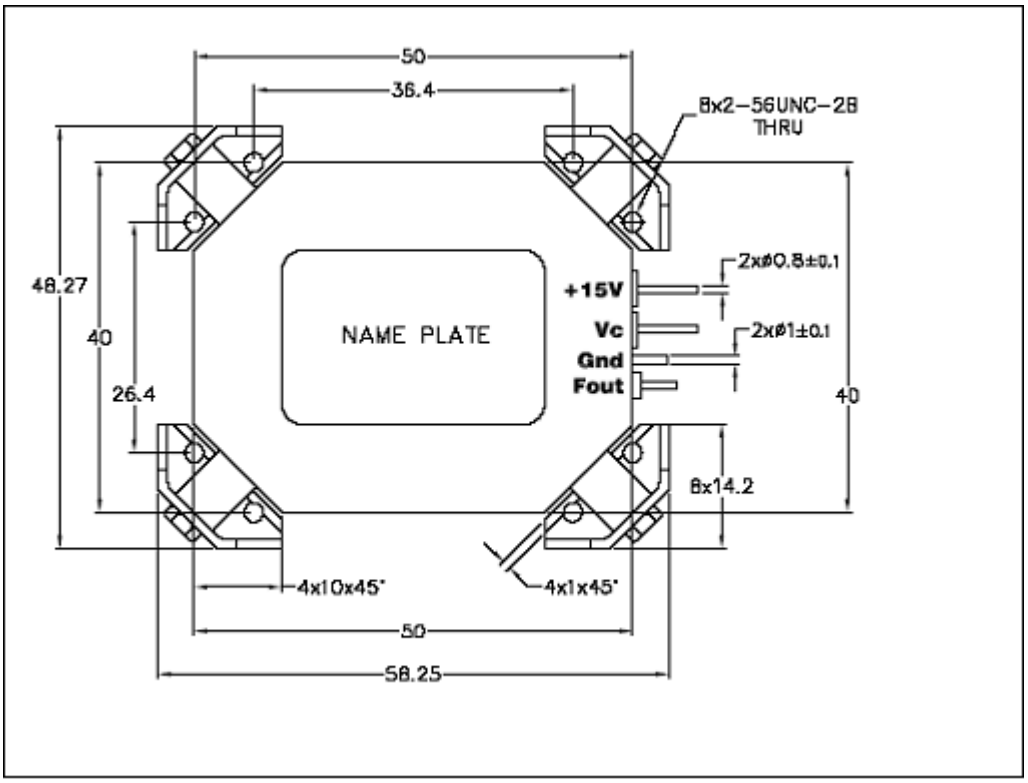
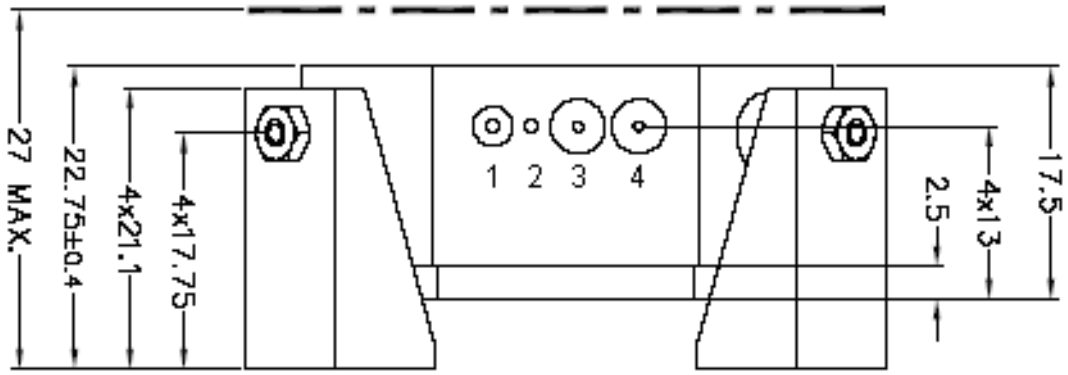
Enclosure drawing





Environmental conditions

Test	IEC 60068 Part ...	IEC 60679-1 clause ...	Test conditions
Sealing tests	2-17	4.6.2	Gross leak: Test Qc
Solderability Resistance to soldering heat	2-20 2-58	4.6.3	Test Ta (235 ± 5)°C Method 1 Test Tb Method 1A, 5s
Shock*	2-27	4.6.8	Test Ea, 3 x per axes 100g, 6 ms half-sine pulse
Vibration, sinusoidal*	2-6	4.6.7	Test Fc, 30 min per axes, 10 Hz - 55 Hz 0,75mm; 55 Hz - 2 kHz, 10g
Endurance tests - ageing - extended aging		 4.7.1 4.7.2	 30 days @ 85°C, OCXO @25°C 1000h, 2000h, 8000h @85°C

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Ordering Code

Model (Specification)	Screening Option	Frequency [MHz]
AXIOM260	_ (blank) : no screening B : screening level B	100.000

Example: AXIOM260 – 100.000 MHz (no screening)
AXIOM260-B-100.000MHz (with screening Level B)

Test conditions

Test	Conditions	Limits
Pre aging	MIL-PRF-55310	≥ 7 days continuous operation Frequency measurement once per hour
Electrical tests (100 %)		
Output frequency	IEC 60679-1	< ± 50 ppb @ 25°C
Output level	IEC 60679-1	(+12<+13<+14) dBm
Harmonics	IEC 60679-1	< -35 dBc
Spurious	IEC 60679-1	< -80 dBc DC to 1.6 GHz
Phase noise	IEC 60679-1	< -65 dBc/Hz @ 1 Hz < -100 dBc/Hz @ 10 Hz < -130 dBc/Hz @ 100 Hz < -153 dBc/Hz @ 1 kHz < -160 dBc/Hz @ 10 kHz
Short term stability	IEC 60679-1	ADEV $1 \cdot 10^{-10}$ typ. @ τ = 1 sec
Acceleration sensitivity	IEC 60679-1, 2G tip over	1 ppb/G typ. each axis
Current consumption warm-up	IEC 60679-1	< 800 mA
Current consumption steady state	IEC 60679-1	350 mA typ. @ +25°C < 450 mA @ -35°C
Frequency stability vs. supply voltage variation	IEC 60679-1	< ± 0.5 ppb @ V_S ± 5 %
Frequency stability over operating temperature range	IEC 60679-1	< ± 10 ppb over -35°C to +75°C
Current consumption warm-up	IEC 60679-1	< 800 mA
Warm-up time @ +25°C @ -35°C	IEC 60679-1	< 20 min for Δf/f0 < ±1 ppb < 20 min for Δf/f0 < ±10 ppb compared to 1 hour operation
Seal test (100%)		
Gross leak test	MIL-STD-202, Meth. 112, Cond. D	No bubbles

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Screening Product Level B (Optional)

Test	Conditions	Limits
Thermal shock	MIL-STD-202, Method 107, Condition A-1	25 cycles -55°C to +85°C
Electrical test #1 (100 %)		
Output frequency	IEC 60679-1	< ± 50 ppb @ 25°C
Output level	IEC 60679-1	(+12<+13<+14) dBm
Current consumption steady state	IEC 60679-1	350 mA typ. @ +25°C < 450 mA @ -35°C
Burn-in test (100%)		
Active Burn-In	MIL-PRF-55310 Table II Product Level B	@+85°C over 160 hours minimum supply voltage V_S = +15 V burn-in load 50 Ω
Electrical test #2 (100 %)		
Output frequency	IEC 60679-1	< ± 50 ppb @ 25°C
Frequency change vs. #1	IEC 60679-1	
Output level	IEC 60679-1	(+12<+13<+14) dBm
Current consumption steady state	IEC 60679-1	350 mA typ. @ +25°C < 450 mA @ -35°C
Seal test (100%)		
Gross leak test	MIL-STD-202, Meth. 112, Cond. D	No bubbles

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