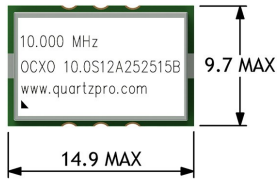
RoHS COMPLIANT

DETAILED SPECIFICATION FOR OCXO PART # OCXO40.0C33A151007B

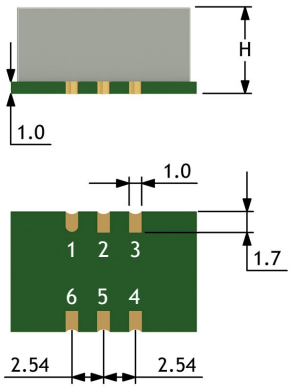
KEY FEATURES

- ☑ *f* 40.000 MHz
- ☑ 15x10x7 MM PACKAGE
- ☑ SMALL SMD WITH 6 PADS
- ☑ 3.3 V SUPPLY VOLTAGE
- ☑ CMOS OUTPUT



DESCRIPTION

Small SMD with 6 pads. Wide temperature range. Fixed frequency output.



DETAILED SPECIFICATION ▶ ELECTRICAL

1. POWER SUPPLY CHARACTERISTICS (pad 6)

Item	Parameter	Condition	Min.	Typ.	Max.	Unit	Note
1.1	Supply voltage input		3.135	3.3	3.465	V	
1.2	Supply current at power on	at 25˚C			800 / 2.8	mA / W	
1.3	Supply current at steady state	at 25˚C			300 / 1.0	mA / W	In still air 5 min after power on
1.4	Supply current at steady state	at Min T				mA / W	In still air 5 min after power on
1.5	Supply current at steady state	at Max T				mA / W	In still air 5 min after power on

2. CONTROL VOLTAGE INPUT

2.1	Transfer slope			Positive			
2.2	Input impedance					kohm	
2.3	Min frequency	@ Vc min				ppm	Vc min = 0V
2.4	Nom frequency	@ Vc nom				ppb	Vc nom = 2.0 V
2.5	Max frequency	@ Vc max				ppm	Vc max = 4.0 V
2.6	Tuning sensitivity					ppb/mV	
2.7	Tuning linearity					%	Deviation from a straight line fit

3. TEMPERATURE

			Min T		Max T		
3.1	Temperature range	operating	-40		+85		Deg C
3.2	Temperature range	storage	-55		+105		Deg C

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4A. OUTPUT SIGNAL FOR HCMOS, LVCMOS, CMOS (pad 4)

Item	Parameter	Condition	Min.	Typ.	Max.	Unit	Note
4.1	Load			15		pF	
4.2	Output Level	VOH / VOL	> 2.4		< 0.3	V	
4.3	Duty Cycle		45		55	%	
4.4	Rise / Fall time				< 5	ns	

4B. OUTPUT SIGNAL FOR SINEWAVE (pad 4)

4.5	Output Level	Sinewave				dBm	Load 50 ohm
4.6	Harmonics					dBc	
4.7	Non harmonics					dBc	

4.8 Short term stability Frequency domain, Phase Noise L(f)

4.8.1	Phase Noise @ offset frequency	1 Hz			-65	dBc / Hz	1 h after power on and still air
4.8.2	Phase Noise @ offset frequency	10 Hz			-95	dBc / Hz	1 h after power on and still air
4.8.3	Phase Noise @ offset frequency	100 Hz			-120	dBc / Hz	1 h after power on and still air
4.8.4	Phase Noise @ offset frequency	1KHz			-135	dBc / Hz	1 h after power on and still air
4.8.5	Phase Noise @ offset frequency	10KHz			-145	dBc / Hz	1 h after power on and still air
4.8.6	Phase Noise @ offset frequency	100KHz			-150	dBc / Hz	1 h after power on and still air

4.9 Short term stability Time domain, Allan Deviation sy(t)

4.9.1	Sample time (τ)	0,1s					1 h after power on and still air
4.9.2	Sample time (τ)	1.0s			< $5 \cdot E^{-11}$		1 h after power on and still air
4.9.3	Sample time (τ)	10s					1 h after power on and still air
4.9.4	Sample time (τ)	100s					1 h after power on and still air

5. FREQUENCY CHARACTERISTICS

5.1	Stability vs temperature	Min T/ Max T	-50		+50	ppb p-p	External Vc connected
5.2	Calibration accuracy	at 25˚C and Vc nom	-200		+200	ppb	At delivery, 30 min after power ON
5.3	Frequency retrace *	15 min after Power On				ppb	Value 15 min after power ON compared to frequency prior to power OFF
5.4	Warm up time	at Vc Nom and 25˚C			5	min	< ±50 ppb from final freq. after PO for 1hour
5.5	Long term stability (aging)	Per day	-2		+2	ppb	After 30 days of continues operation At 25˚C
5.6	Long term stability (aging)	First year	-300		+300	ppb	After 30 days of continues operation At 25˚C
5.7	Long term stability (aging)	After first year	-150		+150	ppb	After 30 days of continues operation At 25˚C
5.8	Start up time	At 25˚C and Vc nom				s	From power on to 67 % of V out
5.9	Load change	Cl ± 5%	-5.0		+5.0	ppb	
5.10	Vcc change	Vcc ± 5%	-5.0		+5.0	ppb	

* Retrace test precondition Power ON 24 h Power OFF 24 h and Vc nom and 25˚C.

6A. REFERENCE VOLTAGE

6.1	Reference Voltage					V	

6B. OVEN ALARM

6.2	High level					V	Oven is ready (steady state)
6.3	Low level					V	Oven is warming up

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DETAILED SPECIFICATION ▶ENVIRONMENTAL

7. VIBRATION IEC 60068-2-6 Fc

Line	Description	Parameter	Condition	Units	Notes
7.1	Type and frequency range	Sinewave 10 - 500 Hz			
7.2	Sweep parameters	Amplitude 10 - 55 Hz	0.75	mm	
7.3	Sweep parameters	Acceleration 55 - 500 Hz	10	g	
7.4	Sweep rate and direction	1 octave / minute = 6 minutes	up / down = 12	min	
7.5	Direction and number of sweeps	x,y and z	10		
7.6	Duration	6 min x 2 sweeps x 10 sweeps	120 x 3 = 360	min	
7.7	Type and frequency range	Sinewave 10 - 500 Hz			

8. SHOCK IEC 60068-27 Ea

8.1	Pulse waveform	Half sine	40 (peak)	g	
8.2	Puls length		11	ms	
8.3	Direction, sign and number of shocks	x,y and z	5 pos & 5 neg		In each 6 directions

9.TEMPERATURE CYCLING IEC 60068-2-14 Na

9.1	Low temperature		-40	Dec C	
9.2	High temperature		+85	Dec C	
9.3	Transition time		2 - 3	min	
9.4	Exposure time	Time in each temperarture	10	min	
9.5	Number of cycles		5		

10. ADDITIONAL INFORMATION

10.1	Soldering	No clean solder and hand soldering recommended.
10.2	Cleaning	Possible
10.3	ESD	Parts are sensitive to Electro Static Discharge. Please use normal ESD precautions.

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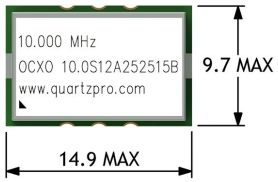
DETAILED SPECIFICATION ▶MECHANICAL

11. LABEL MARKING

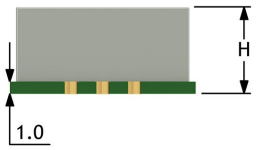
Line 1, Frequency, Cut	in MHz Ex. X10.000SC
Line 2, Part number	Part number
Other information on request.	Other information on request.

◣Triangle in corner designates pin 1

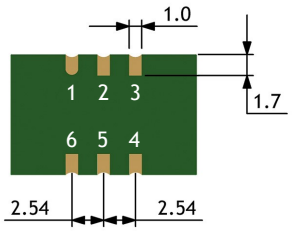
Top view



Side view



Bottom view



12. PIN / PAD ASSIGNMNET

Pin / Pad	Function	Assignment
1	NC	NC
2	NC	NC
3	Ground	Gnd
4	Output signal	Out
5	NC	NC
6	Supply Voltage	V_{cc}

13. MECHANICAL DIMENSIONS

Height options	Total height h (mm)
H	7.0 MAX

14. REVISION HISTORY

	Date	Description
14.1	2009.02.06	First issue
14.2	2014.08.15	New detailed datasheet
14.3		
14.4		
14.5		
14.6		

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS

TITLE OCXO151007

	NAME	SIGN.	DATE	TOLERANCES		DWG NO.	OCXO151007
DRAWN	Vikram Singh	VS	2009.02.02	MATERIAL A		REV.	0.1
CHK'D	Anders Aven	AA	2009.02.03	MATERIAL B			
APPV'D	Anders Olsen	AO	2009.02.03	WEIGHT	GR		
NOTE							SHEET 1 OF 1

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