

O-LU2S5-XTYZXX-X- XX.XXX MHz
Ultra Precision Ultra Low Power Consumption
OCXO in 20x20 mm Package

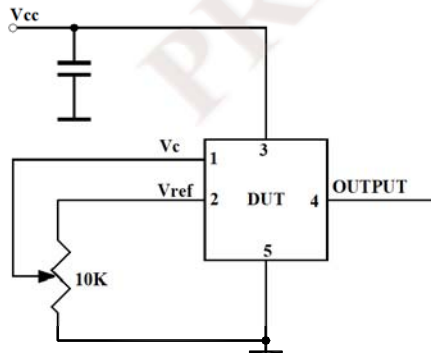
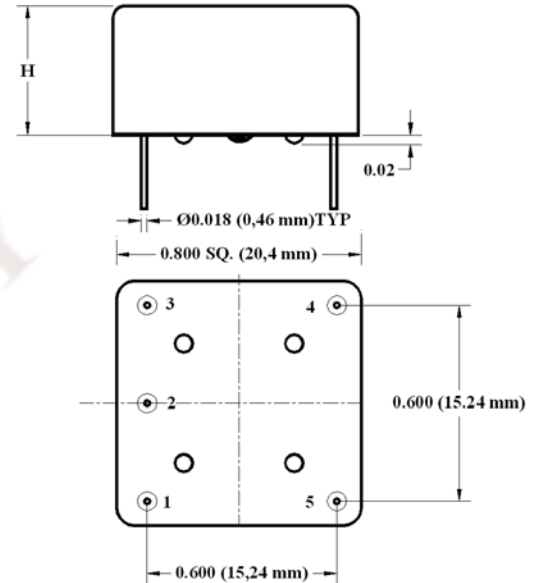
Product Data Sheet

Features

- SC-cut crystal
- Ultra High Stability
- Ultra Low Power consumption (0.12 W)
- Ultra Low Aging
- Low Phase Noise
- HCMOS/TTL output
- Hermetically Sealed Very Compact Metal Can

Applications

- Atomic Clock Replacement
- Battery Powered Equipment
- GPS



Height Options

Code	Height, H
5	0.5" (12.7 mm)

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note	
<i>Absolute Maximum Ratings</i>								
Input Break Down Voltage	Vcc	5 V supply 3.3 V supply	-0.5 -0.5		5.5 3.6	V		
Storage temper.	Ts		-40		80	°C		
Operating temp.	To		-10		70	°C		
Control Voltage	Vc		-1		5.5	V		
<i>Electrical</i>								
Frequency	F		8	16.384	20	MHz		
Frequency stability	ΔF/F	vs. Temp.	±0.1	±0.3		ppb	See chart below	
		vs. Supply		±0.2		ppb		
Aging		per day per first month per year		±1 ±10	±0.1	ppb	after 30 days of continuous operation	
Allan Deviation		1s		2E-11				
SSB Phase Noise (achieved after 10 minutes warm-up)	Sp	1Hz 10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-90 -120 -145 -155 -160 -160	dBc/Hz	10.000 MHz	
		1Hz 10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-85 -115 -140 -150 -160 -160	dBc/Hz	16.384 MHz	
Retrace		After 30 minutes			±10	ppb	24 Hours off *	
G-sensitivity		worst direction			±1.0	ppb/G		
Input Voltage	Vcc		4.75 3.15	5.0 3.3	5.25 3.45	V	Code 0 Code A	
Power consumption, Still air	P	steady state, 25°C, start-up @		0.12 1.0	0.15 1.2	W	3*	
Spectral Purity		Subharmonics Spurious		none	-80	dBc		
Load		10KOhm//15pF (HCMOS/TTL),						
Warm-up time	τ	to 0.1ppm accuracy		1	1.5	minutes		
Output Waveform		HCMOS/TTL						2*
Logic 1 (CMOS)	Voh		0.7Vref			V		
Logic 0 (CMOS)	Vol				0.4	V		
Control voltage	Vc		0		Vref	V		
Input impedance	Zin	At Vc pin	10			KOhm		
Modulation bandwidth	Fm				100	Hz		
Reference Voltage	Vref			4.5 2.8		V	Code 0 Code A	
Output Impedance		At Vref pin		100		Ohm		
Pull range		from nominal F	±0.3			ppm	Sufficient for 10 years	
Deviation slope		Monotonic, positive		0.1		ppm/V		
Setability			0.4Vref	Vref/2	0.6Vref			
Initial calibration	F0	@25°C, Vc = Vref/2		±50		ppb		



Notes:

- 1* Longer storage time, especially at low temperatures, may affect both retrace and calibration parameters. It may require few days on power for re-stabilization.
- 2* Sine wave output (+ 7 dBm TYP) available with slight increase in power consumption
- 3* Operating temperature -5°C to 45°C, 20% more with To up to 70°C

Environmental and Mechanical

Operating temp. range	See chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms
Vibration	Per MIL-STD-202, 5G to 2000 Hz
Soldering Conditions	260°C for 10s Max leads only

Electrical Connections

Pin Out	Pin #1-Vc ; Pin#2 – Vref; Pin #3 – Vcc; Pin #4- Output ; Pin #5- GND;
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PRELIMINARY

**FREQUENCY
CONTROLS, INC.**

Creating a Part Number

Q - **L** **U2S** **5** **X** **T** **YZ** **XX** - **X** - **XX.XXX** MHz
OCXO

Low Power
 Package Code
 5 pin 20x20, ultra precision

Height 0.5 inches

Supply Voltage

Code	Specification
0	5V ± 5%
A	3.3 V±0.15 V

Output

Code	Specification
T	CMOS/TTL
S	Sinewave

Temperature Stability

Code	Specification
19	±1x10 ⁻⁹
30	±3x10 ⁻¹⁰
20	±2x10 ⁻¹⁰
YZ	±Yx10 ^{-Z}

Environmental

Code	Specification
L	Contains a level of lead that is in excess of RoHS directive and is not designed for reflow
R	RoHS compliant, not designed for reflow

Temperature Range

Code	In 5°C steps 6*
First letter	Lowest temperature from G = -10°C
Second letter	Highest temperature to W = 70°C
Examples	
HR	-5°C to 45°C
GU	-10°C to 60°C
IW	-10°C to 70°C

6*Temperature Code Table

Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C
A	-40	F	-15	K	10	P	35	U	60	Z	85
B	-35	G	-10	L	15	Q	40	V	65		
C	-30	H	-5	M	20	R	45	W	70		
D	-25	I	0	N	25	S	50	X	75		
E	-20	J	5	O	30	T	55	Y	80		



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