

O-C25HXXXXXXYY-X-Z-X

Precision SC-cut OCXO in 20x20mm Through Hole Package

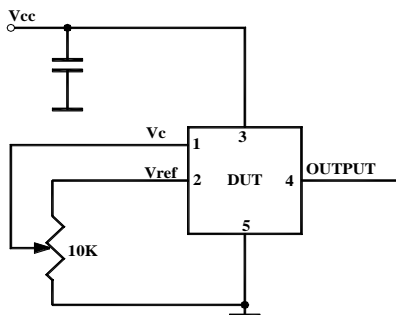
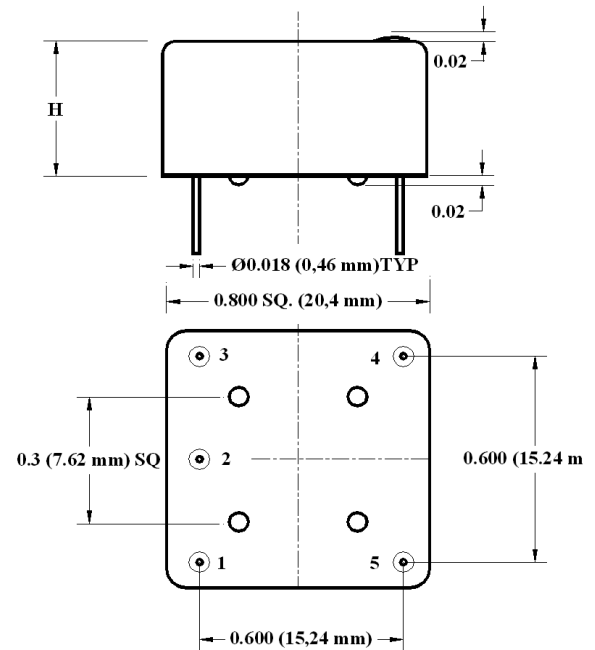
Product Data Sheet

Features

- SC-cut crystal
- High Stability (from 5 ppb)
- Low Aging (5×10^{-10} /day)
- Ultra-Low Phase Noise Option:
 Standard(L) -137dBc/Hz at 10 Hz.
 -168dBc/Hz on the floor
 Premium(P) -145dBc/Hz at 10 Hz.
 -170dBc/Hz on the floor
 Ultimate(U) -115 dBc/Hz at 1 Hz
 -146dBc/Hz at 10 Hz.
 -170dBc/Hz on the floor
 Extraordinary(E) -120 dBc/Hz at 1 Hz
 -148 dBc/Hz at 10 Hz
 -170 dBc/Hz on the floor
- Sine Wave or HCMOS/TTL output

Applications

- Instrumentation
- Radar
- Tele/Data Communications
- GPS
- COTS/Dual use



Height Options

Code	Height, H
4	0.4" (10.2 mm)
5	0.5" (12.7 mm)

Rev. A

O-C25HXXXXXXYY-X-Z-X

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
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Absolute Maximum Ratings

Input Break Down Voltage	V _{cc}		-0.5		5.5	V	V _{cc} = 5 V V _{cc} = 3.3V
Storage temper.	T _s		-40		85	°C	
Control Voltage	V _c		-1		12	V	

Electrical (3)

Frequency	F		8	10.000	13	MHz		
Frequency stability	ΔF/F	vs. Temp.		±10		ppb	See chart below	
		vs. Supply		0.2	0.3	ppb/10% V _{cc}		
Aging		per day per year, first year second year		5E-10 5E-8 3E-8			after 30 days 5E-8 available1*	
Allan Deviation		0.1s		5E-13				
		1s		2E-12				
		10s		5E-12				
SSB Phase Noise (achieved after 10 minutes warm-up)	S _φ	1Hz				-108	Standard version, option "L"	
		10 Hz				-137		
		100 Hz				-155		
		1 KHz				-160		
		10 KHz				-166		
		100 KHz				-168	Premium version, option "P"	
		1Hz				-112		
		10 Hz				-145		
		100 Hz				-155		
		1 KHz				-162		
		10 KHz				-169	Ultimate version, option "U" 2*	
		100 KHz				-170		
		1Hz			-115	-114		
		10 Hz				-146		
		100 Hz				-156		
		1 KHz				-163	Extraordinary version, option E,	
		10 KHz				-169		
		100 KHz				-170		
		1Hz				-120		
		10 Hz				-148		
		100 Hz				-160		
		1 KHz				-168		
		10 KHz				-170		
Retrace		After 30 minutes			±10	ppb	24 hrs off	
G-sensitivity		worst direction			±1.0	ppb/G		
Input Voltage	V _{cc}		3.15 4.75	3.3 5.0	3.45 5.25	V	See chart below to specify	
Power consumption	P	steady state, 25°C steady state, -30°C start-up @ -30°C		0.7 1.5 2.5	1.0 3.2	W	Standard Operating Temperature, for Op Temp. 85 °C add 20% Still air for all	
Spectral Purity		Subharmonics Spurious Harmonics		none -35	-80 -30	dBc	Output Code S	
Load	Internally AC coupled 50 Ohm (Sinewave) 10K Ohm/15pf (CMOS)							
Warm-up time	τ	to 0.1ppm accuracy		3	5	minutes		
Output Power	P _{out}	Into 50 Ohm	10	13			Output Code S	

All parameters for 10 MHz

Logic 1 (CMOS)	Voh		0.7Vref			V	Output Code T
Logic 0 (CMOS)	Vol				0.1 Vref	V	Output Code T
Duty Cycle			45/55		55/45	%	Output Code T
Rise/Fall Time	Tr,Tf			3	5	ns	Output Code T
Control voltage	Vc		0 0 0		10 4.5 3.0	V	Option "L" Option "P" Option "S"
Reference Voltage	Vref			4.5 3.0		V	Vcc Code "0"; "F" Vcc Code "A"
Pull range		from nominal F	±0.6 ±0.4 ±0.4	±0.8 ±0.6 ±0.6		ppm	Option "L" Option "P" Option "S"
Deviation slope		Monotonic, posit.		0.16 0.27 0.4		ppm/V	Option "L" Option "P" Option "S"
Input impedance	Zin	At Vc pin	10			KOhm	
Modulation bandwidth	Fm		DC		1	KHz	
Setability	Vc0	@25°C, Fnom.	4.5 2.0 1.25	5.0 2.25 1.5	5.5 2.5 1.75	V	Op."L", No internal bias Option "P" Option "S"
Initial Calibration		@25°C			±100	ppb	

Environmental and Mechanical

Operating temp. range	0°C to 70°C Standard, Other options – 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 or N/C; Pin #3 – Vcc; Pin #4 – Output; Pin #5 - GND
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Notes:

1. Aging rates are proportional to the operating frequency. Pull range will be adjusted accordingly to provide for lifetime possibility to set on frequency
2. Close to the carrier phase noise deteriorates with increase in frequency.
3. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.
4. Optional fill the package with heavy gas.



Creating a Part Number

Q - **C** **2.5** **H** **X** **X** **XX** **X** **YY** - **X** **-Z** - **X** **10.000 MHz**
OCXO
 Conventional Power
 Package Code
 2 5 5 pin 20x20mm

Height code per drawing

Supply Voltage

Code	Specification
A	3.3V TYP
0	5 V TYP

Output

Code	Specification
S	Sinewave
T	CMOS/TTL

Temperature Stability

Code	Specification
17	1x10 ⁻⁷
58	5x10 ⁻⁸
28	2x10 ⁻⁸
18	1x10 ⁻⁸
YZ	Yx10 ^{-Z}

Phase Noise (See Table)

Code	Specification
L	Standard
P	Premium
U	Ultimate
E	Extraordinary

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

Internal Fill

N	Air
X	Heavy Gas

Control Voltage

Code	Specification
L	0 to 10 V
P	0 to 4.5 V Vcc=5V
S	0 to 3.0V Vcc=3.3V

Temperature Range

Code	In 5°C steps **
First letter	Lowest temperature from A = -40°C
Second letter	Highest temperature to Z = 85°C
Examples	
IS	0°C to 50°C
GU	-10°C to 60°C
EW	-20°C to 70°C

**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		

