

O-L14GXXXXYY-X

Precision Low Power Consumption

SC-cut OCXO in miniature DIL14 – Gullwing Package

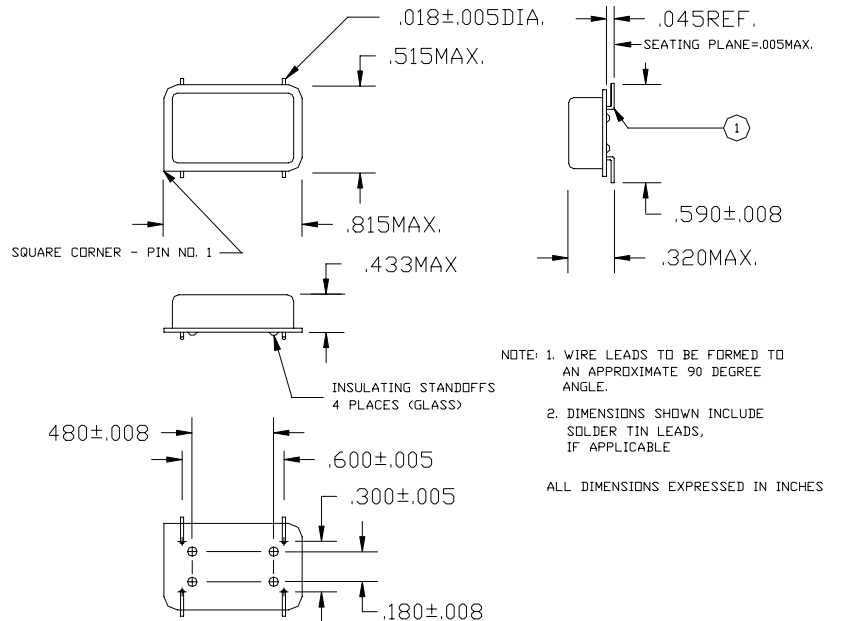
Product Data Sheet

Features

- SC-cut crystal
- Low Power Consumption
- Excellent Stability
- Fast Warm-up Time (1 minute)
- Low Phase Noise (-120 dBc/Hz @ 10 Hz)
- Hermetically sealed package

Applications

- Instrumentation
- Battery powered equipment
- Telecommunication Systems
- Data Communications
- GPS
- COTS/Dual use



Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Absolute Maximum Ratings							
Input Break Down Voltage	V _{cc}		-0.5		5.5	V	V _{cc} = 5 V
Storage temper.	T _s		-40		85	°C	
Operating temper.	T _o		-40		85	°C	
Control Voltage	V _c		-1		6	V	
Electrical (5)							
Frequency	F		8.0	10.000	40.000	MHz	*
Frequency stability	ΔF/F	vs. Temp.		20		ppb	See chart below
		vs. Supply		1	2	ppb/5% V _{cc}	
Aging		per day per year, first year 10 years		1E-9 1E-7			after 30 days 1*
Allan Variance		.1s to 1s		1E-11			
SSB Phase Noise		1Hz		-90	-85	dBc/Hz	2*
		10 Hz		-120	-115		
		100 Hz		-143	-140		
		1 KHz		-150	-148		
		10 KHz		-155	-154		
		100 KHz		-156	-155		
Retrace		After 30 minutes			±10	ppb	24 hrs off
All parameters for 10 MHz							
Allan Variance		.1s to 1s		1E-11			
SSB Phase Noise		1Hz		-84	-80	dBc/Hz	2*
		10 Hz		-114	-109		
		100 Hz		-139	-136		
		1 KHz		-153	-150		
		10 KHz		-165	-160		
		100 KHz		-168	-165		
G-sensitivity		worst direction		±1.0		ppb/G	
Input Voltage	V _{cc}		4.75 3.165	5.0 3.30	5.25 3.465	V	See chart below to specify
All parameters for 20 MHz							
Power consumption	P	steady state, 25°C steady state, -20°C start-up		0.5 0.8 2.2	0.55 2.5	W	All values in still air 3*
Spectral Purity		Subharmonics Spurious Harmonics		none -35	-80 -30	dBc	Sine-wave output
Load		10KOhm//15pF (HCMOS/TTL), AC-coupled 50 Ohm (Sine-wave)					Output Code T Output Code S
Warm-up time	τ	to 0.1ppm accuracy		45	60	seconds	
Output Power			+5	+7		dBm	Output Code S
Logic 1 (CMOS)	V _{oh}		0.9 V _{ref}			V	Output Code T
Logic 0 (CMOS)	V _{ol}				0.1 V _{ref}	V	Output Code T
Control voltage	V _c		0		V _{ref}	V	4*
Reference Voltage	V _{ref}			4.5 3.0		V	5 V supply 3.3 V supply
Pull range		from nominal F, 10 MHz	±0.5	±0.7		ppm	
Deviation slope		Monotonic, posit. 10 MHz		0.3 0.33		ppm/V	5 V supply 3.3 V supply
Input impedance	Z _{in}	At V _c pin	10			KOhm	

Modulation bandwidth	Fm		DC		1	KHz	6*
Setability	Vc0	@25°C, Fnom.	Vref/2-0.25	Vref/2	Vref/2 + 0.25	V	5*
Initial Calibration		Vc = Vref/2 @25°C			±100	ppb	10 MHz

Environmental and Mechanical

Operating temp. range	-20°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#7 – GND/CASE; ; Pin #8 – Output; Pin #14 – Vcc
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Notes:

- * All the specifications for frequencies above 20 MHz are very preliminary
- 1. Aging rates are proportional to the operating frequency above 20 MHz. 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. Power consumption listed in the table is for 10.000 MHz, Sine-wave output, 0.5” height unit. With increase in upper operating temperature, the power consumption will increase about 40 mW per 5°C. CMOS output option will decrease consumption by about 25 mW. 0.4” units will have about 5% more power consumption.
- 4. The Vc input may or may not be internally biased to roughly Vref/2. If internal bias is needed – it has to be specified on PO.
- 5. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.
- 6. Older and stock units may have MBW of 150 Hz Max.



Creating a Part Number

Q - **L** **14G** **X** **X** **XX** **YY** - **X** 10.000 MHz

OCXO
 Low Power Cons.
 Package Code
 14 4 pin DIL14-Gullwing

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

Supply Voltage

Code	Specification
0	5 V TYP
A	3.3 V TYP

Output

Code	Specification
S	Sinewave
T	HCMOS/TTL

Temperature Stability (±)

Code	Specification
17	1x10 ⁻⁷
58	5x10 ⁻⁸
28	2x10 ⁻⁸
18	1x10 ⁻⁸
YZ	Yx10 ⁻²

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

Not all combinations are available – consult factory

**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		