

O-L85-XXXXXXXXX-X
Ultra Low Phase Noise, Precision SC-cut HF OCXO
in Tiny 15x21x10.5 mm DIL14 Compatible Package

Rev. -

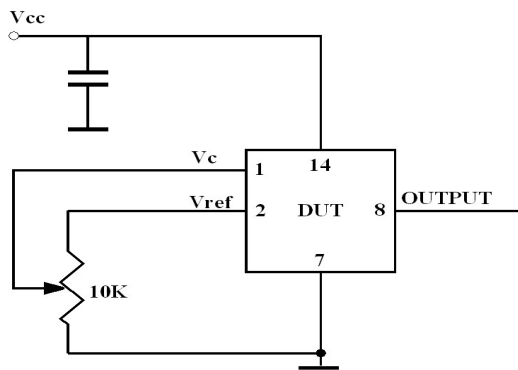
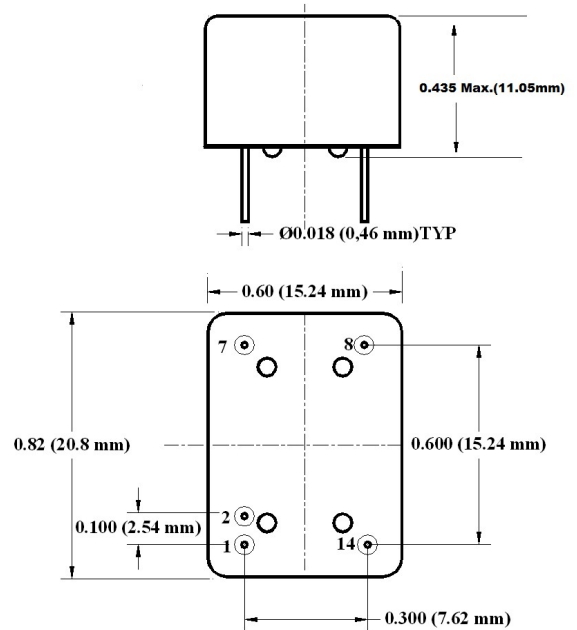
Product Data Sheet

Features

- Ultra Low Power Consumption
- SC-cut crystal
- Ultra Low Phase Noise
- Sine Wave +13 dBm output
- Extremely Small Hermetic Package

Applications

- Instrumentation
- Radar
- High End Synthesizers
- Battery powered equipment
- Communications



OVEN CONTROLLED CRYSTAL OSCILLATORS

Data Sheet 1726B

O-L85-XXXXXXXXXX-X

Rev. -

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Absolute Maximum Ratings							
Input Break Down Voltage	Vcc		-0.5		6.5	V	Vcc option 0 Vcc option A
Storage temper.	Ts		-55		85	°C	
Control Voltage	Vc		-1		10.5	V	

Electrical (1)

Frequency	F		30		125	MHz		
Frequency stability	$\Delta F/F$	vs. Temp.		± 50		ppb	See table below Note 2	
		vs. Supply			2	ppb/5% change		
		Vs. load			2	ppb/5% change		
Aging		per day per first year 10 years		3E-9 3E-7	1.5	ppm	After 30 days of continuous operation	
Allan Deviation		.01s to 1s		5E-11				
SSB Phase Noise at 100.000 MHz 5*	$\epsilon(\Delta f)$	10 Hz		-95			Grade "L"	
		100 Hz			-125			
		1 KHz			-158			
		10 KHz			-170			
		100 KHz			-178			
		10 Hz		-100			Grade "P"	
		100 Hz			-130			
		1 KHz			-160			
		10 KHz			-172			
		100 KHz			-178			
		10 Hz		-105			Grade "U", Available with slope option "L"	
		100 Hz			-135			
1 KHz			-162					
10 KHz			-175					
100 KHz			-178					
Retrace		After 30 minutes		± 20		ppb		
G-sensitivity		worst direction			± 0.5	ppb/G		
Input Voltage	Vcc		4.75 3.165	5.0 3.30	5.25 3.465	V	See chart below to specify	
Power consumption Still air 6*, 100 MHz	P	steady state, 25°C operating temp range to 70°C start-up		0.5 0.4 0.3 1.2	0.6 0.5 0.35 1.5	W	Grade "N" Grade "A" Grade "X"	
Spectral Purity		Subharmonics Spurious Harmonics		none -35		-80 -30		
Load		10KOhm//15pF (HCMOS/TTL), AC-coupled 50 Ohm (Sine-wave)					Output Code T Output Code S	
Spectral Purity		Output power Subharmonics Spurious Harmonics	10	13 none -35			dBm dBc	Non-supply related
						-80 -30		
Load		10KOhm//15pF (HCMOS/TTL), AC-coupled 50 Ohm (Sine-wave)					Output Code T Output Code S	

All parameters for 100,000 MHz



FREQUENCY CONTROLS, INC.

Warm-up time	τ	to 0.20ppm accuracy to 0.35ppm			90 60	seconds	
Output Power			+10	+13		dBm	100 MHz, Output Code S
Logic 1 (CMOS)	Voh		0.7 Vref			V	Output Code T
Logic 0 (CMOS)	Vol				0.1 Vref	V	Output Code T
Reference Voltage	Vref			4.5 3.0		V	5 V supply 3.3 V supply
Output Impedance at Vref	Rref			100		Ohm	
Control voltage	Vc		0 0		10.0 4.5	V	Slope option "L" Slope option "P"
Input Impedance	Zin	At Vc Pin	10			KOhm	
Pull range		from nominal F		± 2.5		ppm	
Absolute pull range	APR		± 0.5			ppm	
Deviation slope		Monotonic, posit		0.7 1.3		ppm/V	Slope option "L" Slope option "P"
Linearity			$\pm 10\%$				
Setability	Vc0	@25°C, Fnom.	4.0 1.75	5.0 2.25	6.0 2.75	V	Slope option "L", no bias Slope option "P"
Modulation Bandwidth	Fm		DC		1	KHz	

Environmental and Mechanical

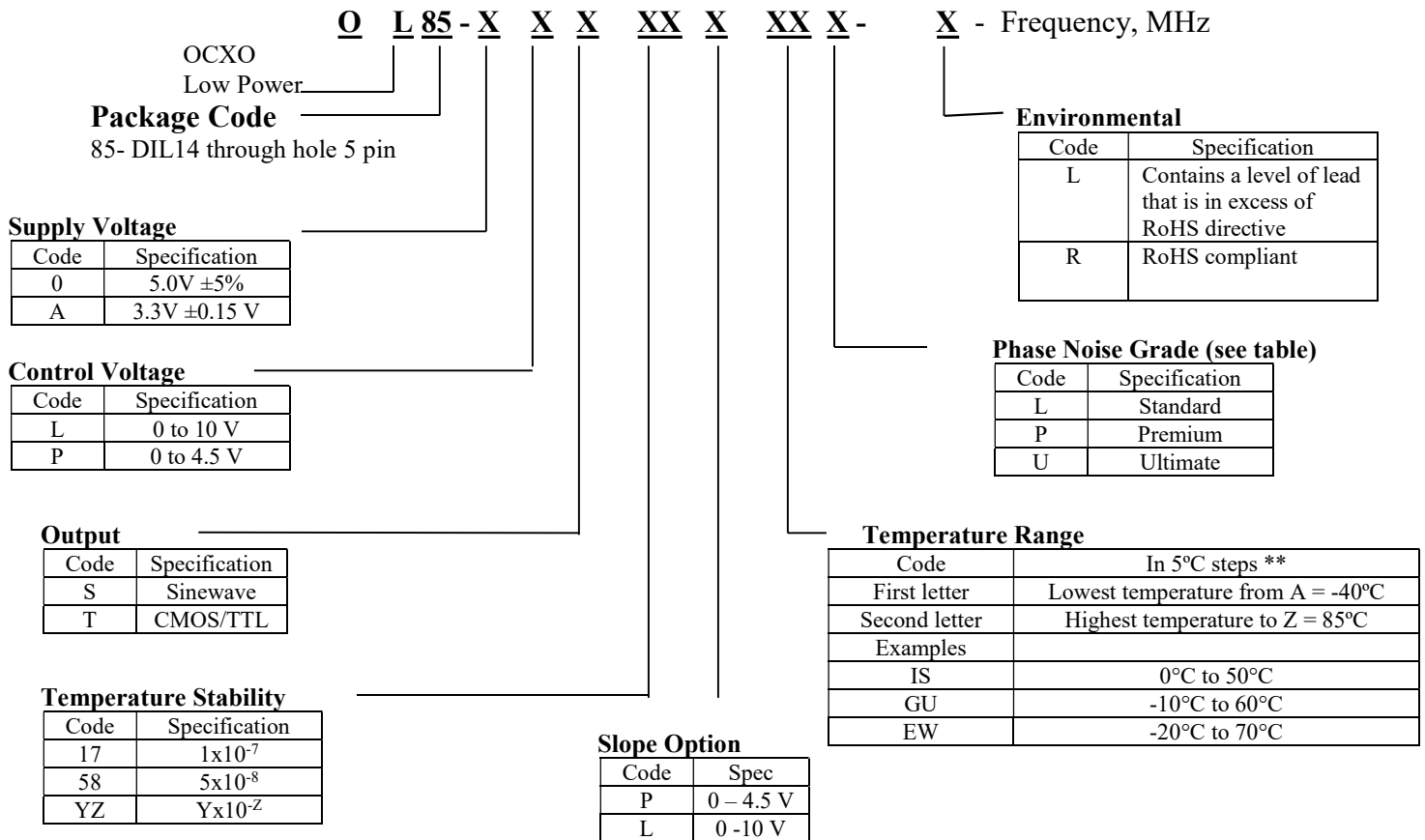
Operating temp. range	0 to 70°C Standard, Other options – see Chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	Per MIL-STD-202, 5G to 2000 Hz
Operational vibration	Phase noise under vibration to be verified by the customer
Seal	Hermetically sealed
Soldering Conditions	260°C for 10 seconds MAX, leads only

Electrical Connections

Pin Out	Pin #1- Vc; Pin #2 – Vref; Pin#7 – Case, GND; Pin #8 – OUTPUT; Pin #14 - Vcc
---------	--



Creating a Part Number



**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		

Notes:

1. Not all combinations are available – consult factory
2. It's not recommended to over-specify stability over temperature performance: it significantly affects the cost.
3. Unless absolutely necessary do not specify highest operating temperature above 70°C
4. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.
5. Specifications for Vcc= 5.0 V. At Vcc = 3.3 V phase noise may slightly deteriorate from those values. Close to the carrier phase noise deteriorates with increase in frequency.
6. Power consumption listed in the table is for 100.000 MHz, sine-wave output. With increase in upper operating temperature, the power consumption will increase about 15 to 30 mW per 5°C depending on the grade.



NOISE XT

Phase Noise Plot

