

**O-L85-XXXXXXXXXX-X
Ultra Low Phase Noise, Precision SC-cut HF OCXO
in Miniature 15x21x11 mm DIL14 Compatible
Package**

Rev. E

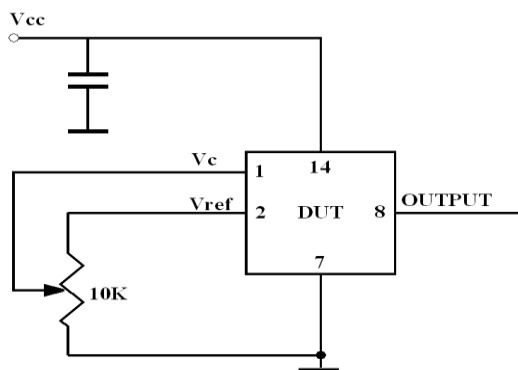
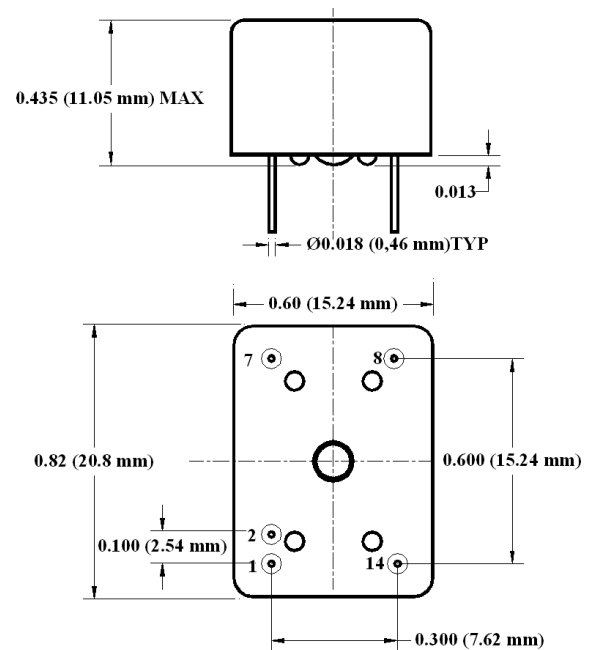
Product Data Sheet

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



O-L85-XXXXXXXXXX-X

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
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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		All parameters for 100.000 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*	$\mathcal{L}(\Delta f)$	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		0.5	0.6	W	Grade "N"	
		operating temp		0.4	0.5		Grade "A"	
		range to 70°C		0.3	0.35		Grade "X"	
		start-up		1.2	1.5			
Spectral Purity		Subharmonics		none		dBc		
		Spurious			-80			
		Harmonics		-35	-30			
Load		10KOhm//15pF (HCMOS/TTL), AC-coupled 50 Ohm (Sine-wave)					Output Code T Output Code S	
Warm-up time	τ	to 0.20ppm accuracy		60	90	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	Vcc Option 0 Vcc Option A		N/A 4.5 3.0		V	Slope options "L", "M" Slope options "P", "Q"
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, positive		0.7 1.3		ppm/V	Slope option "L", "M" Slope option "P", "Q"
Linearity			±10%				
Setability	Vc0	@25°C, Fnom.	4.0 1.75 1.2	5.0 2.25 1.5	6.0 2.75 1.8	V	Slope options "L", "M" Slope options "P", "Q" Slope option "K"
Modulation Bandwidth	Fm		DC		1	KHz	

Environmental and Mechanical

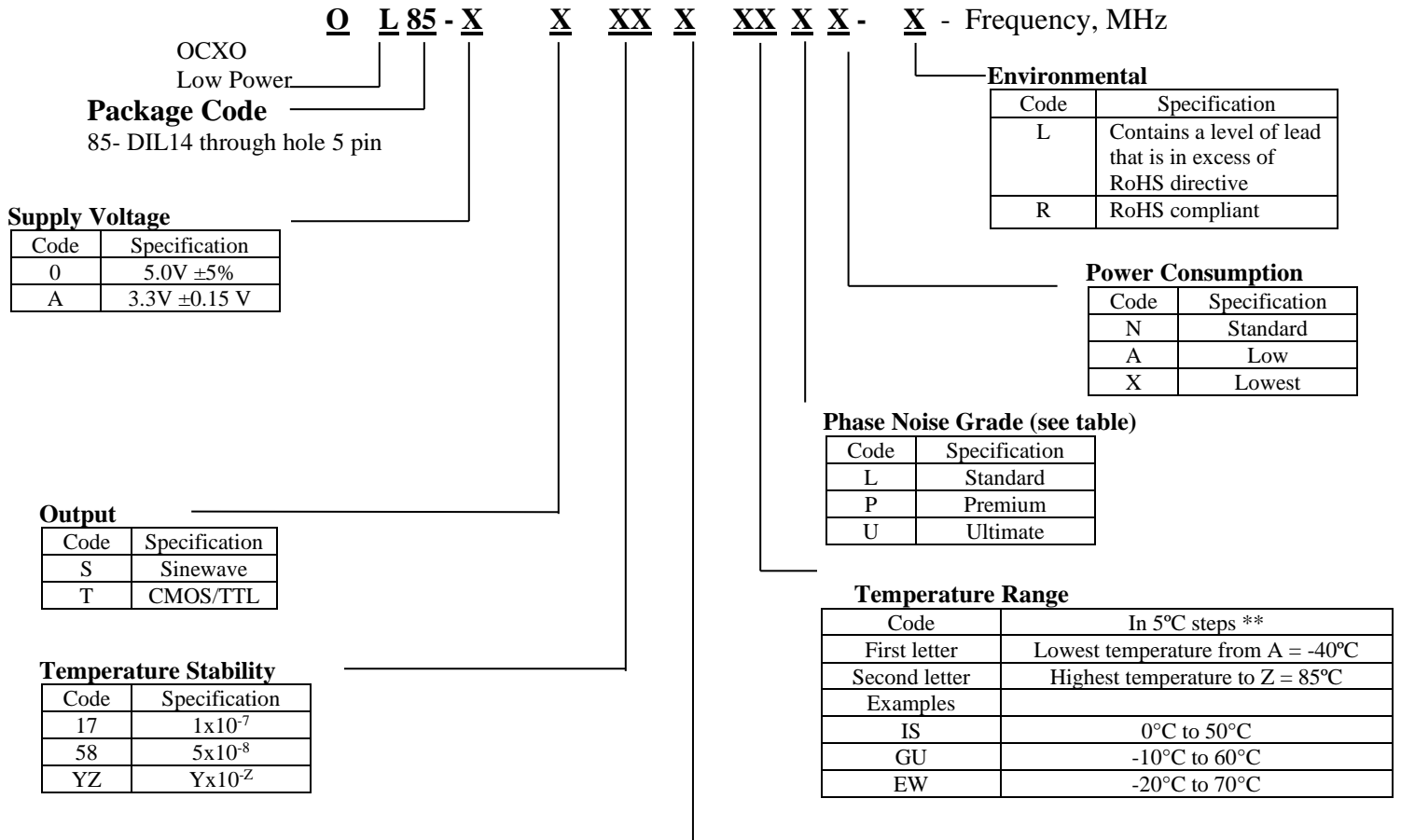
Operating temp. range	0 to 70°C Standard, Other options – see Chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	Per MIL-STD-202, 5G to 2000 Hz
Operational vibration	Phase noise under vibration to be verified by the customer
Seal	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
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Creating a Part Number



Control Voltage

Code	Specification
K	0 to 3.0 V, Internally biased to Vref/2, 100 K Ohm divider
L	0 to 10 V, internally biased to Vref, 100 KOhm
M	0 to 10 V, no internal bias
P	0 to 4.5 V, Internally biased to Vref/2, 100 K Ohm divider
Q	0 to 4.5 V, no internal bias

**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, i.e.: 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.

