

# O-CE8C0-X-YY-X-XX.XXX MHz Phase-Locked SC-cut Clean-up OCXO in Europack

## Product Data Sheet

### Features

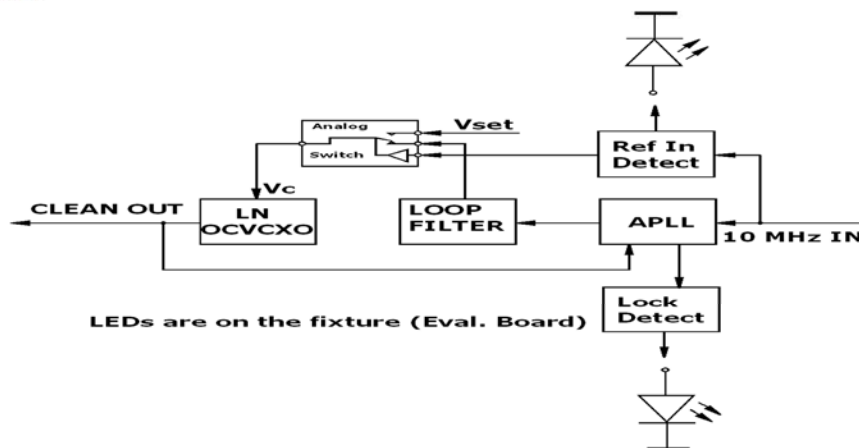
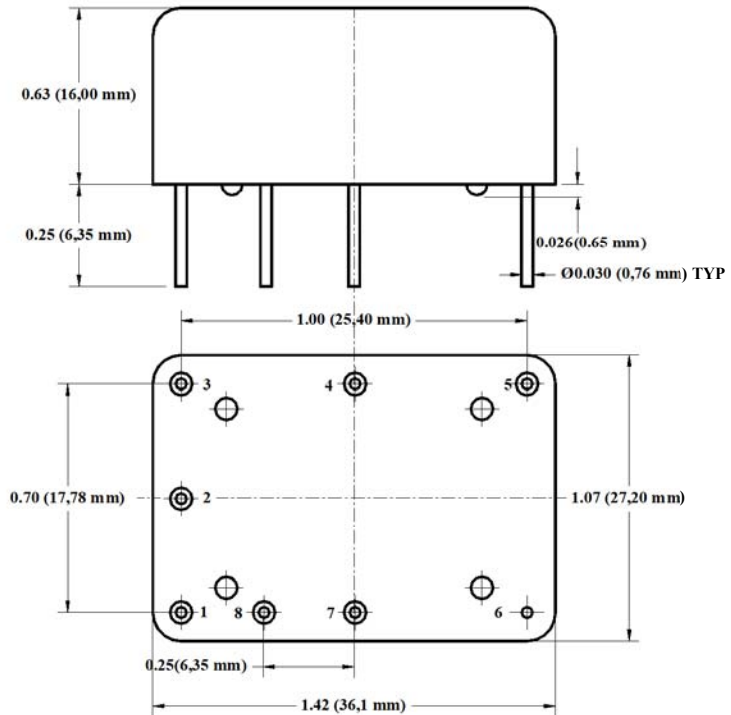
- SC-cut crystal
- Low Phase Noise
- Very Compact Package

### Applications

- Significantly improves Phase Noise of incoming signal with optional Higher Frequency Output
- COTS/Dual use

### Pinout

- Pin #1 - 10 MHz Input
- Pin #2 - Vref
- Pin #3 - Vcc
- Pin #4 - Lock Detect
- Pin #5 - RF OUT
- Pin #6 - Case, GND
- Pin #7 - Input Signal Detect
- Pin #8 - Vset.



## Specifications:

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
<b>Absolute Maximum Ratings</b>							
<b>Input Break Down Voltage</b>	Vcc		-0.5		5.5	V	Vcc = 5 V
<b>Operating Temp.</b>	To		0		70	°C	
<b>Operable Temp.</b>	TO		-40		85	°C	
<b>Storage temper.</b>	Ts		-40		85	°C	

### Electrical High Frequency

<b>Input Frequency</b>	Fin			10.000		MHz	
<b>Output Frequency</b>	Fout		10	100.000	125.000	MHz	
<b>Frequency Capture Range (APR)</b>	ΔF/F	Over All	±600			ppb	When input signal disappears free run within 100 ppb as shipped, 1,500 ppb over 10 years
<b>Allan Deviation</b>		.01s to 0.1s		5E-11			
<b>Frequency stability</b>	ΔF/F	Locked	Equal to incoming signal				
<b>Recommended MAX Input SSB Phase Noise</b>	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-80 -110 -130 -140 -140	dBc/Hz	
<b>Input signal</b>		CMOS Sine Wave	2 0			Vpk-pk dBm	Code T Code S
<b>Output SSB Phase Noise Floor</b>	£(Δf)	10Hz 100Hz 1KHz 10KHz 100KHz		-90 -125 -153 -170 -175		dBc/Hz	Grade "C"
<b>Output SSB Phase Noise Floor</b>	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-100 -130 -158 -175 -180		dBc/Hz	Grade "L"
<b>Output SSB Phase Noise Improvement Compared to Input Phase Noise adjusted to 10 MHz</b>		10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		20 50 50 50 50		dBc/Hz	Should add 20LogN, 20 dB for 100 MHz Cannot improve beyond listed above noise floor
<b>G-sensitivity</b>		worst direction			±1.0	ppb/G	
<b>Input Voltage</b>	Vcc	Code 0	4.75	5.0	5.25	V	
<b>Power consumption</b>	P	steady state, 25°C start-up @ -30°C		1.3 2.8	1.6 3.5	W	Standard Operating Temperature, for Op Temp. 85 °C add 20% Still air for all Lower P available, consult Factory
<b>Spectral Purity</b>		Subharmonics Spurious Harmonics		-70 -35	-50 -80 -30	dBc	10 MHz and multiples  Output Code S
<b>Load</b>	Internally AC coupled 50 Ohm (Sinewave) 10K Ohm//15pf (CMOS/TTL)						
<b>Warm-up time</b>	τ	to lock on 100 ppb input		3	5	minutes	
<b>Lock Time after warm-up</b>				1		minute	

All parameters for output frequency 100 MHz

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Output Power	Pout	Into 50 Ohm	15	17		dBm	Output Code S
Logic 1 (CMOS)	Voh		0.7Vref			V	Output Code T
Logic 0 (CMOS)	Vol				0.1Vref	V	Output Code T
Duty Cycle			45/55		55/45	%	Output Code T
Rise/Fall Time	Tr/Tf			2	3	ns	Output Code T
Preset Voltage	Vset			2.25		V	Can be externally adjusted by LN Potentiometer 10 KOhm between Vref and GND
Lock Detect			Logic "1"				Can drive LED
Input Detect			Logic "1"				Can drive LED
<i>Electrical Low Frequency</i>							
Output Frequency				10		MHz	
Recommended Input SSB Phase Noise	$\mathcal{L}(\Delta f)$	10 Hz			-90	dBc/Hz	
		100 Hz			-110		
		1 KHz			-130		
		10 KHz			-140		
		100 KHz			-140		
Frequency Capture Range (APR)	$\Delta F/F$	Over All	$\pm 100$			ppb	When input signal disappears free run within 0.3ppb Max as shipped, 1,000 ppb over 10 years
Allan Deviation		.01s to 0.1s		5E-12			
Output SSB Phase Noise Floor	$\mathcal{L}(\Delta f)$	10 Hz			-125	dBc/Hz	Grade "C"
		100 Hz			-145		
		1 KHz			-162		
		10 KHz			-165		
		100 KHz			-169		
		10 Hz			-145	dBc/Hz	Grade "U"
		100 Hz			-157		
		1 KHz			-165		
		10 KHz			-168		
		100 KHz			-172		
Output SSB Phase Noise Improvement Compared to Input Phase Noise		10 Hz		45		dBc/Hz	Cannot improve beyond the noise floor for each grade as listed above
		100 Hz		50			
		1 KHz		50			
		10 KHz		50			
		100 KHz		50			

All Parameters for 10,000 MHz Output (10MHz out is still Preliminary)

**Environmental and Mechanical**

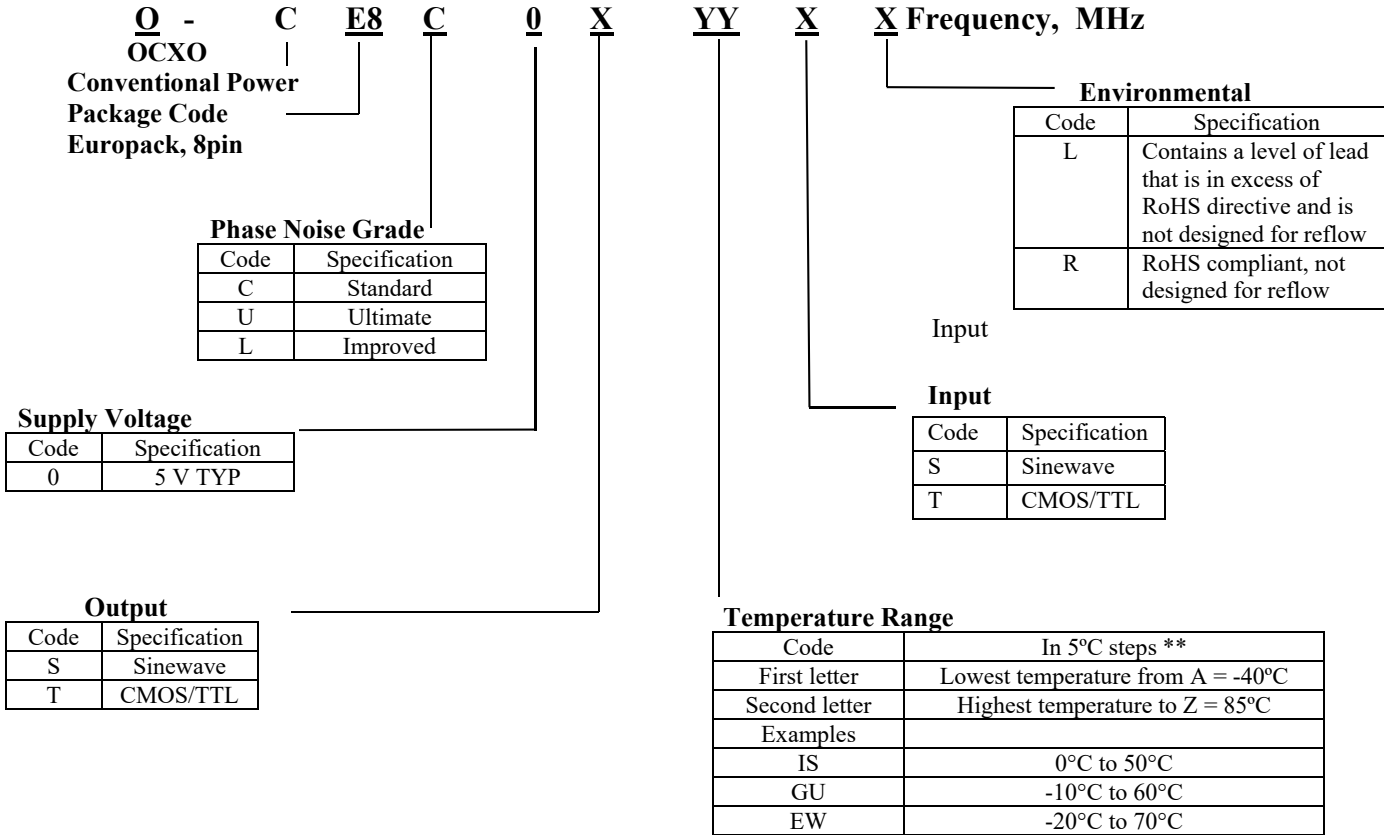
Operating temp. range	0°C to 70°C Standard, Other options – see chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms , survival
Vibration	Per MIL-STD-202, 5G to 2000 Hz, Survival

**Electrical Connections**

Notes:

\* Close to the carrier noise floor is frequency dependent and will be lower at lower frequencies and higher at higher ones. Will be specified on PO.  
All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal

## 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		