

## Precision SC-cut OCXO in 36x27mm “Europack”



36.1 x 27.2 x 16 mm  
Datasheet #1003D

### Features

- SC-cut crystal
- Excellent Stability
- Low Aging ( $5 \times 10^{-10}$ /day)
- Very Low Phase Noise (-135 dBc/Hz @ 10Hz)

### Applications

- Instrumentation
- Telecommunication Systems
- Data Communications
- GPS
- COTS/Dual use

### Absolute Maximum Ratings

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes
Input Break Down Voltage	V <sub>cc</sub>		-0.5 -0.5		13.0 5.5	V	V <sub>cc</sub> = 12 V V <sub>cc</sub> = 5 V
Storage temper.	T <sub>s</sub>		-40		85	°C	
Control Voltage	V <sub>c</sub>		-1		12	V	

### Electrical (3\*)

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes	
Frequency	F		8.0	10.000	20.000	MHz	All parameters for 10 MHz	
Frequency stability	$\Delta F/F$	vs. Temp., total excursion		10		ppb		Peak-to-peak See chart below
		vs. Supply		1	2	ppb/5%V <sub>cc</sub>		
Aging		per day		5E-10				after 30 days 5E-8 available 1*
		per year, first year 10 years		1E-7 3.5E-7				
Allan Deviation		.1s to 1s		5E-12				
SSB Phase Noise		1Hz		-105	-100	dBc/Hz		2*
		10 Hz		-140	-135			
		100 Hz		-156	-155			
		1 KHz		-163	-162			
		10 KHz		-169	-168			
100 KHz		-170	-169					
Retrace		After 30 minutes			±10	ppb	24 hrs off	
G-sensitivity		worst direction			±1.0	ppb/G		
Input Voltage	V <sub>cc</sub>		4.75 11.4	5.0 12.0	5.25 12.6	V	See chart below to specify	
Power consumption	P	steady state, 25°C		0.7	1.0	W	Standard Operating Temperature, for Op Temp. 85°C add 20% Still air for all	
		steady state, -30°C		1.5	3.2			
		start-up @ -30°C		2.5				
Spectral Purity		Subharmonics		none		dBc		
		Spurious Harmonics			-80 -35			

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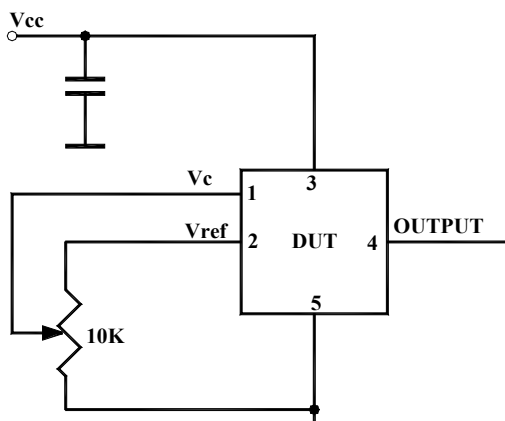
### Electrical (cont.)

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes
Load		10KOhm//15pF (HCMOS/TTL), AC-coupled 50 Ohm (Sine-wave)					Output Code T Output Code S
Warm-up time	$\tau$	to 0.1ppm accuracy		3	5	minutes	
Output Power			+7	+10		dBm	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
Control Voltage	Vc		0 0		10 4.5	V	Option “L” Option “P”
Reference Voltage	Vref			4.5		V	Option “P”
Pull range		from nominal F	$\pm 0.6$ $\pm 0.4$	$\pm 0.8$ $\pm 0.6$		ppm	Option “L” Option “P”
Deviation slope		Monotonic, posit.		0.16 0.27		ppm/V	Option “L” Option “P”
Input impedance	Zin	At Vc pin	10			KOhm	
Modulation bandwidth	Fm		DC		1	KHz	4*
Setability	Vc0	@25°C, Fnom.	4.5 2.0	5.0 2.25	5.5 2.5	V	Op. “L”, No internal bias Option “P”
Initial Calibration		@25°C			$\pm 100$	ppb	

### Environmental and Mechanical

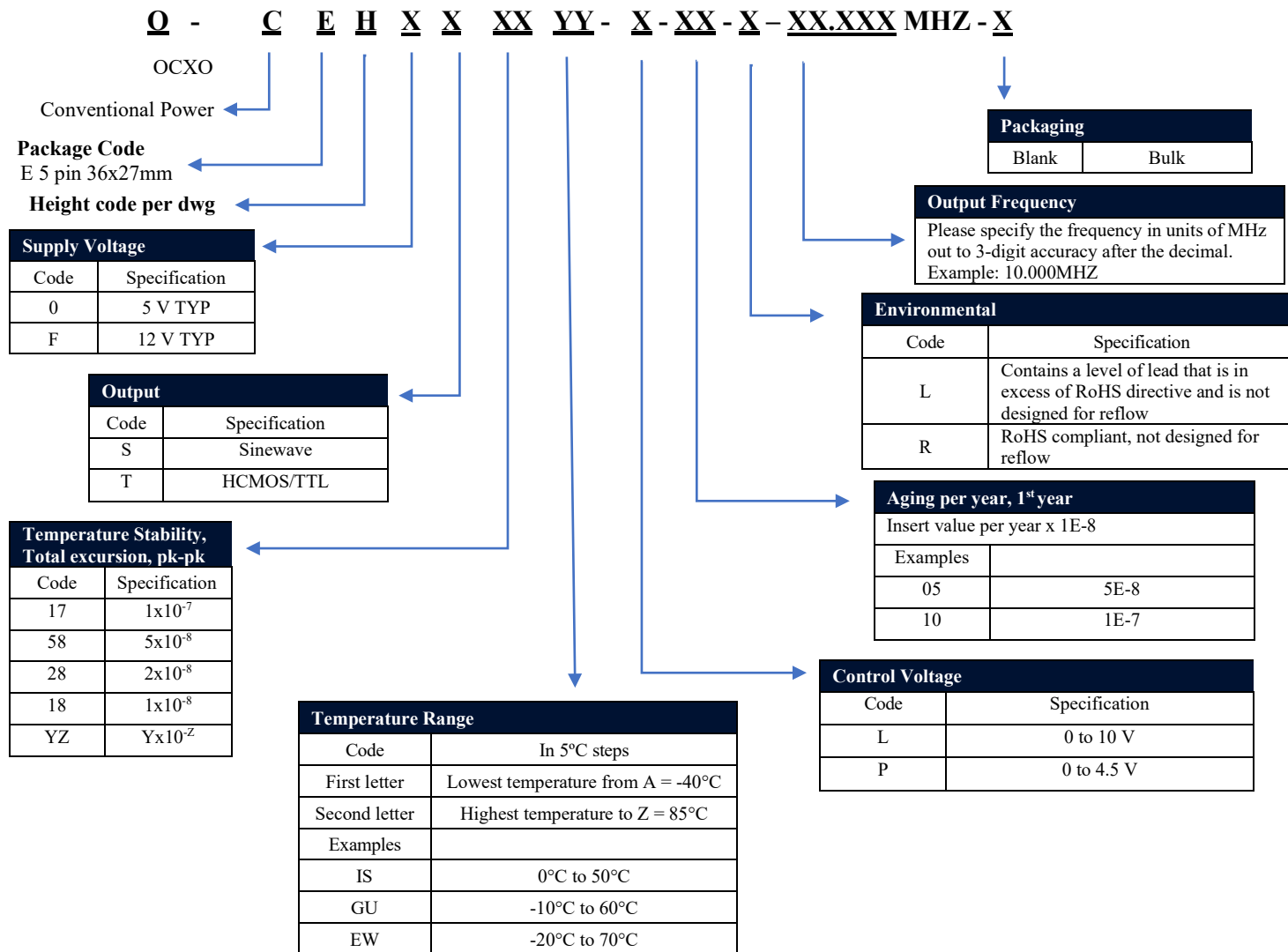
Parameter	Description
Operating temp. range	0°C to 70°C Standard, Other options- see chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms
Vibration	Per MIL-STD-202, 5G TO 2000 Hz
Soldering Conditions	260°C for 10s Max leads only

### Test Circuit





## Creating a Part Number



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		

Notes:

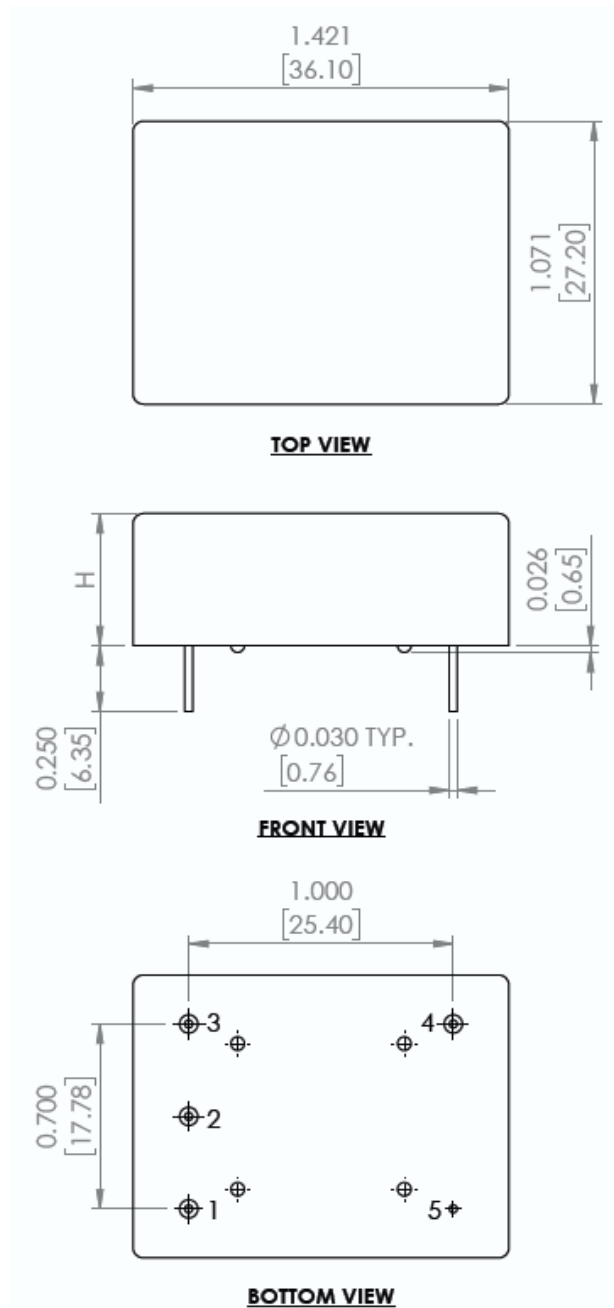
1\* Aging rates are proportional to the operating frequency. Pull range will be adjusted accordingly to provide for lifetime possibility to set on frequency

2\* Close to the carrier frequency, the 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\* Older and stock units may have MBW of 150 Hz Max.

## Mechanical Dimensions



H Code	Height, inches (mm) TYP
5	0.5 [12.7 mm]
6	0.63 [16 mm]
7	0.75 [19 mm]

Code 6 is standard unless  
Code 5 is requested.  
Code 7 is for special requirements.

Pin #	Function
1	Vc
2	Vref
3	Vcc
4	Output
5	GND

Dimensions: inches [mm]