

Helping Customers Innovate, Improve & Grow



OX-405

Features

- 4-Pin Dip
- Fast Warm-up
- Frequency Range: 80 MHz to 120 MHz
- Low g-sensitivity
- Low Phase Noise

Applications

- Base Stations
- Test Equipment
- Synthesizers
- Military Communication Equipment

Performance Specifications

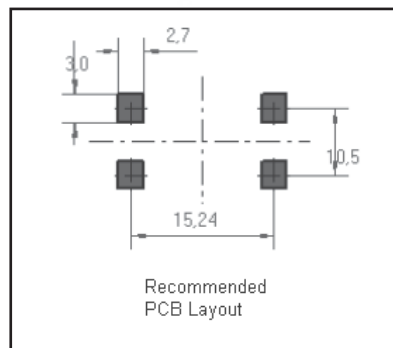
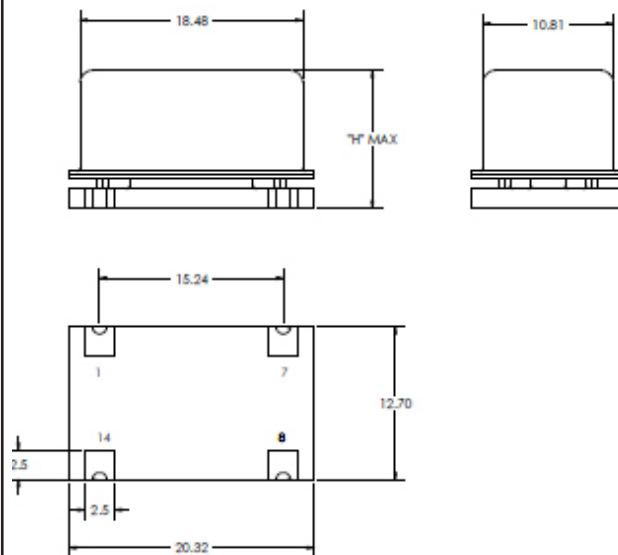
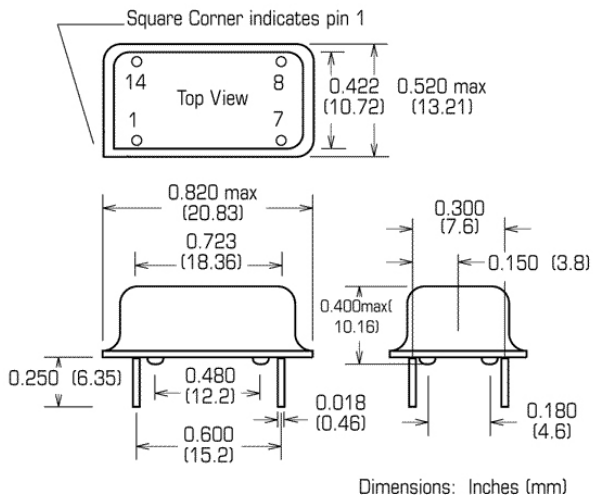
Frequency Stabilities ¹ (SC-Cut Crystal-Option)					
Parameter	Min	Typical	Max	Unit	Condition
vs. operating temperature range (referenced to +25°C)	-200		+200	ppb	-40 to +85°C
	-150		+150	ppb	-20 to +70°C
	-100		+100	ppb	-0 to +70°C
	-50		+50	ppb	-40 to +85°C (height code 0 and 3 only)
	-35		+35	ppb	-20 to +70°C (height code 0 and 3 only)
	-25		+25	ppb	-0 to +70°C (height code 0 and 3 only)
Initial tolerance vs. supply voltage change	-400		+400	ppb	at time of shipment, nominal EFC
	-50		+50	ppb	$V_S \pm 5\%$ static (CMOS outputs)
	-25		+25	ppb	$V_S \pm 5\%$ static (sine outputs)
	-10		+10	ppb	Load $\pm 5\%$ static
	-3		+3	ppb	after 30 days of operation
vs. load change				ppb	after 30 days of operation
vs. aging/day				ppb	
vs. aging/1st year	-300		+300	ppb	
Warm-up time			2	minutes	to ± 100 ppb of final frequency (1 hour reading) @ +25°C

Performance Specifications

Supply Voltage (Vs)							
Parameter	Min	Typical	Max	Unit	Condition		
Supply Voltage	4.75	5.0	5.25	VDC			
	3.165	3.3	3.465	VDC			
Power Consumption			3.5 4.5 1.0	Watts Watts Watts	during warm-up (5V versions) during warm-up (3V version) steady state @ +25°C		
RF Output							
Signal [Standard]	HCMOS						
Load		15		pF			
Signal Level (Vol)			0.5	VDC	with Vs=5V and 15 pF Load		
Signal Level (Voh)	4.7			VDC	with Vs=5V and 15 pF Load		
Signal Level (Vol)			0.3	VDC	with Vs=3.3V and 15 pF Load		
Signal Level (Voh)	3.0			VDC	with Vs=3.3V and 15 pF Load		
Duty Cycle	40		60	%	@ (Voh-Vol)/2		
	Sinewave (5V supply, height code 0 or 3 only)						
Load		50		Ω			
Output Power @ 5V	5	8	11	dBm	50 Ω load		
Harmonics			-40	dBm			
Frequency Tuning (EFC)							
Tuning Range	±1.0		±3.0	ppm			
Linearity			5	%			
Tuning Slope	Positive						
Control Voltage Range	0.0	2.0	4.0	VDC	5 V versions		
	0	1.5	3.0	VDC	3.3 V versions		
Additional Parameters							
Phase Noise ³			-95 -125 -145 -155 -160	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz	@ 100MHz	
G-Sensitivity			1 0.5	ppb/g ppb/g	worst direction - standard worst direction - request a custom part		
Weight			8	g			
Absolute Maximum Ratings							
Supply Voltage (Vs)			6.0	V			
Output Load			50	pF			
Operable Temperature Range	-55		+85	°C			
Environmental and Product Classification							
Shock (Endurance)	MIL-STD-202, Method 213, Condition J, 30 g 11 ms						
Sine Vibration (Endurance)	MIL-STD-202, Method 201 and 204, Condition A, except 5 g to 500 Hz, 1 sweep each axis						
Random Vibration (Endurance)	MIL-STD-202, Method 214, Condition I-D						
Humidity	MIL-STD-202, Method 103, Condition B, 100% rh						
Seal	MIL-STD-202, Method 112, Condition D						
Altitude	MIL-STD-202, Method 105, sea level to space						
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition A,B,C						
Terminal Strength	MIL-STD-202, Method 11, Condition C (5 bends at 45°, 2 lbs)						
Moisture Sensitivity level	1						
ROHS Compliant	Yes						
Storage Temperature Range	-55		+125	°C			

Performance Specifications

Outline Drawing / Enclosure



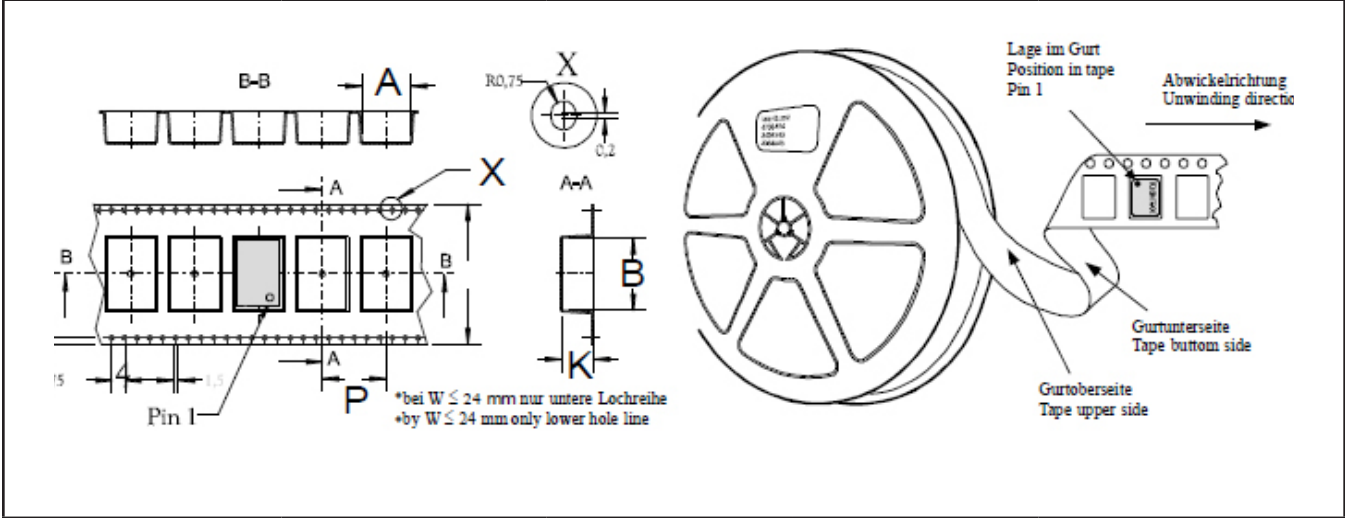
Dimensions in inches (mm)

Type A		
Code	Height "H"	Pin Length "L" Min
0	9.3	5.85
1	8.3	5.85
Pin Connections		
1	Electronic Frequency Control Input (EFC)	
7	Ground (Case)	
8	RF Output	
14	Supply Voltage Input (VS)	

Dimensions in mm

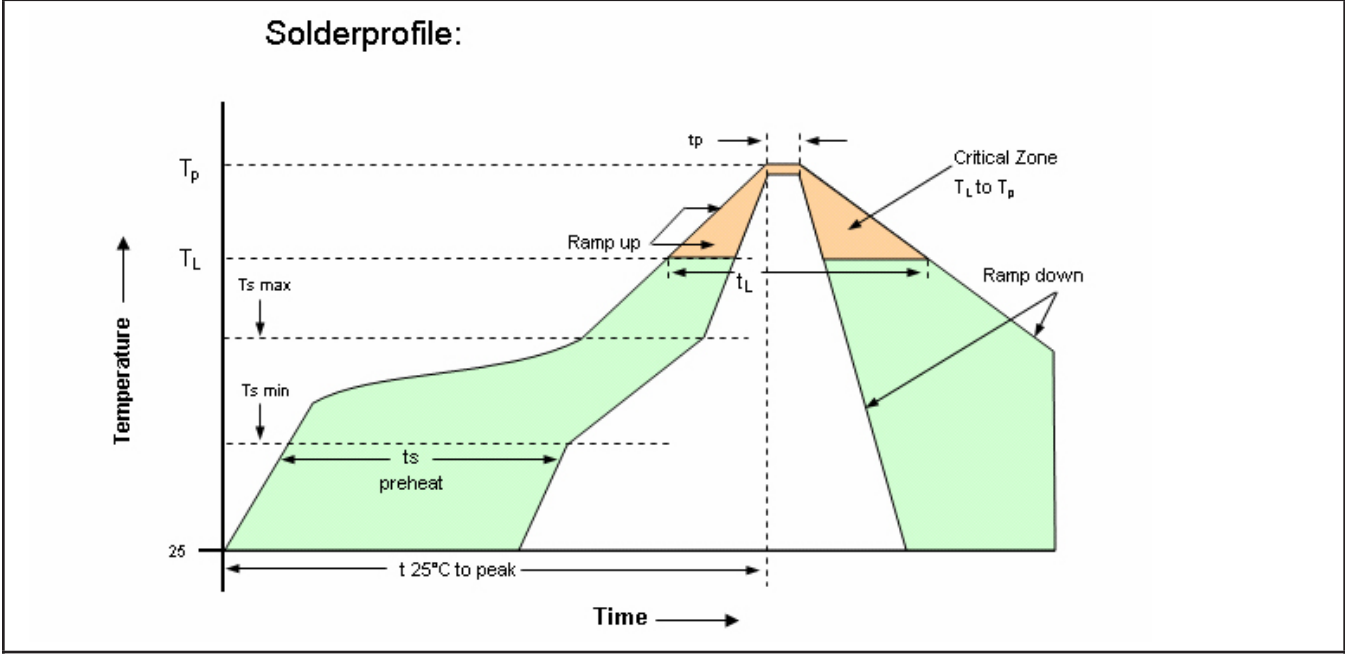
Type B		
Code	Height "H"	Pin Length "L" Min
2	10.4	NA
3	11.4	NA
Pin Connections		
1	Electronic Frequency Control Input (EFC)	
7	Ground (Case)	
8	RF Output	
14	Supply Voltage Input (VS)	

Standard Shipping Method



Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P
Type B	44	50	300	20

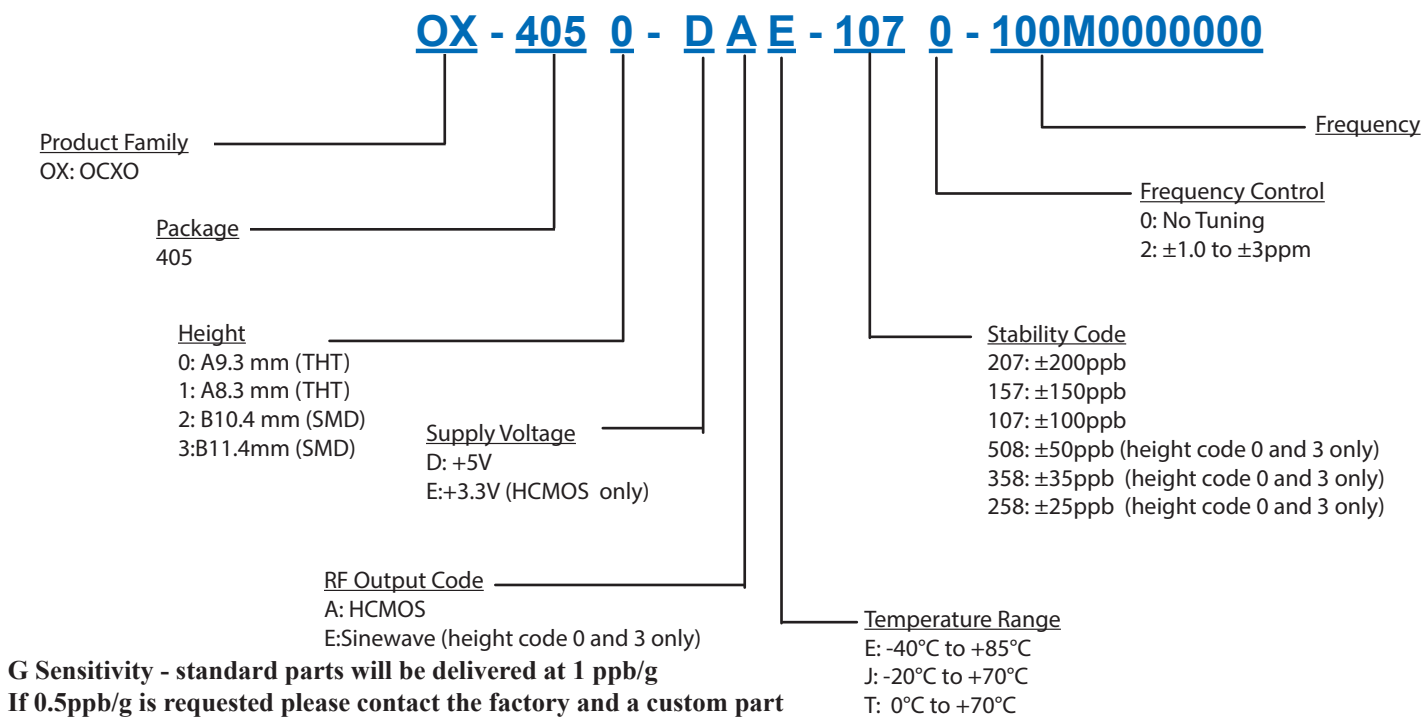
Recommended Reflow Profile



Profile Feature	Pb-Free Assembly /Sn-Pb Assembly	Profile Feature	Pb-Free Assembly /Sn-Pb Assembly
Average ramp-up rate (T _L to T _p)	3°C/second max.	Time 25°C to Peak Temperature	8 minutes max.
Preheat -Temperature Min T _{smin} -Temperature Min T _{smax} -Time (min to max) (t _s)	150°C 200°C 60-180 seconds	Time maintained above - Temperature (T _L) - Time (t _L)	217°C 60-150 seconds
T _{smax} to T _L - Ramp-up Rate	3°C/second max.		
Time maintained above - Temperature (T _L) - Time (t _L)	217°C 60-150 seconds	Time within 5°C of actual Peak Temperature (t _p)	20-40 seconds
Peak Temperature (T _p)	max 260°C	Ramp-down Rate	6°C/second max.

Note: All temperatures refer to topside of the package, measured on the package body surface.

Ordering Information



Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Unless other stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).
3. Phase noise degrades with increasing output frequency.
4. Subject to technical modification.
5. Contact factory for availability.

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