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Search

[XOs](#) > [CO-484](#)

## CO-484 Sinewave Crystal Oscillators



### Features:

- Frequencies from 4 MHz to 500 MHz
- Miniature Hybrid Design
- 16 Pin Double DIP or 16 Pin Flatpack
- +13 dBm output available

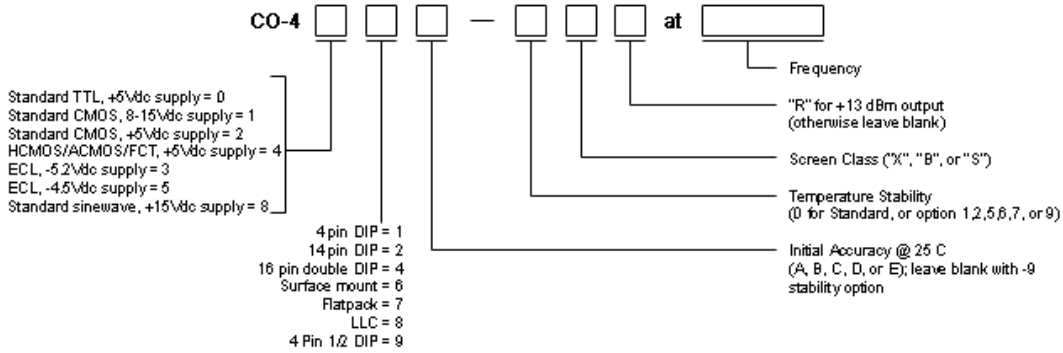
SPECIFICATIONS																											
Series	CO-484: Miniature Hybrid																										
Frequency	4 MHz to 500 MHz																										
Output	Standard: 0.5 Vrms/50Ω (+7 dBm) Option R: 1 Vrms/50Ω (+13 dBm) High level option: 1 watt (+30 dBm) available in 2" x 3" x 0.75" package																										
Supply	+15 Vdc ±5% (Any supply in 12-24 Vdc range optional; supply less than +15 Vdc subject to reduced output level)																										
Accuracy (at 25°C)	CO-484A: ±50 ppm CO-484C: ±25 ppm CO-484D: ±15 ppm CO-484B: ±10 ppm *CO-484E: ±1 ppm  *Set via external capacitor.																										
Temperature Stability	<table border="0"> <tr> <td>STANDARD:</td> <td>0°C to +70°C:</td> <td>±25 ppm</td> </tr> <tr> <td>Option 1:</td> <td>-55°C to +85°C:</td> <td>±50 ppm</td> </tr> <tr> <td>Option 2:</td> <td>-55°C to +125°C:</td> <td>±50 ppm</td> </tr> <tr> <td colspan="3">(not available in CO-287W)</td> </tr> <tr> <td>Option 3:</td> <td>0°C to +50°C:</td> <td>±3 ppm</td> </tr> <tr> <td colspan="3">(not available in CO-484, CO-487, CO-287W)</td> </tr> <tr> <td>Option 5:</td> <td>0°C to +50°C:</td> <td>±5 ppm</td> </tr> <tr> <td>Option 6:</td> <td>0°C to +50°C:</td> <td>±10 ppm</td> </tr> </table>			STANDARD:	0°C to +70°C:	±25 ppm	Option 1:	-55°C to +85°C:	±50 ppm	Option 2:	-55°C to +125°C:	±50 ppm	(not available in CO-287W)			Option 3:	0°C to +50°C:	±3 ppm	(not available in CO-484, CO-487, CO-287W)			Option 5:	0°C to +50°C:	±5 ppm	Option 6:	0°C to +50°C:	±10 ppm
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Aging Rate (typical after 30 days)	3 ppm first year <2 ppm per year thereafter																										
Phase Noise (typical 4-100 MHz)	Offset from Carrier	Standard	Option L1*    Option L2**																								
	100 Hz	-100 dBc/Hz	-115 dBc/Hz    -120 dBc/Hz																								
	1 kHz	-125 dBc/Hz	-140 dBc/Hz    -145 dBc/Hz																								
	10 kHz	-140 dBc/Hz	-150 dBc/Hz    -160 dBc/Hz																								
	50 kHz	-145 dBc/Hz	-155 dBc/Hz    -160 dBc/Hz																								
	Noise degrades by 6 dB per octave above 100 MHz																										
	*L1 Option is not available in CO-281, CO-484, CO-487																										
	**L2 Option is available only in CO-233FW and is limited to 200 MHz:																										
	above 100 MHz, output of CO-233FWL2 is restricted to +7 dBm.																										

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[top of page](#)

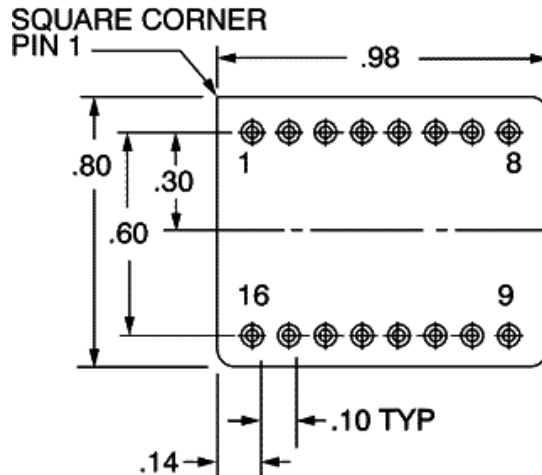
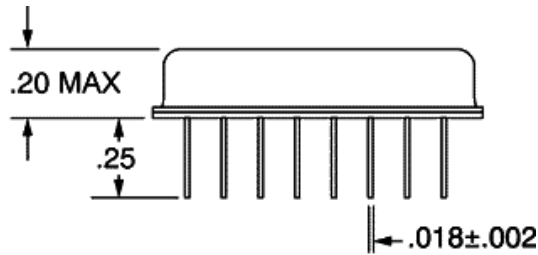
### How to Order Hybrid XO's - CO-400 Series

(Note: Not all combinations possible. See above for appropriate options.)



SCREEN TESTING OF ABOVE MODELS					
SCREEN TEST	MIL-STD-883 METHOD	Standard Options			
		CLASS X	CLASS D	CLASS B	CLASS S
Stabilization Bake (150°C)	—	X	X	X	Class S screen test requirements include 24 hour additional bake-out, 80 hour additional burn-in, thermal shock, PIND test and radiographic inspection in addition to Class B Screening. Has major cost impact.
Seal Test (Gross and Fine)	1014, Cond A2	X	X	X	
Temperature Cycling (Thermal Shock)	1010, Cond B		X	X	
Burn-in, operating 160 hours @125°C	—		X	X	
Acceleration (5000g in Y <sub>1</sub> axis)	2001, Cond A			X	

[top of page](#)



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Dimension in inches

**Pinouts**

<b>*Pin</b>	<b>Function</b>
8	0V, Case
9	Output
11	**
16	Supply

\*Unlisted pins may be used internally

\*\* $\leq 200$  MHz: no connection

$> 200$  MHz: 0V, Case

E Option, connect 5-30 pF capacitor from pin 5 to pin 8.

[top of page](#)

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