

Thru Hole Oscillator

- Wide frequency range
- Extended temperature range and tight symmetry available



Part Numbering Example: CO449A2XR- XX.XXXXM

SERIES	VOLTAGE	PACKAGE STYLE	STABILITY	OPERATING TEMP.	GRADE	SYMMETRY	FREQUENCY
CO4	4= 5V 5= 3.3 V	1 = Full Size 9 = Half Siz	A $\pm$ 50ppm C $\pm$ 25ppm D $\pm$ 15ppm B $\pm$ 10ppm	1 = -55 °C +105°C 2 = -55 °C +125°C (MIL-STD-883B) 3 = -55 °C +125°C (MIL-PRF-5531)D	X	Blank=40/60% R = 45/55%	XX.XXXXM 1.0 ~120.000 MHz

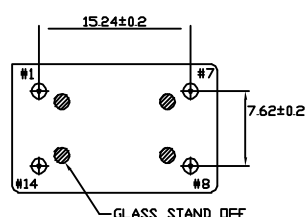
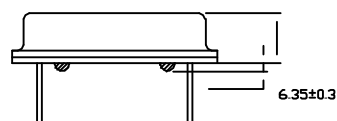
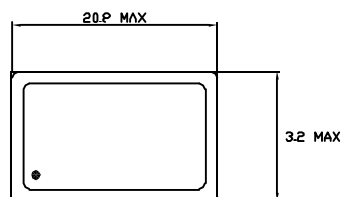
X(GRADE):

SCREEN TESTING OF GRADE					
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 160hours @125°C	—		X	X	
Acceleration (5000g in Y ₁ axis)	2001, Cond A			X	

Screen Tests: **Class X:** Seal test per MIL-STD-883, Method 1014, Condition A2 (gross and fine) stabilization bake +150°C

Style 1 Full Size 14 Pin Dip

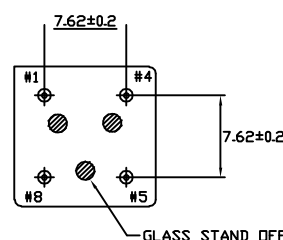
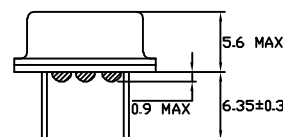
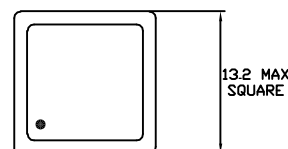
STYLE 1 FULL SIZE 14 PIN DIP



1 CONTROL
7 GND
8 OUTPUT
14 Vdd

Style 9 Half Size 8 Pin Dip

STYLE 4 HALFSIZE 8 PIN DIP



PIN FUNCTION
1 CONTROL
4 GND
5 OUTPUT
8 Vdd

Thru Hole Oscillator

Electrical Characteristics

Description	TEST CONDITIONS	Min	Typ	Max	Unit
Input Characteristics (Pin 1): V _{IL} , Low-Level Input Voltage TO DISABLE OUTPUT				0.2V _{dd}	V
V _{IH} , High-Level Input Voltage TO ENABLE OUTPUT OR open		0.7V _{dd}			
I _{IL} , Input Low Current I _{IH} , Input High Current	V _{IN} = 0V V _{IN} = V _{dd}			80 10	μA μA
Output Characteristics: V _{OL} , Low-Level Output Voltage	8 mA I _{OL}			0.4	V
V _{OHCMOS} , High-level HCMOS Voltage	-8 mA I _{OL}	V _{dd} -0.4			V V
Power Supply Current: (Loaded)	1.8V V _{dd} , OUTPUT FREQ < 133 MHz			15	mA
Tri-State Internal Pull-up:	1.8V V _{dd}	50	70	90	kΩ
Tri-State Leakage Current:	TS option, Pin 1 low			20	μA
Aging (PPM/Year) Ta=25C, V _{dd} =3.3V/2.5V				±3	ppm

Output Clock Switching Characteristics

Description	TEST CONDITIONS	Min	Typ	Max	Unit
Duty Cycle:		45		55	%
Output Clock Rise/Fall:	0.2–0.8V _{dd} , C _L = 15		2		nS nS
Start Up Time:			2	5	ms
RMS Period Jitter:			3	5	pS
RMS Integrated Jitter:	12kHz to 20MHz		10		pS
Phase Noise:	@ 10kHz			-120	dBc/Hz

Environmental And Mechanical	
Mechanical Shock	Per MIL-STD-883 ,Method 2002 ,Cond.B
Thermal Shock	Per MIL-STD-883 ,Method 1011 ,Cond.A
Vibration	Per MIL-STD-883 ,Method 2007 ,Cond.A
Seal	Per MIL-STD-883, Method 1014, Condition B & C
Solderability	Per MIL-STD-883 ,Method 2003 ,Cond.A