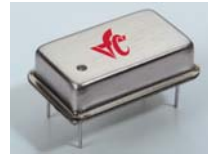


# COTS – Extended Temperature Crystal Oscillators – 5.0V Thru-Hole

## Features

- Extremely wide operating temperature range – up to +200°C
- 20KHz to 150MHz Frequency range
- Stability options of ±75ppm to ±500ppm
- Tristate and non-tristate options



### RoHS Status

RoHS  
5/6

## Applications

- Thru-hole PCB applications that require an HCMOS/TTL 5V clock and that might be exposed to extremely harsh environmental conditions.
- Down-hole applications



## Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note	
Frequency Range	F		0.02		150	MHz		
Frequency Stability	$\Delta F/F$	Includes calibration at 25°C, operating temperature, change of input voltage, change of load, shock and vibration	±75		±500	ppm	See Chart	
Operating Temperature	T		-55°		+200°	°C	See Chart	
Aging		First Year After First Year		3 1		ppm ppm/yr		
Supply Voltage	V <sub>cc</sub>		4.5	5.0	5.5	V		
Supply Current					40	mA		
Jitter		from positive edge to positive edge			50		ps RMS	
Output		All units, full temperature range Loads 3 TLL loads, or 10 LSTTL loads, or 15pF CMOS						
Symmetry*		TTL and LSTTL @ 1.4V CMOS, @ 50% V <sub>DD</sub>			40/60 40/60	%		
Rise and Fall Times		TTL and LSTTL from 0.4 to 2.4V CMOS, 15 pf, from 0.4 to (V <sub>DD</sub> -0.4) V CMOS, 30 pf, from 0.4 to (V <sub>DD</sub> -0.4) V			10 10 20	ns		

\*Superior symmetry available on all models.

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## Model Selection Table

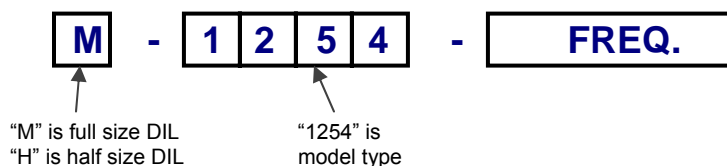
NON-TRISTATE	TRISTATE	Frequency Stability	Operating Temperature
Model	Model		
1254	3254	±180 ppm	0° to +175°C
1256	3256	±75 ppm	-55° to +85°C
1258	3258	±100 ppm	-40° to +85°C
4001	4301	±500 ppm	-55° to +200°C
4002	4302	±500 ppm	0° to 200°C
4003	4303	±250 ppm	-55° to +200°C
4004	4304	±250 ppm	0° to +200°C
4005	4305	±250 ppm	-55° to +175°C
4006	4306	±250 ppm	0° to +175°C
4007	4307	±200 ppm	-55° to +175°C
4008	4308	±200 ppm	0° to +175°C
4009	4309	±100 ppm	-55° to +125°C

\*Consult factory for better stability

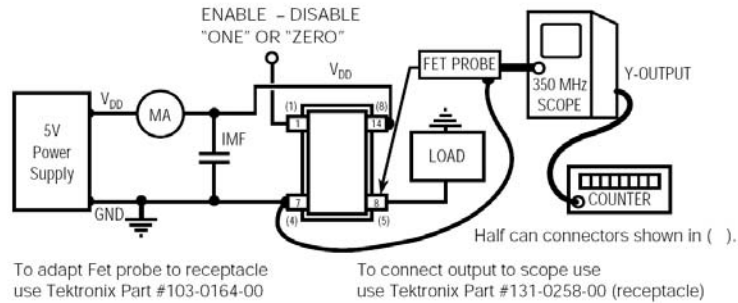
## Environmental and Mechanical Conditions

Parameter	Specification
Shock	1000 Gs, 0.35 ms, 1/2 sine wave, 3 shocks in each plane
Vibration	10-2000 Hz of .06" d.a. or 20 Gs, whichever is less
Humidity	Resistant to 85° R.H. at 85°C
Leak	MIL STD 883, Method 1014, condition A1
Pins	Alloy 52, nickel plated with 60/40 solder coat, or 7 microinch gold over nickel
Bend Test	Will withstand two bends of 90° from reference
Header	Steel, with nickel plate, or 7 microinch gold over nickel
Case	Stainless steel, type 304
Marking	Epoxy ink or laser engraved
Resistance to Solvents	MIL STD 202, Method 215

## HOW TO ORDER



# COTS – Extended Temperature Crystal Oscillators – 5.0V Thru-Hole



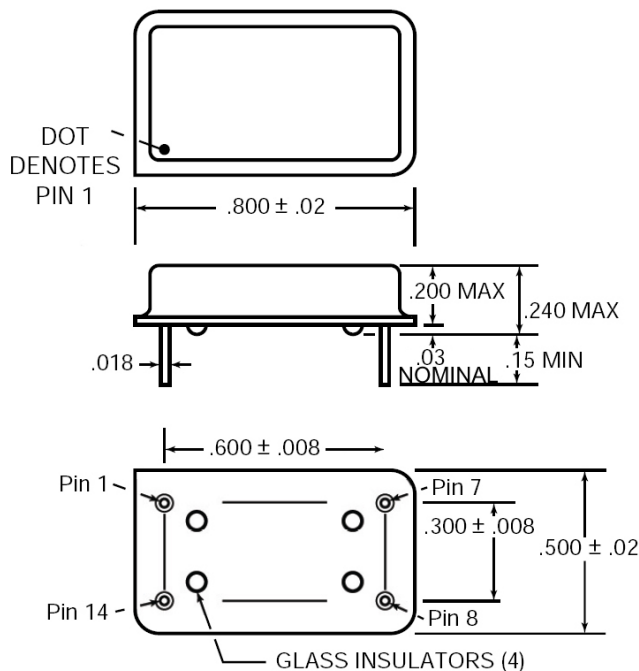
**ALL OSCILLATORS HAVE INTERNAL BYPASS CAPACITORS**

## TEST CIRCUIT

## Connections

Pin		Non-Tristate Models	Tristate Models
Full Size	Half Size		
1	1	NOT USED	Floating or 1 : Oscillator runs Ground or 0 : Disable or Tristate
7	4	Ground and Case	
8	5	Output	
14	8	+5.0V, $V_{DD}$	

### "M" Package



### "H" Package

