



FIXED/TRISTATE OSCILLATORS

Extended Temperature and COTS

FULL SIZE D.I.L
M1254, M1256,
M1258
M3254, M3256,
M3258
M4001 thru M4009
M4301 thru M4309

HALF SIZE D.I.L
H1254, H1256,
H1258
H3254, H3256,
H3258
H4001 thru H4009
H4301 thru H4309



Thru-Hole, 5V 20 KHz to 100 MHz

Thru-Hole, 5V Extended Temperature & COTS

These extended temperature thru-hole clock oscillators are especially attractive for COTS use. The hermetically sealed oscillators are available in (M) and half size (H) packages, for TTL and HCMOS output, and cover frequencies from 20 KHz to 100 MHz. Clock oscillators in this family operate over the -50°C to +200°C temperature range, and are available with thermal stability to ±50 ppm. Tristate versions are also available.

These DIL packaged oscillators are extended temperature range versions of our popular HCMOS/TTL models. They are characterized in temperatures suitable for harsh environment. Each unit undergoes rigorous testing to ensure full compliance with the specification. Unit data is available at additional cost.

These parts may be used for "Commercial-Off-The-Shelf" or "COTS" in demanding designs.

FEATURES

- Many stability/package options
- Hermetically sealed
- Low supply current

CRYSTALS

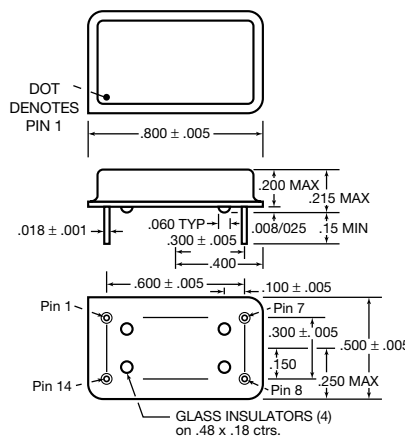
All crystals are processed in-house with tight angle control to assure best frequency-temperature characteristics.

PRE-SEAL BAKE

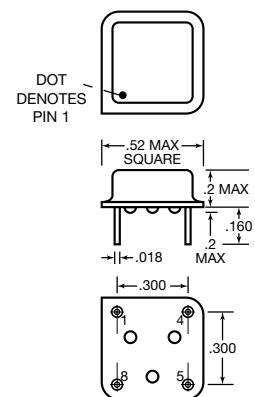
All units are vacuum baked before sealing at 175°C for 16 hours to eliminate moisture traces and pre-age units for superior aging.

FIXED OUTPUT		
MODEL	Frequency Stability	Temperature
1254	±50 ppm	0 to 175°C
1256	±75 ppm	-55 to +85°C
1258	±100 ppm	-40 to +85°C
4001	±500 ppm	-55 to 200°C
4002	±500 ppm	0 to 200°C
4003	±250 ppm	-55 to 200°C
4004	±250 ppm	0 to 200°C
4005	±250 ppm	-55 to 175°C
4006	±250 ppm	0 to 175°C
4007	±150 ppm	-55 to 175°C
4008	±150 ppm	0 to 175°C
4009	±100 ppm	-55 to 125°C

TRISTATE		
MODEL	Frequency Stability	Temperature
3254	±50 ppm	0 to 175°C
3256	±75 ppm	-55 to +85°C
3258	±100 ppm	-40 to +85°C
4301	±500 ppm	-55 to 200°C
4302	±500 ppm	0 to 200°C
4303	±250 ppm	-55 to 200°C
4304	±250 ppm	0 to 200°C
4305	±250 ppm	-55 to 175°C
4306	±250 ppm	0 to 175°C
4307	±150 ppm	-55 to 175°C
4308	±150 ppm	0 to 175°C
4309	±100 ppm	-55 to 125°C



"M" Package



"H" Package

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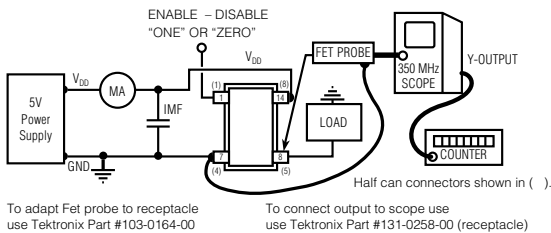
SPECIFICATIONS

Frequency	20 KHz to 100 MHz		
Frequency Stability	Includes calibration at 25°C, operating temperature, change of input voltage, change of load, shock and vibration.		
Input Voltage	5.0 ± 0.5V		
Input Current	40 ma., max.		
Output	All units, full range Loads 3 TLL loads, or 10 LSTTL loads, or 15 pf CMOS		
Rise and Fall Time	Maximum	Units	
TTL and LSTTL from 0.4 to 2.4V	10	ns	
CMOS, 15pf, from 0.4 to (V _{DD} -0.4) V	10	ns	
CMOS, 30pf, from 0.4 to (V _{DD} -0.4) V	20	ns	
Symmetry*			
TTL and LSTTL @ 1.4V	40/60	percent	
CMOS @50% V _{DD}	40/60	percent	

*Superior symmetry available on all models.

CONNECTIONS

	FULL SIZE	HALF SIZE	Fixed Output	Tristate
PIN 1	1	1	NOT USED	Floating or "1": Oscillator runs Ground or "0": Disable or Tristate
PIN 7	4	4	Ground and Case	
PIN 8	5	5	Output	
PIN 14	8	8	5V, V _{DD}	



To adapt Fet probe to receptacle use Tektronix Part #103-0164-00

To connect output to scope use Tektronix Part #131-0258-00 (receptacle)

ALL OSCILLATORS HAVE INTERNAL BYPASS CAPACITORS

TEST CIRCUIT

ENVIRONMENTAL SPECIFICATIONS

Temperature Cycle

Not to exceed ±5 ppm change when exposed to 2 hours maximum at each temperature from 0 to 120°C, with 25°C reference.

Shock

1000 G's, 0.35 ms, 1/2 sine wave, 3 shocks in each plane

Vibration

10-2000 Hz of .06" d.a. or 20 G's, whichever is less

Humidity

Resistant to 85° R.H. at 85°C

MECHANICAL SPECIFICATIONS

Gross Leak

Each unit checked in 125°C fluoro carbon

Fine Leak

Mass spectrometer leak rate less than 2×10^{-8} atmos, cc/sec of helium.

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

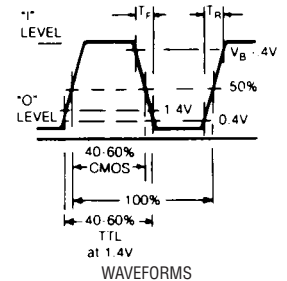
Stainless steel, type 304

Marking

Printing is black epoxy ink

Resistance to Solvents

MIL STD 202, Method 215



AGING

3 to 5 ppm, first year, typ.

1 ppm per year thereafter, typ.

HOW TO ORDER

For Part Number, put package type before model number, and add frequency in MHz, for example:

H 4309 - 16M

"M" is full size DIL
"H" is half size DIL

"4309"
is model
type

"16 M"
frequency in MHz