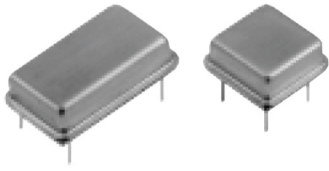




# CRYSTAL OSCILLATORS HCMOS 5V



FULL SIZE D.I.L M package	HALF SIZE D.I.L H package
M1254, M1256, M1258	H1254, H1256, H1258
M3254, M3256, M3258	H3254, H3256, H3258
M4001 thru M4009	H4001 thru H4009
M4301 thru M4309	H4301 thru H4309

## Thru-Hole Extended Temperature/COTS FIXED/TRISTATE, 20 KHz to 150 MHz

### FEATURES

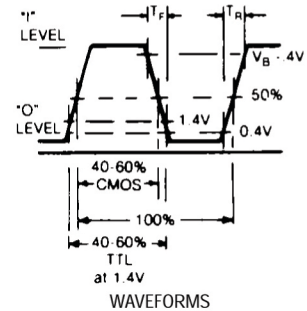
- Extremely wide operating temperature options available
- Jitter from positive edge to positive edge is 50 ps RMS max
- Hermetically sealed
- Low supply current
- All crystals are processed in-house with tight angle control to assure best frequency-temperature characteristics
- All units are vacuum baked before sealing at 175°C for 16 hours to eliminate moisture traces and pre-age units for superior aging
- Tristate option available

### TYPICAL APPLICATIONS

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

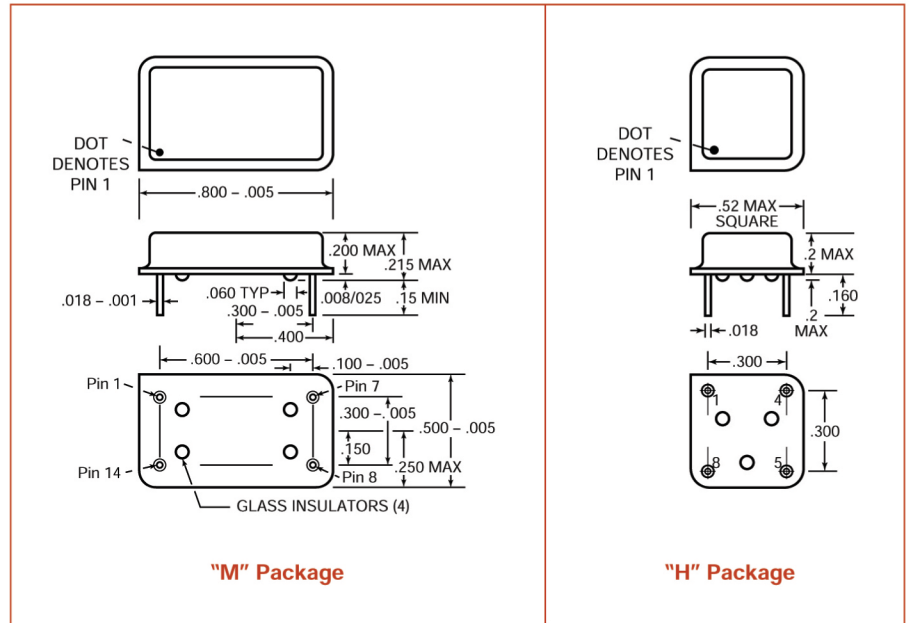
### Description

MF Electronics extended temperature/ COTS thru-hole oscillators provide clock waveforms needed to clock standard HCMOS or TTL circuits in PCBs that may be mounted in environments that are exposed to temperature extremes.



FIXED OUTPUT	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





**CRYSTAL OSCILLATORS**  
**HCMOS 5V**  
**Thru-Hole**  
**Extended Temperature/COTS**  
**20 KHz to 150 MHz**

<b>FULL SIZE D.I.L</b>	<b>HALF SIZE D.I.L</b>
<b>M package</b>	<b>H package</b>
M1254, M1256, M1258 M3254, M3256, M3258 M4001 thru M4009 M4301 thru M4309	H1254, H1256, H1258 H3254, H3256, H3258 H4001 thru H4009 H4301 thru H4309

**ELECTRICAL SPECIFICATIONS**

**Frequency Range** 20 KHz to 150 MHz  
**Frequency Stability** Includes calibration at 25°C, operating temperature, change of input voltage, change of load, shock and vibration.

**Output**  
 All units, full range  
 Loads 3 TLL loads, or 10 LSTTL loads, or 15 pf CMOS

	<b>TYP</b>	<b>MAX</b>	<b>UNITS</b>
<b>Input Voltage</b>	5.0 ± 0.5		volts
<b>Input Current</b>		40	mA
<b>Jitter</b>			
From positive edge to positive edge		50	ps RMS
<b>Rise and Fall Time</b>			
TTL and LSTTL from 0.4 to 2.4V		10	ns
CMOS, 15pf, from 0.4 to (V <sub>DD</sub> -0.4) V		10	ns
CMOS, 30pf, from 0.4 to (V <sub>DD</sub> -0.4) V		20	ns

**Symmetry\***  
 TTL and LSTTL @ 1.4V 40/60 percent  
 CMOS @50% V<sub>DD</sub> 40/60 percent

**Aging**  
 First year 3 ppm/yr  
 After first year 1 ppm/yr

\*Superior symmetry available on all models.

**CONNECTIONS**

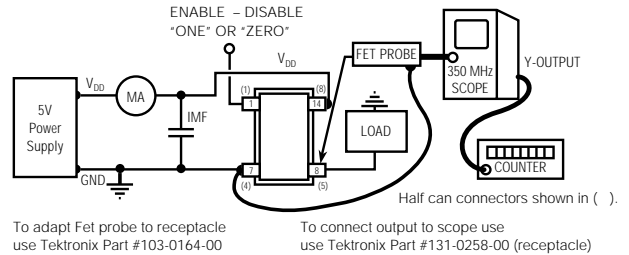
	<b>FULL SIZE</b>	<b>HALF SIZE</b>	<b>Fixed Output</b>	<b>Tristate</b>
PIN 1	1	1	NOT USED	Floating or "1": Oscillator runs Ground or "0": Disable or Tristate
PIN 7	4	4		Ground and Case
PIN 8	5	5		Output
PIN 14	8	8		5V, V <sub>DD</sub>

**ENVIRONMENTAL SPECIFICATIONS**

**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

**MECHANICAL SPECIFICATIONS**

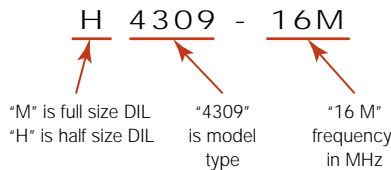
**Leak** – MIL STD 883, Method 1014, condition A1  
**Pins** – Alloy 52, nickel plated with 60/40 solder coat, or 7 microinch gold over nickel  
**Bend Test** – Will withstand two bends of 90° from reference  
**Header** – Steel, with nickel plate, or 7 microinch gold over nickel  
**Case** – Stainless steel, type 304  
**Marking** – Epoxy ink or laser engraved  
**Resistance to Solvents** – MIL STD 202, Method 215



**ALL OSCILLATORS HAVE INTERNAL BYPASS CAPACITORS**  
**TEST CIRCUIT**

**HOW TO ORDER**

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



SS#	Rev.
M1254	A



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