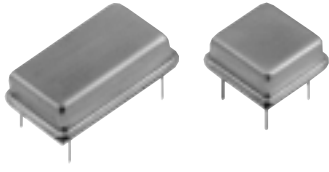




CRYSTAL OSCILLATORS HCMOS 5V



FULL SIZE D.I.L

M package
M1254, M1256,
M1258
M3254, M3256,
M3258
M4001 thru M4009
M4301 thru M4309

HALF SIZE D.I.L

H package
H1254, H1256,
H1258
H3254, H3256,
H3258
H4001 thru H4009
H4301 thru H4309

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

FEATURES

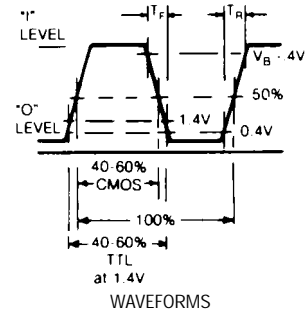
- Extremely wide operating temperature options available
- Jitter from positive edge to positive edge is 50 ps RMS max
- Hermetically sealed
- Low supply current
- All crystals are processed in-house with tight angle control to assure best frequency-temperature characteristics
- All units are vacuum 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

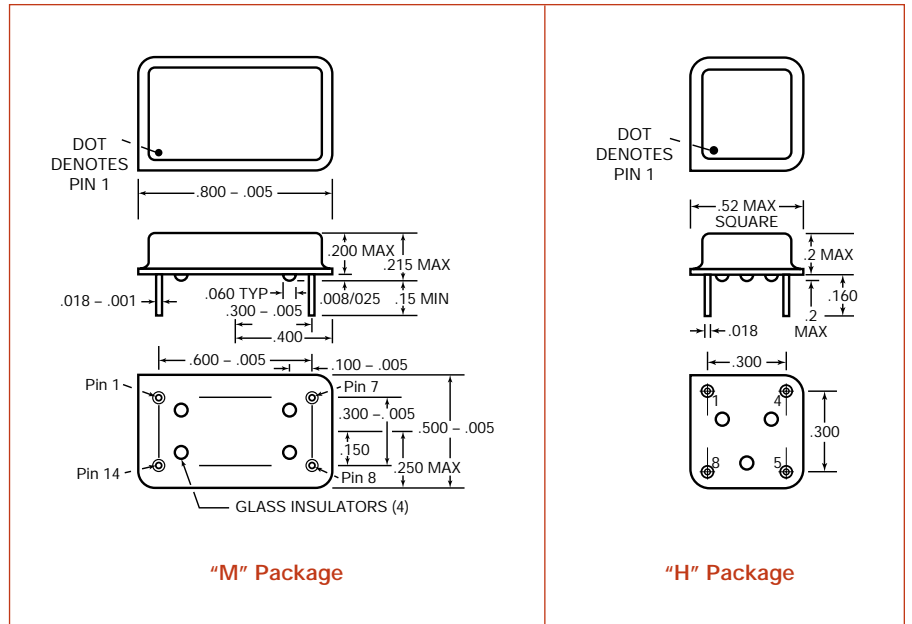
- Thru-hole PCB applications that require an HCMOS/TTL 5V clock and that might be exposed to extremely harsh environmental conditions.

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	±50 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	±150 ppm	-55 to 175°C
4008	4308	±150 ppm	0 to 175°C
4009	4309	±100 ppm	-55 to 125°C





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

FULL SIZE D.I.L	HALF SIZE D.I.L
M package	H package
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

	TYP	MAX	UNITS
Input Voltage	5.0 ± 0.5		volts
Input Current		40	mA
Jitter			
From positive edge to positive edge		50	ps RMS
Rise and Fall Time			
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

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

*Superior symmetry available on all models.

CONNECTIONS

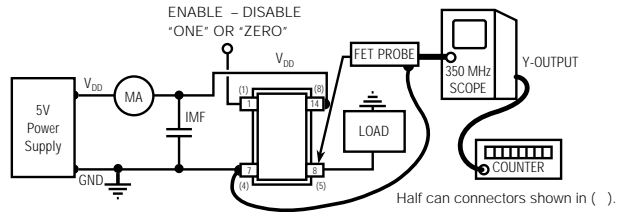
	FULL SIZE	HALF SIZE	Fixed Output	Tristate
PIN 1	1	1	NOT USED	Floating or "1": Oscillator runs Ground or "0": Disable or Tristate
PIN 7	4	4		Ground and Case
PIN 8	5	5		Output
PIN 14	8	8		5V, V _{DD}

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



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

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 "4309" is model type "16 M" frequency in MHz
 "H" is half size DIL

SS#	Rev.
M1254	A



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