FIXED/TRISTATE OSCILLATORS
0° to 70°C

Thru-Hole/Gull Wing, 3.3V
HCMOS/TTL, 1 KHz to 125 MHz
FIXED/TRISTATE

FULL SIZE D.I.L.
M1380, M1381, M1382, M1385. M1387, M1388, M1389
L1380, L1381, L1382, L1385. L1387, L1388, L1389
M3390, M3391, M3392, M3395, M3397, M3398, M3399
L3390, L3391, L3392, L3395, L3397, L3398, L3399

HALF SIZE D.I.L.
H1380, H1381, H1382, H1385. H1387, H1388, H1389
H3390, H3391, H3392, H3395, H3397, H3398, H3399

Thru-Hole, 3.3V

Our thru-hole fixed frequency 3.3 volt oscillators embody 25 years of design and manufacturing knowhow. They are available in full size and half size package, all hermetically sealed with welded stainless steel cover. These 3.3V oscillators are intended for new designs that take advantage of their low dissipation and reduced temperature rise. They cover 0°C to 70°C operation and provide frequency selection from 1 KHz to 125 MHz and have excellent long-term reliability, plus superior startup, loading and waveshape characteristics.

FIXED FREQUENCY
These oscillators have a full range of seven stability choices, with choice of tristate, in 3.3 volts.

TRISTATE
Tristate models are tristated from Pin 1. When Pin 1 is floating or "1", the output is normal. When Pin 1 is returned to "0", the output is tristated.

GUARANTEED JITTER
The jitter of the negative transition with respect to the positive transition (pulse width) has a standard deviation of less than 100 ps.

AGING
Less than 3 ppm first year, 1 ppm every year thereafter.

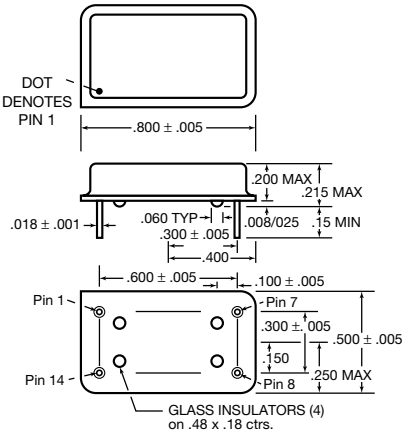
FEATURES
- Fixed frequency or Tristate
- Very low power when tristated
- Frequency from 1 KHz to 125 MHz
- Choice of Thru-hole packages
  - DIL Full Size ("M")
  - Half Size DIL ("H")
  - Gull Wing SMD
- Start up time less than 5 ms.
- Stability options thru .001% (10 ppm)
- Guaranteed start-up with ramping DC Supply
- 45/55 symmetry is standard
- Internal bypass in all models

CONNECTIONS — *All models*

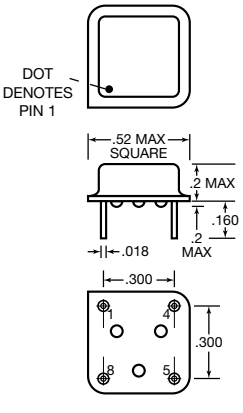
	FULL SIZE	HALF SIZE	M1380's H1380's	M3390's, H3390's Tristate
PIN	1	1	NOT USED	Floating or "1": Oscillator runs Ground or "0": Disable or Tristate
PIN	7	4	Ground and Case	
PIN	8	5	Output	
PIN	14	8	+3.3V, V_{DD}	

3.3 Volt Fixed Frequency Models

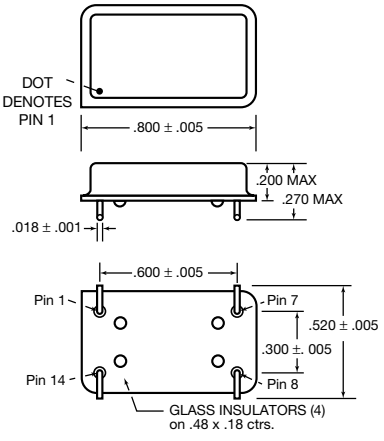
Fixed Output	Tristate	Frequency Stability
1380	3390	±100 ppm
1381	3391	±25 ppm
1382	3392	±50 ppm
1385	3395	±15 ppm
1387	3397	±10 ppm
1388	3398	±20 ppm
1389	3399	±32 ppm



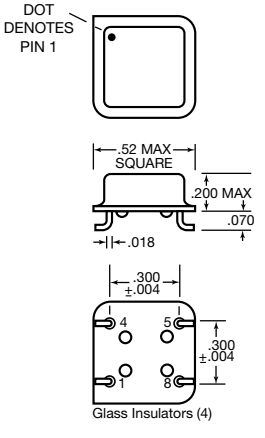
"M" Package – "L" Package is same as "M" but seated height is 0.190



"H" Package



"M" Package with Gull Wing



"H" Package with Gull Wing

MF ELECTRONICS
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HALF SIZE D.I.L.
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H3390, H3391, H3392, H3395, H3397, H3398, H3399

SPECIFICATIONS

Temperature — All models

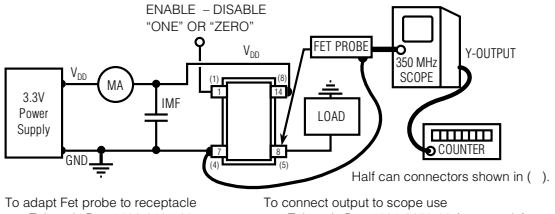
Operating	0 to 70°C
Storage	–55 to +125°C

Frequency Range

Fixed Output	1KHz to 125 MHz
Tristate	32.768 KHz to 125 MHz

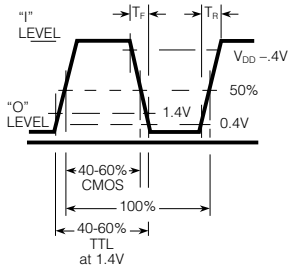
	MIN.	TYP	MAX	UNITS
Input Voltage, V_{DD}	3.0	3.3	3.6	volts
Input Current				
1 KHz to 10 MHz		8	14	ma
10.1 to 25 MHz		15	20	ma
25.1 to 50 MHz		20	30	ma
50.1 to 75 MHz		25	35	ma
75.1 to 125 MHz		30	40	ma
Output Levels				
"0" Level, sinking 16 ma			0.4	volts
"1" Level, sourcing 8 ma	V_{DD}-.4		0.5	volts
Rise and Fall Times				
CMOS, 15 pf, 20 to 80% (<60 MHz)		3.0	4	ns
CMOS, 30 pf, 20 to 80% (<60 MHz)		4.0	5	ns
CMOS, 50 pf, 20 to 80% (<60 MHz)		6.0	8	ns
CMOS, 15 pf, 20 to 80% (>60 MHz)		2.0	2.5	ns
CMOS, 30 pf, 20 to 80% (>60 MHz)		3.0	4.5	ns
Symmetry				
CMOS, @ 50% V_{DD}		48/52	45/55	percent

Input Requirements for Pin 1.:
"1": On – Pin 1 may float or 2.4V min., sourcing 400 microamp
"0": Tristate – Pin 1 requires 0.4V, sinking 400 microamp.



ALL OSCILLATORS HAVE INTERNAL BYPASS CAPACITORS

TEST CIRCUIT



WAVEFORMS

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 flurocarbon
Fine Leak – Mass spectrometer leak rate less than 2 X 10^{-8} atmos, cc/sec of helium
Pins – Kovar, nickel plated with 60/40 solder coat
Bend Test – Will withstand two bends of 90° from reference
Header – Steel, with nickel plate
Case – Stainless steel, type 304
Marking – Printing is black epoxy ink
Resistance to Solvents – MIL STD 202, Method 215

AGING — All models

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:

M 1387-44.736M G

"M" is full size DIL "H" is half size DIL "L" is low height, full size DIL	"1387" is model type	"44.736 M" frequency in MHz	Add "G" for gullwing

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