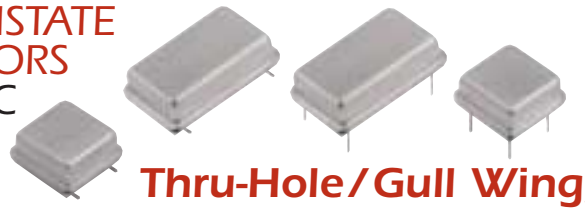
FIXED/TRISTATE OSCILLATORS
0° to 70°C



Thru-Hole/Gull Wing, 5V
HCMOS/TTL, 1 KHz to 175 MHz
FIXED, TRISTATE and "HARD ZERO"

FULL SIZE D.I.L.
M or L package
1280, 1281, 1282, 1285, 1286, 1287, 1288, 1289
1290, 1291, 1292, 1295, 1297, 1298, 1299
1991, 1992, 1995, 1997, 1998, 1999
3290, 3291 3292, 3295, 3296, 3297, 3298, 3299
3991 3992, 3995, 3997, 3998, 3999

HALF SIZE D.I.L.
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H1290, H1291, H1292, H1295, H1297, H1298, H1299
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Thru-Hole, 5V

Our thru-hole fixed frequency 5 volt oscillators embody 25 years of design and manufacturing knowhow. They are available in full-size and half size packages, all hermetically sealed with welded stainless steel cover. These 5V thru-hole oscillators are designed for everyday stresses of 0°C to 70°C operation and extended frequency selection of 1 KHz to 175 MHz. Higher (5V) operation ensures superior output loading and faster rise/fall times characteristics.

FIXED FREQUENCY
These oscillators have a full range of seven stability choices, with choice of tristate or "hard zero."

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.

HARD ZERO
Hard Zero models output a hard zero when Pin 1 is returned to "0".

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.

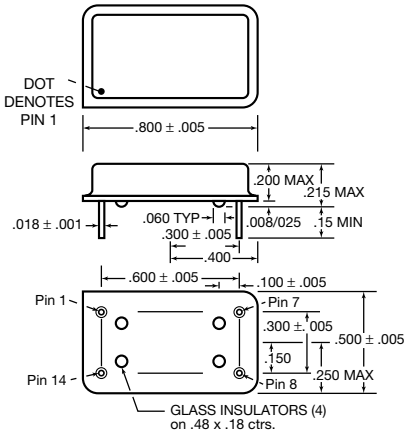
AGING
Less than 3 ppm first year, 1 ppm every year thereafter.

FIXED OUTPUT		
40/60 Symmetry	45/55 Symmetry	Frequency Stability
1280	1286	±100 ppm
1281	1991	±25 ppm
1282	1992	±50 ppm
1285	1995	±15 ppm
1287	1997	±10 ppm
1288	1998	±20 ppm
1289	1999	±32 ppm

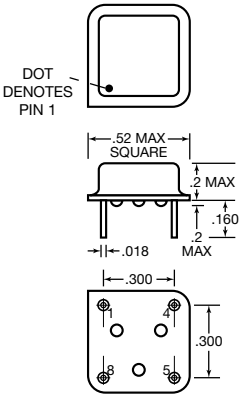
TRISTATE		
40/60 Symmetry	45/55 Symmetry	Frequency Stability
3290	3296	±100 ppm
3291	3991	±25 ppm
3292	3992	±50 ppm
3295	3995	±15 ppm
3297	3997	±10 ppm
3298	3998	±20 ppm
3299	3999	±32 ppm

HARD ZERO	
40/60 Symmetry	Frequency Stability
M1290	±100 ppm
M1291	±25 ppm
M1292	±50 ppm
M1295	±15 ppm
M1297	±10 ppm
M1298	±20 ppm
M1299	±32 ppm

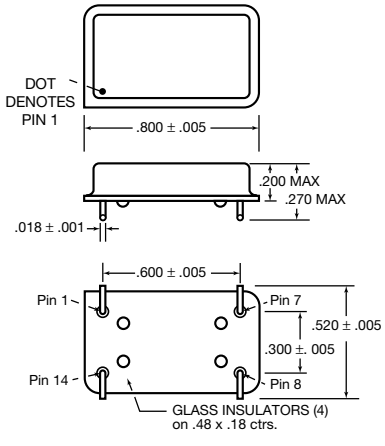
FEATURES
- Fixed frequency, Tristate or Hard Zero
- Very low power when tristated
- Frequency from 1 KHz to 175 MHz
- Choice of thru-hole packages
  - DIL Full Size ("M")
  - Half Size DIL ("H")
  - Gull Wing SMD
- Start up time less than 5 ms.
- Stability options thru .001% (10 ppm)
- Guaranteed start-up with ramping DC Supply
- 45/55 symmetry available
- Internal bypass in all models



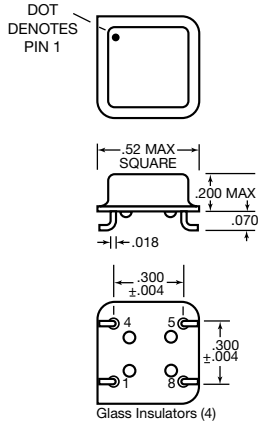
"M" Package – "L" Package is same as "M" but seated height is 0.190



"H" Package



"M" Package with Gull Wing



"H" Package with Gull Wing

MF ELECTRONICS
10 Commerce Drive, New Rochelle, NY10801 • 914-576-6570 • Fax: 914-576-6204 • http://www.mfelectronics.com • email:mfsales@mfelec.com

FIXED/TRISTATE OSCILLATORS – 0° to 70°C

Thru-Hole/Gull Wing, 5V

HCMOS/TTL, 1 KHz to 175 MHz

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SPECIFICATIONS

Temperature — All models

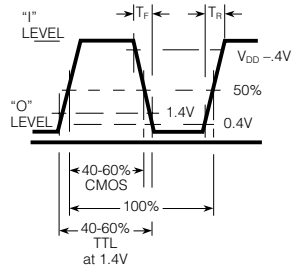
Operating	0 to 70°C
Storage	–55 to +125°C

Frequency Range

Fixed Output	1 KHz to 175 MHz
Tristate	32.768 to 175 MHz

	MIN.	TYP	MAX	UNITS
Input Voltage, V_{DD}	4.50	5.0	5.50	volts
Input Current				
1 KHz to 10 MHz		10	20	ma
10.1 to 25 MHz		20	35	ma
25.1 to 50 MHz		25	45	ma
50.1 to 75 MHz		40	55	ma
75.1 to 125 MHz		50	60	ma
100.1 to 175 MHz		55	65	ma
Output Levels				
"0" Level, sinking 16 ma			0.4	volts
"1" Level,				
TTL	2.4	4.6		volts
CMOS, sourcing 8 ma	V_{DD}-.4			volts
Rise and Fall Times				
TTL, from 0.8 to 2.4V		2.4	4	ns
HCMOS, 15 pf, 20 to 80%				
1 KHz to 75 MHz		2.5	4	ns
75.1 to 175 MHz		1.5	2	ns
HCMOS, 30 pf, 20 to 80%				
1 KHz to 125MHz		4.0	6	ns
HCMOS, 50 pf, 20 to 80%				
1KHz to 75 MHz		4.0	6	ns
Symmetry				
10 TTL, @ 1.4V		45/55	40/60	percent
Depending on model			or 45/55	percent
HCMOS, @ 50% V_{DD}		45/55	40/60	percent
Depending on model			or 45/55	percent

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



WAVEFORMS

CONNECTIONS — All models

	FULL SIZE	HALF SIZE	M1280's H1280's	M1290's, "Hard-Zero" M3290's, H3290's Tristate
PIN	1	1	NOT USED	Floating or "1": Oscillator runs Ground or "0": Hard "0" for M1290's or Tristate for 3290's
PIN	7	4	Ground and Case	
PIN	8	5	Output	
PIN	14	8	5V, V_{DD}	

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

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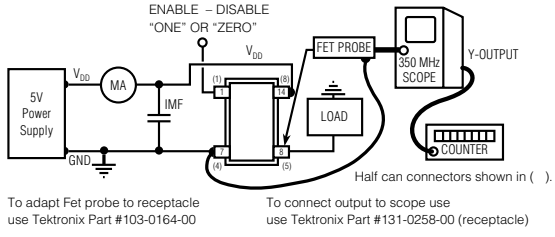

ALL OSCILLATORS HAVE INTERNAL BYPASS CAPACITORS

TEST CIRCUIT

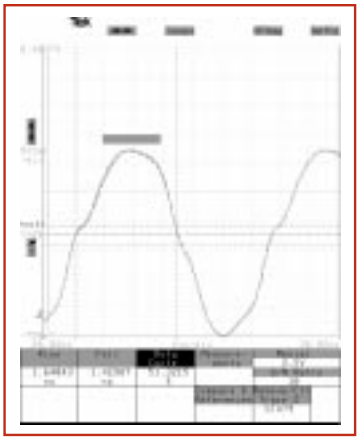

Fig. 1 M1286-148.26M with 10pf load
Duty Cycle is 51.3% at $V_{DD}/2$

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:

H 3290-66.66M G

- "M" is full size DIL "H" is half size DIL "L" is low height, full size DIL
- "3290" is model type
- "66.66 M" frequency in MHz
- Add "G" for gullwing

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