



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.
H1280, H1281, H1282,
H1285, H1286, H1287,
H1288, H1289
H1290, H1291, H1292,
H1295, H1297, H1298,
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H1991, H1992, H1995,
H1997, H1998, H1999
H3290, H3291 H3292,
H3295, H3296, H3297,
H3298, H3299
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H3997, H3998, H3999

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

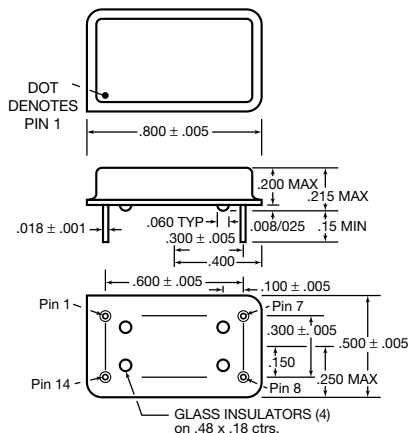
40/60 Symmetry	45/55 Symmetry	Frequency Stability
3290	3296	±100 ppm
3291	3991	±25 ppm
3292	3992	±50 ppm
3295	3995	±15 ppm
3297	3997	±10 ppm
3298	3998	±20 ppm
3299	3999	±32 ppm

HARD ZERO

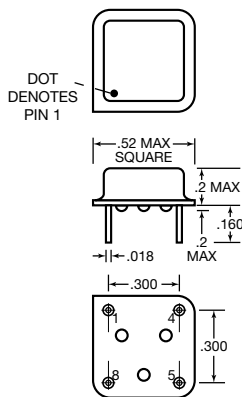
40/60 Symmetry	Frequency Stability
M1290	±100 ppm
M1291	±25 ppm
M1292	±50 ppm
M1295	±15 ppm
M1297	±10 ppm
M1298	±20 ppm
M1299	±32 ppm

FEATURES

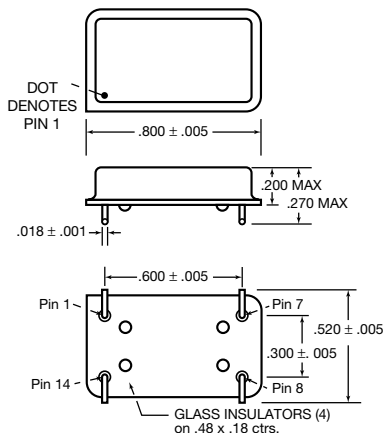
- Fixed frequency, Tristate or Hard Zero
- Very low power when tristated
- Frequency from 1 KHz to 175 MHz
- Choice of thru-hole packages
 - DIL Full Size ("M")
 - Half Size DIL ("H")
 - Gull Wing SMD
- Start up time less than 5 ms.
- Stability options thru .001% (10 ppm)
- Guaranteed start-up with ramping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



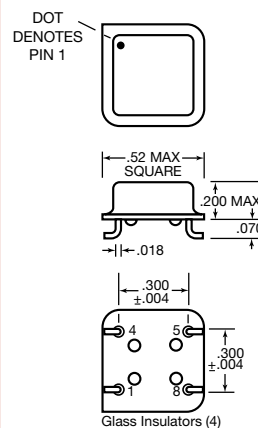
**"M" Package - "L" Package
is same as "M"
but seated height is 0.190**



"H" Package



**"M" Package
with Gull Wing**



**"H" Package
with Gull Wing**



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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

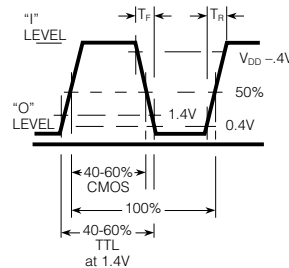
TTL, from 0.8 to 2.4V	2.4	4	ns
HCMOS, 15 pf, 20 to 80%			
1 KHz to 75 MHz	2.5	4	ns
75.1 to 175 MHz	1.5	2	ns
HCMOS, 30 pf, 20 to 80%			
1 KHz to 125MHz	4.0	6	ns
HCMOS, 50 pf, 20 to 80%			
1KHz to 75 MHz	4.0	6	ns

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 fluocarbon

Fine Leak – Mass spectrometer leak rate less than 2×10^{-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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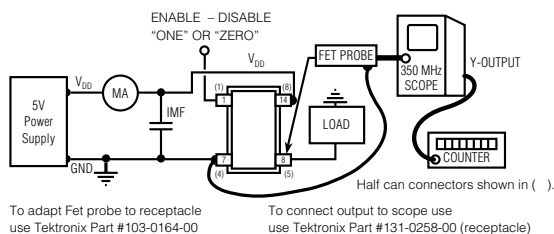
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ALL OSCILLATORS HAVE INTERNAL BYPASS CAPACITORS

TEST CIRCUIT

AGING — All models

3 to 5 ppm, first year, typ.

1 ppm per year thereafter, typ.

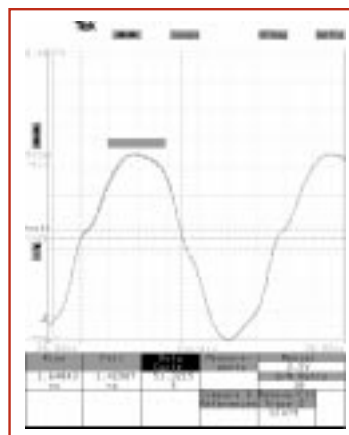


Fig. 1 M1286-148.26M with 10pf load
Duty Cycle is 51.3% at $V_{DD}/2$

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

MF ELECTRONICS