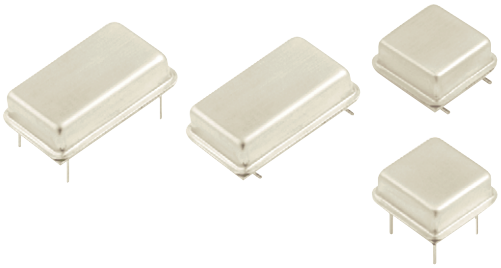
FIXED/TRISTATE OSCILLATORS
Industrial Temperature -40 to +85°C



FULL SIZE D.I.L.
M or L package
1210,1212,
3210, 3212

HALF SIZE D.I.L.
H1210, H1212,
H3210, H3212

Thru-Hole/Gull Wing, 5V
HCMOS/TTL, 1 KHz to 100 MHz
FIXED OR TRISTATE

Thru-Hole, 5V

Our new family of industrial grade (-40°C - 85°C) clock oscillators provide a potent pin-for-pin upgrade choice in equipment destined for harsh application environments. Global datacomm system builders can safely ship to all the world's markets. At the same time, the oscillators' economical pricing structure gives equipment manufacturers a conservative margin of safety for room temperature applications.

These oscillators set a rigorous standard of jitter performance over this temperature. All versions meet the frequency upconverting requirements of ATM, frame relay, SONET and other gigabit frequency applications.

The oscillator family operates at 5V in the standard 4 pin DIL and Half Size DIL thru hole packages.

They are available from 1 KHz thru 100 MHz frequency range at thermal stabilities of 50 ppm or 100 ppm and are guaranteed for the entire -40°C to 85°C span.

FIXED FREQUENCY
These oscillators are available in either ±50 or ±100 ppm over the temperature range of -40 to +125 °C

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 if less than 5 ps rms from positive edge to positive edge

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

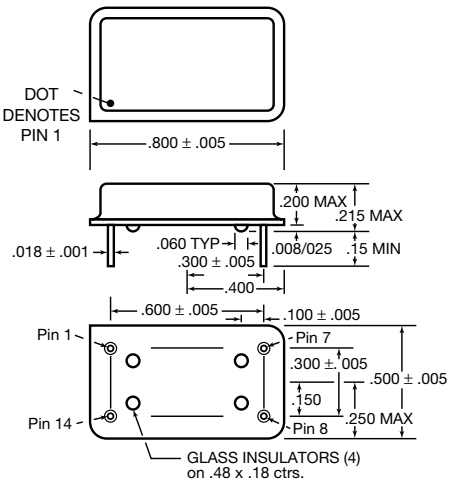
FEATURES
- Fixed frequency or Tristate
- Very low power when tristated
- Frequency from 1 KHz to 100 MHz
- Choice of thru-hole packages
  - DIL Full Size ("M")
  - Half Size DIL ("H")
  - Gull Wing SMD
- Start up time less than 5 ms.
- Guaranteed start-up with ramping DC Supply
- Internal bypass in all models

Fixed Output

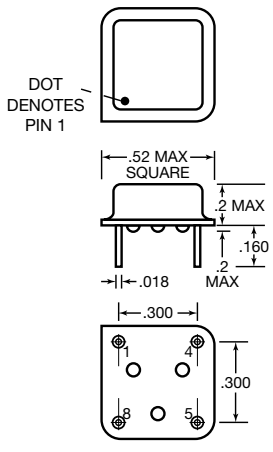
Model	Frequency Stability
1210	±100 ppm
1212	±50 ppm

Tristate

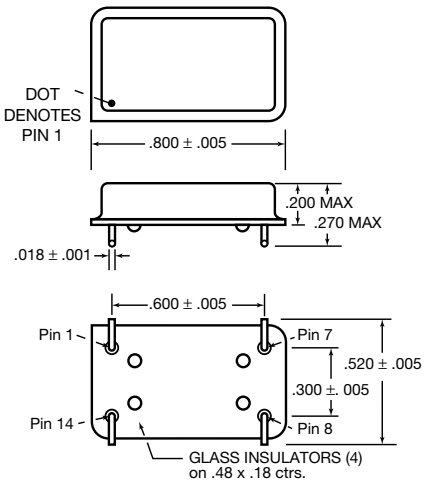
Model	Frequency Stability
3210	±100 ppm
3212	±50 ppm



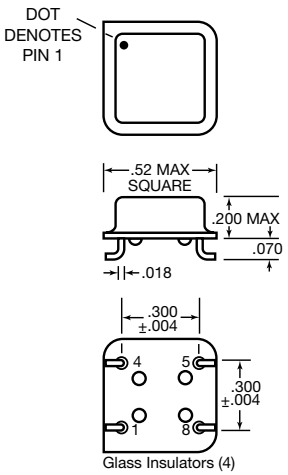
"M" Package – "L" Package is same as "M" but seated height is 0.190



"H" Package



"M" Package with Gull Wing



"H" Package with Gull Wing

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

FIXED/TRISTATE OSCILLATORS – -40° to +85°C

Thru-Hole/Gull Wing, 5V

HCMOS/TTL, 1 KHz to 100 MHz

FIXED OR TRISTATE

FULL SIZE D.I.L.
M or L package
1210,1212,
3210, 3212

HALF SIZE D.I.L.
H1210, H1212,
H3210, H3212

SPECIFICATIONS

Temperature — All models

Operating	-40 to +85°C
Storage	–55 to +125°C

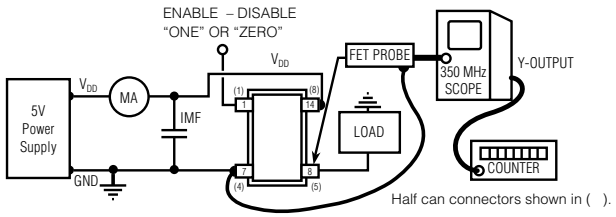
Frequency Range 1 KHz to 100 MHz

	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	50	ma
75.1 to 100 MHz		50	60	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 100 MHz		1.5	2.5	ns
HCMOS, 30 pf, 20 to 80%				
1 KHz to 100 MHz		4.0	6	ns
Jitter	Less than 5 ps from positive peak to positive peak			
Symmetry				
10 TTL, @ 1.4V		45/55	40/60	percent
HCMOS, @ 50% V_{DD}		45/55	40/60	percent

Input Requirements for Pin 1.:

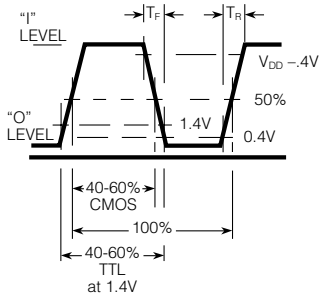
"1": On – Pin 1 may float or 2.4V min., sourcing 400 microamp

"0": Disable or Tristate – Pin 1 requires 0.4V, sinking 400 microamp.



ALL OSCILLATORS HAVE INTERNAL BYPASS CAPACITORS

TEST CIRCUIT



WAVEFORMS

CONNECTIONS — All models

Models 3210, 3212	1210, 1212
Pin 1. Tristate: Floating or "1": Oscillator runs Ground or "0": Disable or Tristate	Not Used
Pin 2. Ground	Ground
Pin 3. Output	Output
Pin 4. +5V, Vdd	+5V, Vdd

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

HOW TO ORDER

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

H 3210- 50 M G

"M" is full size DIL
"H" is half size DIL
"L" is low height, full size DIL

"3210" is model type

"50 M" frequency in MHz

Add "G" for gullwing

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