FIXED OSCILLATORS
ECL and PECL
0° to 70°C

FULL SIZE D.I.L
M1700, M2700
M1710, M2710
M1736, M2736
M1744, M2744
M1745, M2745
M1748, M2748
M1900, M1910
M1936, M1944
M1945, M1948

HALF SIZE D.I.L
H1700, H2700
H1710, H2710
H1736, H2736
H1744, H2744
H1745, H2745
H1748, H2748
H1900, H1910
H1936, H1944
H1945, H1948

10KH Logic — PECL

MF Electronics' high speed clock oscillators for digital and communications applications are based on 5V PECL logic and are available in full size (M) and half size (H) thru-hole packages. Designs in 10KH logic develop 10 MHz to 210 MHz output, and are available with 45/55 symmetry. They can be provided with dual complementary output at frequencies through 410 MHz. Frequency stability extends from the high end at ±20 ppm to ±200 ppm. For superior performance, see our model 2900s using ECLPS logic.

Thru-Hole/Gull Wing

10 MHz to 410 MHz

1700 and 2700 – 10KH logic PECL, +5V
1900 – 10KH logic with Enable/Disable, PECL, +5V

The MF PECL oscillators are available in a variety of common configurations. Models are full size or half size, in 10 KH logic, with and without complementary outputs. Frequencies from 10 MHz to 410 MHz. Frequency tolerances from 200 ppm to 10 ppm include all effects of voltage, load and aging.

All Models above 210 MHz are 10E logic.

- DIL - full size or half size
- Single or dual complementary outputs
- H1900 and M1900 have Enable/Disable, reducing noise of unwanted frequency and allowing wired OR (to 210 MHz)
- Start up time less than 5 ms.
- Stability options from .02% (200 ppm) to .002% (20 ppm)
- Guaranteed start-up with ramping DC Supply
- Terminating resistor may be internal - consult factory

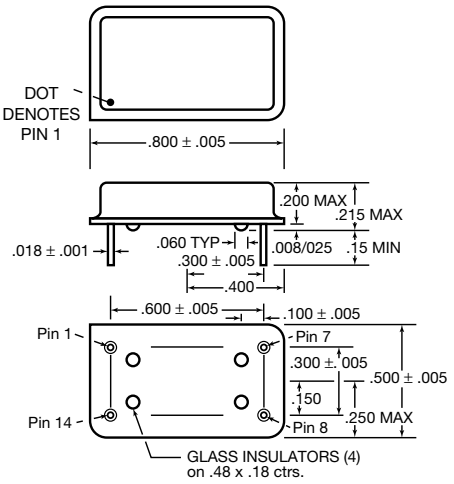
PECL OSCILLATORS

10KH Logic 10 MHz thru 210 MHz — 10E Logic 210.1 to 410 MHz

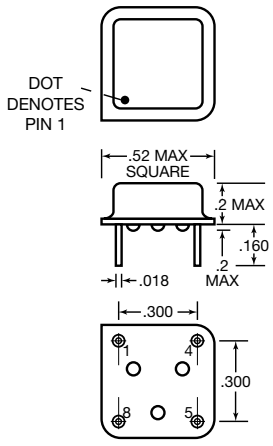
+5 Volt Power on Pin 14

Single Output	Complementary Output	Enable/Disable Output	Frequency Stability
1700	2700	1900	±100 ppm
1710	2710	1910	±200 ppm
1736*	2736*	1936*	±100 ppm
1744	2744	1944	±25 ppm
1745	2745	1945	±50 ppm
1748	2748	1948	±20 ppm

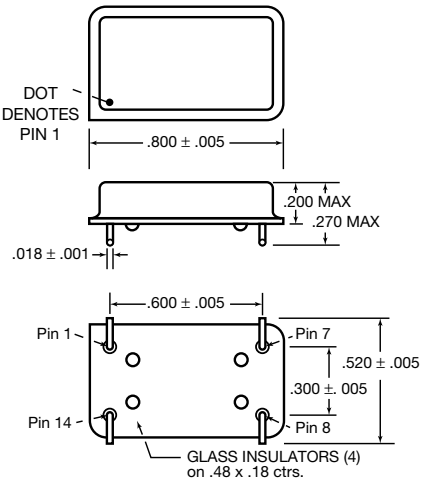
* Guaranteed Superior Symmetry 45/55



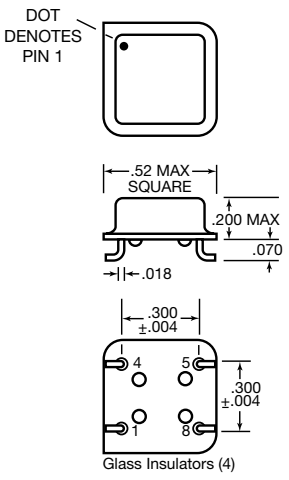
"M" Package



"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

FULL SIZE D.I.L
M1700, M2700
M1710, M2710
M1736, M2736
M1744, M2744
M1745, M2745
M1748, M2748
M1900, M1910
M1936, M1944
M1945, M1948

HALF SIZE D.I.L
H1700, H2700
H1710, H2710
H1736, H2736
H1744, H2744
H1745, H2745
H1748, H2748
H1900, H1910
H1936, H1944
H1945, H1948

FIXED OSCILLATORS
ECL and PECL, 0° to 70° C
Thru-Hole / Gull Wing
10 MHz to 410 MHz

1700 and 2700 – 10KH logic, PECL, +5V

1900 – 10KH logic with Enable/Disable, PECL, +5V

TERMINATIONS
All ECL oscillators must be terminated. If required, internal terminating resistors of any specified value may be factory-supplied

ENABLE/DISABLE
The M1900 and H1900 have Enable-Disable feature, which allows several oscillators to be wire-OR'd, so that one frequency of several may be selected. If Pin1. is "0", the output is normal, However, when Pin1. is "1", the oscillator shuts-down, and the output goes to logic "0"'. The logic "0" may be wire-OR'd.

AUTOMATED TESTING (ATE)
Automated testing can effectively be performed using the M1900, since this model may be turned-off and "0"'d, allowing an ECL test frequency to be inserted on the output node.

SPECIFICATIONS

Temperature

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

Frequency Range 10 MHz to 410 MHz

	MIN.	TYP	MAX	UNITS
Input Voltage	4.75	5.0	5.25	volts
Input Current		45	60	ma
Output Levels				
"0" Level				
25°C	(V_C–1.95)		(V_C–1.63)	volts
75°	(V_C–1.95)		(V_C–1.60)	volts
"1" Level				
25°C	(V_C–0.98)		(V_C–0.81)	volts
75°	(V_C–0.92)		(V_C–0.735)	volts
Drive Required for 1900				
(at ECL levels)			0.85	ma
Rise and Fall Times				
(20 to 80%)		1.0	2.0	ns
Symmetry				
All units, except '36 Models		45/55	40/60	percent
All '36 Models		48/52	45/55	percent

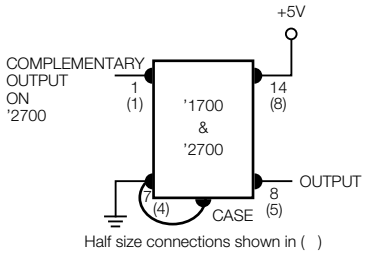


Fig. 1

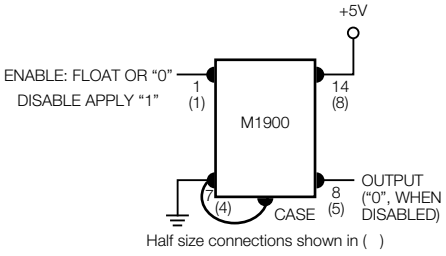


Fig. 2

Note: Outputs must be properly terminated

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, 7 microinch gold over nickel

Bend Test – Will withstand two bends of 90° from reference

Header – Steel, 7 microinch gold over nickel

Case – Stainless steel, type 304

Marking – Printing is black epoxy ink

Resistance to Solvents – MIL STD 202, Method 215

AGING
3 to 5 ppm, first year, typ.
1 ppm per year thereafter, typ.

FULL SIZE D.I.L
M1700, M2700
M1710, M2710
M1736, M2736
M1744, M2744
M1745, M2745
M1748, M2748
M1900, M1910
M1936, M1944
M1945, M1948

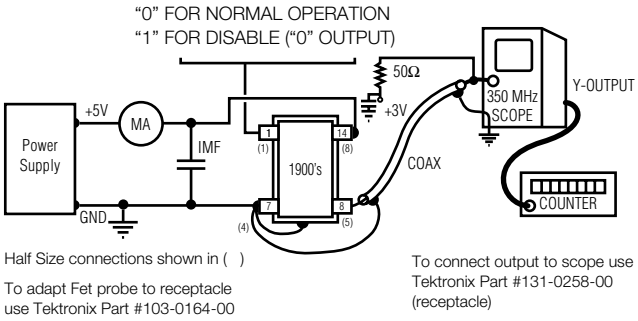
HALF SIZE D.I.L
H1700, H2700
H1710, H2710
H1736, H2736
H1744, H2744
H1745, H2745
H1748, H2748
H1900, H1910
H1936, H1944
H1945, H1948

FIXED OSCILLATORS
ECL and PECL, 0° to 70° C
Thru-Hole / Gull Wing
10 MHz to 410 MHz

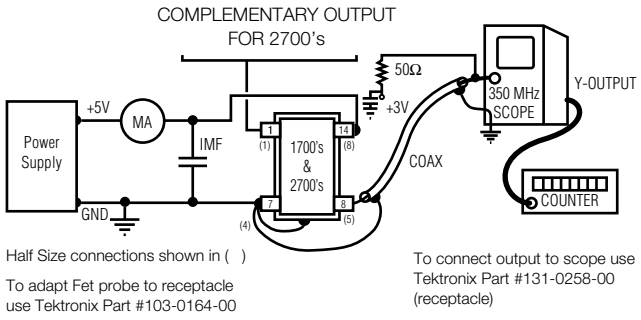
1700 and 2700 – 10KH logic, PECL, +5V
1900 – 10KH logic with Enable/Disable, PECL, +5V

CONNECTIONS

PINS		H1700, H2700, H1900 M1700, M2700, M1900 Models
Full Size	Half Size	
1.	1.	Not used in Single Output or Used for Complementary Output (Same termination as Pin 8.) Used for H1900 and M1900. Float or "0" for normal operation, "1" for "0" Output
7.	4.	Electrical Ground and Case
8.	5.	Output requires termination of 270 ohms to Pin 7 (4) or 50 ohms to +3V
14.	8.	+5V, V_{DD}
CASE		Tied to Pin 7.



TEST CIRCUIT FOR 1900's



TEST CIRCUIT FOR 2700's HAVE ADDITIONAL OUTPUT ON PIN 1.

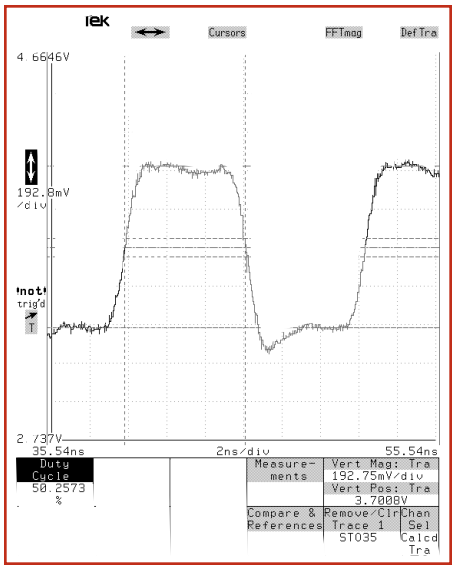


Fig. 3 M1700-80M

HOW TO ORDER

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

M 1700-77.76M G

- "M" is full size DIL, "H" is half size DIL, "L" is low height, full size DIL
- "1700" is model type
- "77.76 M" frequency in MHz
- Add "G" for gullwing