

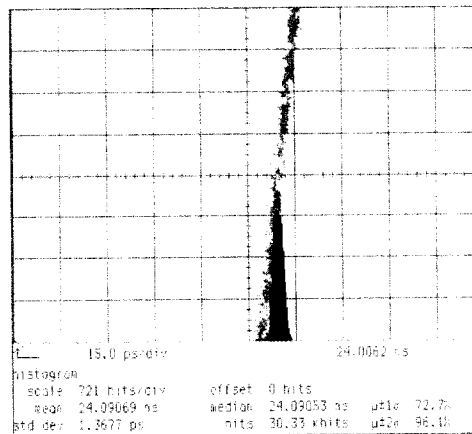
M115-2 Series

Programmable Master Clock Oscillators

The M115-2 is a member of the M115 series of high-performance, digitally-programmed master clock oscillators with frequencies ranging from 60MHz to 1GHz. The M115 series is a cost-effective alternative to traditional "fixed-frequency master clocks", delivering the performance of fixed frequency clocks with the added benefits of a programmable output frequency and the best skew and jitter performance in the industry. The M115-2 provides a programmable output frequency from 60MHz to 100MHz in 100kHz steps. (Contact factory for other frequency ranges). A 9-bit digital control word is the input required to select any of the 400 possible output frequencies.

No software is required.

The M115 family is well-suited for high-precision, high-frequency applications in the telecom, datacom, computer, and ATE/instrumentation markets – or any market that could benefit from an upgradeable or selectable clock frequency either during product design or in the field. As system frequencies and speeds increase, so does the M115's value and cost-effectiveness.



Features:

- **Programmable Output Frequency 60MHz - 100MHz** (No Software Required)
- **100kHz (LSB) Resolution**
- **3psec Typical Phase Jitter**
- **10ppm Typical Initial Accuracy**
- **Less than 60mA Supply Current**
- **PECL-Compatible Single-Ended Output**
- **Other Frequency Ranges Available to 1GHz**

Model	Programmable Range	Resolution
M115-2	60-100MHz	100kHz
M115-3	115-175MHz	100kHz
M115-4	175-225MHz	100kHz
M115-5	225-335MHz	200kHz
M115-6	350-535MHz	200kHz
M115-7	525-819MHz	200kHz
M115-8	819.2-1000MHz	200kHz

For additional information regarding Custom Microelectronic Products and Services, please contact Micro Networks at:



micro networks corporation

324 Clark St., Worcester, MA 01606
Tel. (508) 852-5400 • FAX (508) 853-8296
E-Mail – sales@mnc.com
Web Site – <http://www.mnc.com>



ISO 9001

M115-2 Series

Programmable Master Clock Oscillators

Absolute Maximum Ratings

Operating Temperature Range	-25°C to +85°C
Specified Temperature Range	0°C to +70°C
Contact factory for extended temperatures	
Storage Temperature Range	-55°C to +125°C
Supply +V _{CC}	0 to +7.0 Volts
Supply +V _{DD}	0 to + 18.0 Volts

Specifications

Specifications @ T_A = +25°C, +V_{CC} and +V_{DD} = nominal, unless otherwise indicated

	Min.	Typ.	Max.	Units
OUTPUT: PECL Compatible Single-Ended				
Output Frequency Range	60		100	MHz
Frequency Resolution (1 LSB)	99.9965	100	100.0035	kHz
Jitter (RMS)		3	7	psec
Power Level (Note 1)	-2	0.1		dBm
Power Level Variation (Note 2)		1.5	2.5	dB
Harmonic Distortion (Note 3)		-25	-20	dBc
Spurious Response		-50	-40	dBc
Initial Accuracy		10	25	ppm
Stability (0-70°C)		15	35	ppm
INPUT: HCMOS Compatible (Note 4) 9-bit Control Word (D8-D0)	88 (058H) for 60MHz		488 (1E8H) or 100MHz	Digital Address
V _{IH} (+V _{CC} = +5V)	3.5			Volts
I _{IH} (+V _{IN} = +V _{CC})			0.1	μA
V _{IL} (+V _{CC} = +5V)			1.5	Volts
I _{IL} (+V _{IN} = GND)	-20		-200	μA
Power Supply:				
+V _{CC}	+4.75	+5.0	+5.25	Volts
+V _{DD}	+14.5	+15	+15.5	Volts
Power Supply Current:				
I _{CC}		50	75	mA
I _{DD}		2	8	mA

- Notes: 1. Power level is measured at F_{min} by AC coupling into a 50 ohm load resistor terminated to ground.
 2. Output power level variation is the change in power level when the output frequency is varied from F_{min} to F_{max}.
 3. Measured at the 2nd harmonic.
 4. All inputs have internal pullups to +V_{CC}. Pins left unconnected will remain at a logic-1 state.

Specifications subject to change without notification as Micro Networks reserves the right to make improvements and changes in its products.



micro networks corporation

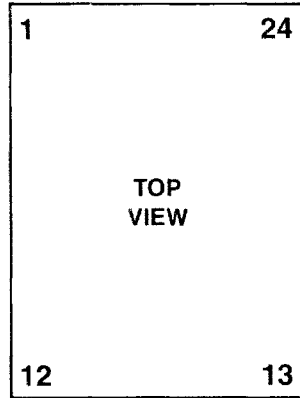
324 Clark St., Worcester, MA 01606
 Tel. (508) 852-5400 • FAX (508) 853-8296
 E-Mail - sales@mnc.com
 Web Site - http://www.mnc.com

M115-2 Series

Programmable Master Clock Oscillators

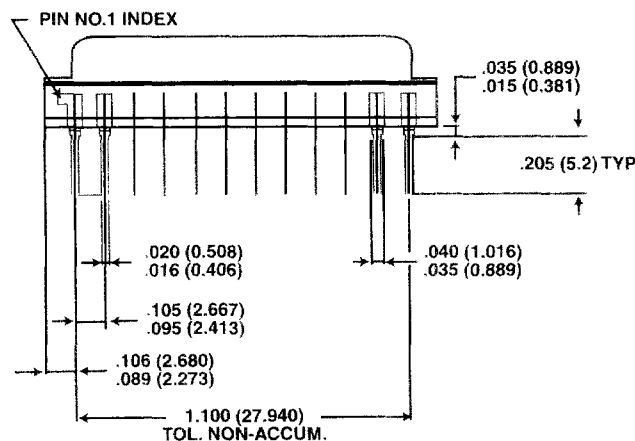
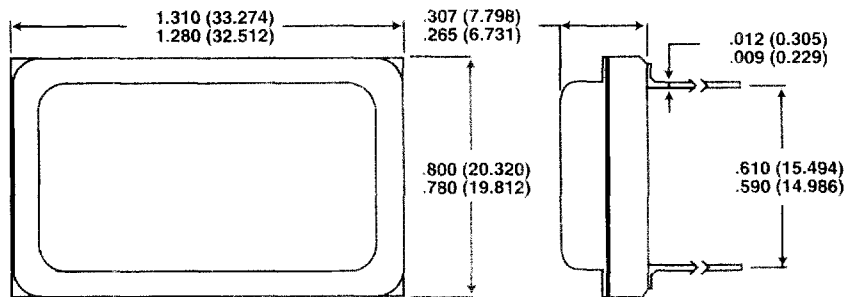
Pin Designations

M115-2 Model



1. Ground	24. Ground
2. D0	23. D8
3. D1	22. D7
4. D2	21. D6
5. D3	20. D5
6. NC	19. D4
7. +V _{CC}	18. Ground
8. Ground	17. +V _{DD}
9. Fout	16. Ground
10. +V _{CC}	15. NC
11. Ground	14. Ground
12. NC	13. NC

Package Outline



micro networks corporation

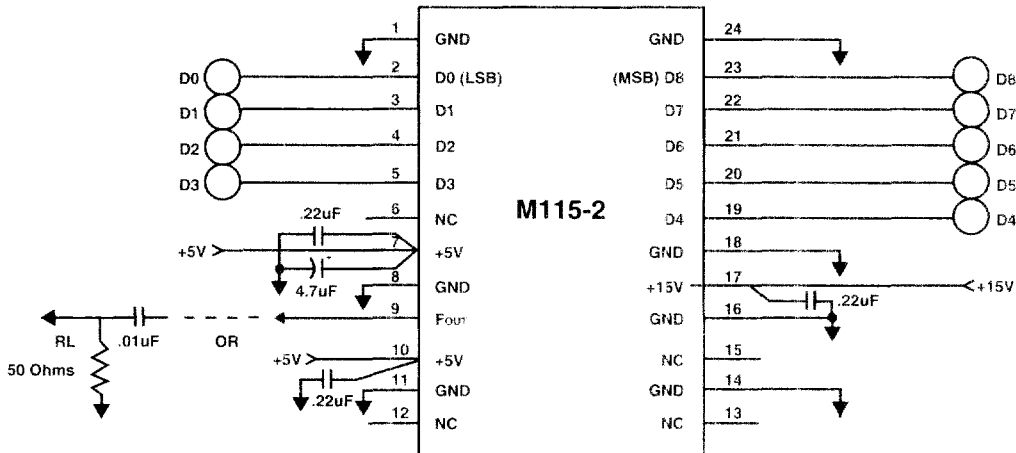
324 Clark St., Worcester, MA 01606
 Tel. (508) 852-5400 • FAX (508) 853-8296
 E-Mail - sales@mnc.com
 Web Site - <http://www.mnc.com>

M115-2 Series

Programmable Master Clock Oscillators

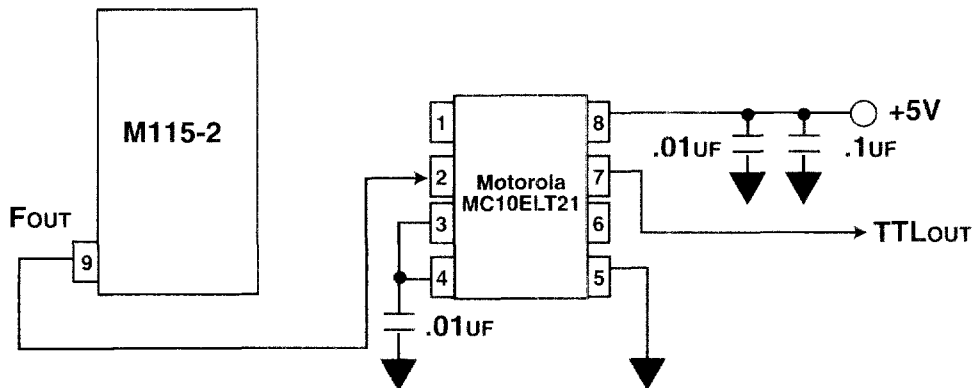
Application Circuits

M115-2 CONNECTION DIAGRAM



- Notes:
1. All 4.7uF are rated at +25V.
 2. Bypass caps are to be placed as close to power pins as possible.
 3. Ground pins are not internally connected and must be connected together externally via a clean ground plane.
 4. Power pins (+5V) are not connected internally and must be connected together externally via a clean power plane.
 5. To maximize jitter performance, a ground plane should be used directly underneath the M115 to shield it from external radiated noise.

CONVERSION TO TTL EXAMPLE



micro networks corporation

324 Clark St., Worcester, MA 01606
 Tel. (508) 852-5400 • FAX (508) 853-8296
 E-Mail - sales@mnc.com
 Web Site - http://www.mnc.com