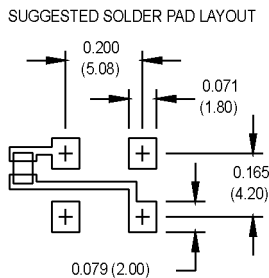
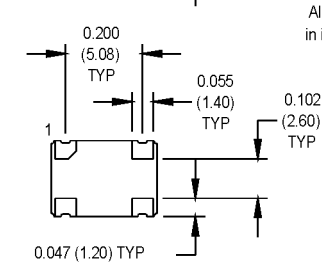
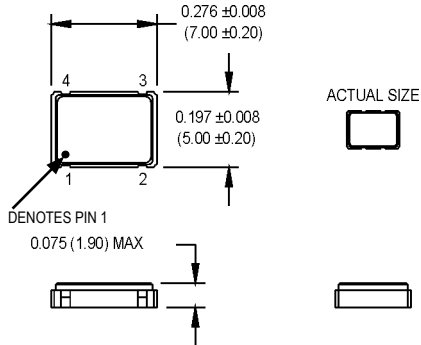


# M1 Series

5x7 mm, 5.0 Volt, HCMOS/TTL, Clock Oscillator



**NOTE:** A capacitor of value 0.01  $\mu$ F or greater between Vdd and Ground is recommended.

## Pin Connections

PIN	FUNCTION
1	N/C or Tristate
2	Ground
3	Output
4	+Vdd

## Ordering Information

Product Series	M1	1	3	F	A	N	00.0000 MHz
Temperature Range	1: 0°C to +70°C	2: -40°C to +85°C	4: -55°C to +125°C	6: -20°C to +70°C			
Stability	3: $\pm 100$ ppm	4: $\pm 50$ ppm	5: $\pm 35$ ppm	6: $\pm 25$ ppm			
*8: $\pm 20$ ppm							
Output Type	F: Fixed	T: Tristate					
Symmetry/Logic Compatibility	A: 40/60 TTL/HCMOS (50.000 MHz and below)	C: 45/55 HCMOS	G: 40/60 HCMOS (50.001 to 100.000 MHz)				
Package/Lead Configurations	N: Leadless						
Frequency (customer specified)							

\*Contact Factory for Availability

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Frequency Range	F	1.5		100	MHz	
Operating Temperature	T <sub>A</sub>	(See ordering information)				
Storage Temperature	T <sub>S</sub>	-55		+125	°C	
Frequency Stability	$\Delta$ F/F	(See ordering information)				
Aging						
1 <sup>st</sup> Year			3		ppm	
Thereafter (per year)			2		ppm	
Input Voltage	V <sub>dd</sub>	4.5	5.0	5.5	V	
Input Current	I <sub>dd</sub>					
1.500 to 20 MHz				20	mA	TTL/HCMOS
20.001 to 50 MHz				35/45	mA	
50.001 to 100 MHz				65	mA	
Output Type						HCMOS/TTL
Load						See Note 1
1.500 to 50 MHz			10 TTL or 50 pF			
50.001 to 67 MHz			50 pF Max			
67.001 to 100 MHz			15 pF Max			
Symmetry (Duty Cycle)		(See ordering information)				See Note 2
Logic "1" Level	V <sub>oh</sub>	90% V <sub>dd</sub>			V	HCMOS Load
	V <sub>dd</sub> - 0.5				V	TTL Load
Logic "0" Level	V <sub>ol</sub>			10% V <sub>dd</sub>	V	HCMOS Load
				0.5	V	TTL Load
Output Current				$\pm 16$	mA	
Rise/Fall Time	T <sub>r</sub> /T <sub>f</sub>			10	ns	See Note 3
1.500 to 67 MHz				3	ns	
67.001 to 125 MHz						
Tristate Function		Input Logic "1" or floating; output active				
		Input Logic "0"; output disables to high-Z				
Start up Time			5		ms	
Random Jitter	R <sub>j</sub>		5	12	ps RMS	1-Sigma
Environmental	Mechanical Shock	Per MIL-STD-202, Method 213, Condition C (100 g's, 6 ms duration, ½ sinewave)				
	Vibration	Per MIL-STD-202, Method 201 & 204 (10 g's from 10-2000 Hz)				
	Hermeticity	Per MIL-STD-202, Method 112, (1x10 <sup>-8</sup> atm. cc/s of Helium)				
	Thermal Cycle	Per MIL-STD-883, Method 1010, Condition B (-55°C to +125°C, 15 min. dwell, 10 cycles)				
	Solderability	Per EIAJ-STD-002				

1. TTL load - See load circuit diagram #1. HCMOS load - See load circuit diagram #2.

2. Symmetry is measured at 1.4 V with TTL load, and at 50% V<sub>dd</sub> with HCMOS load.

3. Rise/Fall times are measured between 0.5 V and 2.4 V with TTL load, and between 10% V<sub>dd</sub> and 90% V<sub>dd</sub> with HCMOS load.

MtronPTI reserves the right to make changes to the product(s) and service(s) described herein without notice. No liability is assumed as a result of their use or application.

Please see [www.mtronpti.com](http://www.mtronpti.com) for our complete offering and detailed datasheets. Contact us for your application specific requirements: MtronPTI 1-800-762-8800.

Revision: 03-13-07

# MtronPTI Lead Free Solder Profile

