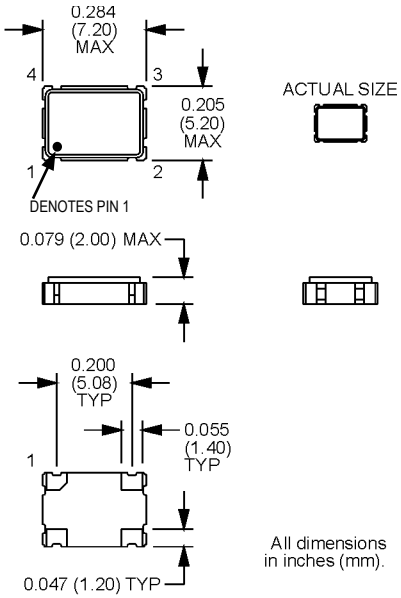
MM Series

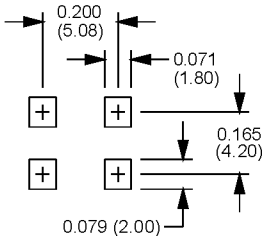
5x7 mm, 5 Volt, HCMOS/TTL, Surface Mount Oscillator

THIS PRODUCT IS NOT RECOMMENDED FOR NEW DESIGNS.
PLEASE REFER TO THE M1 PRODUCT SERIES.

- AT-strip crystal in a miniature ceramic surface mount package.
- TTL and HCMOS compatible
- Tri-state output is optional



SUGGESTED SOLDER PAD LAYOUT



NOTE: A capacitor of value 0.01 µF or greater between Vdd and Ground is recommended.

PIN	FUNCTION
1	N/C or Tri-state
2	Ground
3	Output
4	+Vdd

Tri-state Control Logic
Pin 1 high or floating: clock signal output.
Pin 1 low: output disabled to high impedance.

Ordering Information

MM 1 3 T A N 00.0000 MHz

Product Series

Temperature Range
- **1:** 0°C to +70°C
- **2:** -40°C to +85°C
- **6:** -20°C to +70°C

Stability
- **3:** ±100 ppm
- **4:** ±50 ppm
- **5:** ±35 ppm
- **6:** ±25 ppm
- **8:** ±20 ppm

Output Type
- **F:** Fixed
- **T:** Tristate

Symmetry/Logic Compatibility
- **A:** 40/60 HCMOS/TTL (Up to 50.000 MHz)
- **C:** 45/55 HCMOS
- **G:** 40/60 HCMOS (50.001 to 67.000 MHz)

Package/Lead Configurations
- **N:** Leadless

Frequency (customer specified)

Electrical Specifications

Standard Operating Conditions • 0°C to +70°C; Vdd = 5.0 ±10% VDC

Storage Temperature • -55°C to +125°C

	A SYMMETRY/LOGIC				
	TTL Load		HCMOS Load		
PARAMETERS	MIN.	MAX.	MIN.	MAX.	UNITS
Frequency Range [1]	1.500	50.000	1.500	50.000	MHz
Output Load [2]		10		50	TTL/pF
Symmetry [3]	40/60	60/40	40/60	60/40	%
Logic "0" Level		0.5		10% Vdd	V
Logic "1" Level	Vdd-0.5		90% Vdd		V
Rise/Fall Time [4]		6		10	ns
Supply Current					
1.500 to 15.000 MHz		20		25	mA
15.001 to 32.000 MHz		25		30	mA
32.001 to 50.000 Mhz		40		45	mA
	G SYMMETRY/LOGIC				
Frequency Range [1]			50.001	67.000	MHz
Output Load [2]				50	pF
Symmetry [3]			40/60	60/40	%
Logic "0" Level				10% Vdd	V
Logic "1" Level			90% Vdd		V
Rise/Fall Time [4]				10	ns
Supply Current				60	mA

[1] Because this product is based on AT-strip technology, not all frequencies in the range stated are available. Contact the factory for availability of specific frequencies.
[2] TTL load - See load circuit diagram #1. HCMOS load - See load circuit diagram #2.
[3] Symmetry is measured at 1.4 V with TTL load, and at 50% Vdd with HCMOS load.
[4] Rise/Fall times are measured between 0.5 V and 2.4 V with TTL load, and between 10% Vdd and 90% Vdd with HCMOS load.

MtronPTI Lead Free Solder Profile