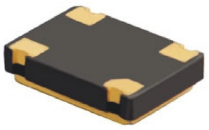
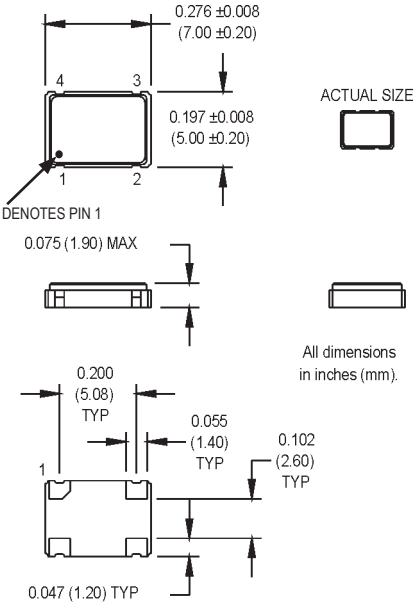
M2 Series

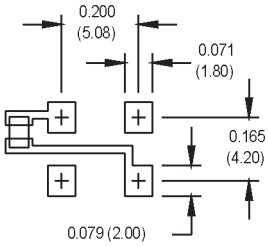
5x7 mm, 3.3 Volt, HCMOS/TTL Compatible Output, Clock Oscillator



RoHS Compliant



SUGGESTED SOLDER PAD LAYOUT



NOTE: A capacitor of value 0.01 µF 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

00.0000 MHz

M2 1 3 T C N

Product Series

Temperature Range
- **1:** 0°C to +70°C
- **2:** -40°C to +85°C
- **3:** -55°C to +105°C
- **4:** -55°C to +125°C*
- **5:** -10°C to +85°C
- **6:** -20°C to +70°C
- **7:** 0°C to +85°C

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

Output Type
- **F:** Fixed
- **Q:** Standby Function
- **T:** Tristate

Symmetry/Logic Compatibility
- **A or G:** 40/60 @ 50% Vdd**
- **C:** 45/55 HCMOS

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

Frequency (customer specified)

*Contact Factory for Availability
** A and G codes are used interchangeably on the M2 Series
M2002Sxxx - Contact factory for datasheet

	PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Electrical Specifications	**Frequency Range**	F	1.0		135	MHz	See Note 1
	Operating Temperature	T_A	(See ordering information)				
	Storage Temperature	T_S	-55		+125	°C	
	Frequency Stability	ΔF/F	(See ordering information)				
	Aging **1st Year** **Thereafter (per year)**			 ±3 ±2		 ppm ppm	
	Input Voltage	Vdd	3.0	3.3	3.6	V	
	Input Current	Idd			10 20 30 55	mA mA mA mA	1.000 to 20.000 MHz 20.001 to 50.000 MHz 50.001 to 67.000 67.001 to 135.000 MHz
	Standby Current				10	µA	"Q" Output Type
	Output Type						HCMOS/TTL Compatible
	Load		2 TTL or 15 pF				See Note 2
	Symmetry (Duty Cycle)		(See ordering information)				½ Vdd
	Logic "1" Level	Voh	90% Vdd Vdd -0.5			V V	HCMOS Load TTL Load
	Logic "0" Level	Vol			10% Vdd 0.5	V V	HCMOS Load TTL Load
	Output Current				±4	mA	
	Rise/Fall Time	Tr/Tf			 6 4 2	 ns ns ns	See Note 3 1.500 to 50.000 MHz 50.001 to 80.000 MHz 80.001 to 135.000 MHz
	Standby/Tristate Function		Input Logic "1" or floating: output active Input Logic "0"; output disables to high-Z				
	Start up Time				10	ms	
	Random Jitter	Rj		4	10	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, ($1x10^{-8}$ 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					
	Soldering Conditions	See solder profile, Figure 1					

1. Consult factory for availability of higher frequencies.
2. HCMOS Load - See Load circuit diagram #2. Consult factory with nonstandard output load requirements.
3. 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