MHR Series

9x14 mm, 5.0 Volt, HCMOS/TTL, Clock Oscillator

RoHS Compliant

Ordering Information

MHR 1 3 T A J -R 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
- **6:** ±25 ppm
- ***8:** ±20 ppm

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

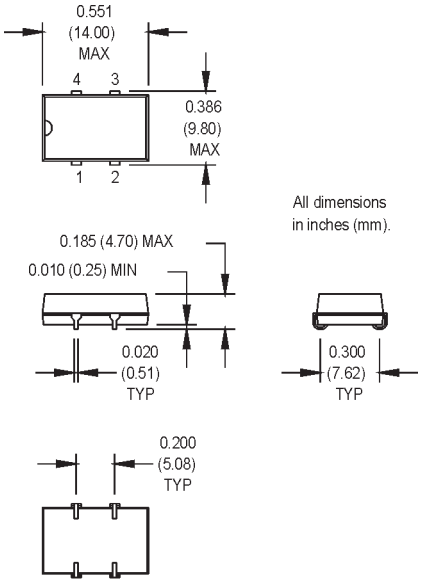
Symmetry/Logic Compatibility
- **A:** 40/60 TTL/HCMOS (Standard for 1.000 to 50.000 MHz)
- ***B:** 45/55 TTL
- ***C:** 45/55 HCMOS
- **F:** 40/60 TTL (50.001 to 67.000 MHz)
- **G:** 40/60 HCMOS (50.001 to 80.000 MHz)

Package/Lead Configurations
- **J:** J Lead

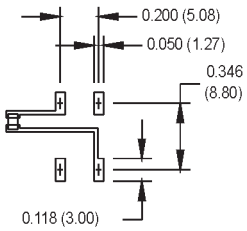
RoHS Compliance
- **-R:** RoHS Compliant

Frequency (customer specified)

* Consult factory regarding availability of "B" and "C" symmetry codes, and "8" Stability code.



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

Electrical Specifications

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Frequency Range	F	1		80	MHz	
Operating Temperature	TA	(See ordering information)				
Storage Temperature	TS	-55		+125	°C	
Frequency Stability	ΔF/F	(See ordering information)				
Aging						
1st Year		-5		+5	ppm	
Thereafter (per year)		-5		+5	ppm	
Input Voltage	Vdd	4.5	5.0	5.5	V	
Input Current	Idd			30	mA	1.000 to 40.000 MHz
				50	mA	40.001 to 50.000 MHz
				55	mA	50.001 to 80.000 MHz
Output Type						HCMOS/TTL
Load						See Note 1
1 to 50 MHz			10 TTL or 50 pF			
50.001 to 67 MHz			5 TTL or 30 pF			
67.001 to 80 MHz			15 pF			
Symmetry (Duty Cycle)		(See ordering information)				See Note 2
Logic "1" Level	Voh	90% Vdd			V	HCMOS Load
		Vdd-0.5			V	TTL Load
Logic "0" Level	Vol			10% Vdd	V	HCMOS Load
				0.5	V	TTL Load
Output Current				±12	mA	
Rise/Fall Time	Tr/Tf					See Note 3
1 to 40 MHz				10	ns	
40.001 to 50 MHz				8	ns	
50.001 to 80 MHz				6	ns	
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		5	12	ps RMS	1-Sigma

Environmental

Mechanical Shock	MIL-STD-202, Method 213, C (100 g's)
Vibration	MIL-STD-202, Method 201 & 204 (10 g's from 10-2000 Hz)
Thermal Cycle	MIL-STD-883, Method 1010, B (-55°C to +125°C, 15 min dwell, 10 cycles)
Hermeticity	MIL-STD-202, Method 112
Solderability	Per EIAJ-STD-002
Max Soldering Conditions	See solder profile, Figure 1

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% Vdd with HCMOS load.
3. Rise/Fall times are measured between 0.5 V and 2.4 V for TTL load, and between 10% and 90% Vdd for HCMOS load.

MtronPTI Lead Free Solder Profile