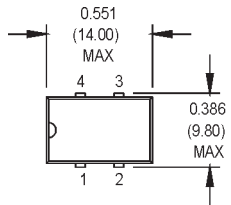


# MHR Series

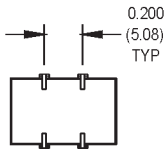
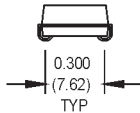
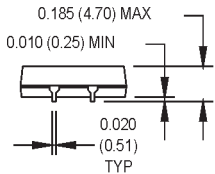
## 9x14 mm, 5.0 Volt, HCMOS/TTL, Clock Oscillator



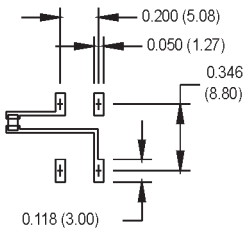
**This product is not recommended for new designs**



All dimensions in inches (mm).



SUGGESTED SOLDER PAD LAYOUT



**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	MHR	1	3	T	A	J	-R	00.0000	MHz
Temperature Range	1: 0°C to +70°C	2: -40°C to +85°C	6: -20°C to +70°C						
Stability	3: $\pm$ 100 ppm	4: $\pm$ 50 ppm	6: $\pm$ 25 ppm	*8: $\pm$ 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.

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Frequency Range	F	1		80	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						
1st Year		-5		+5	ppm	
Thereafter (per year)		-5		+5	ppm	
Input Voltage	V <sub>dd</sub>	4.5	5.0	5.5	V	
Input Current	I <sub>dd</sub>			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)				
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				$\pm$ 12	mA	
Rise/Fall Time	Tr/Tf			10	ns	See Note 3
1 to 40 MHz				8	ns	
40.001 to 50 MHz				6	ns	
50.001 to 80 MHz						
Tristate Function		Input Logic "1" or floating: output active				
		Input Logic "0": output disables to high-Z				
Start up Time				10	ms	
Random Jitter	R <sub>j</sub>		5	12	ps RMS	1-Sigma
<b>Environmental</b>						
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% V<sub>dd</sub> 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% V<sub>dd</sub> for 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.

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# MtronPTI Lead Free Solder Profile

