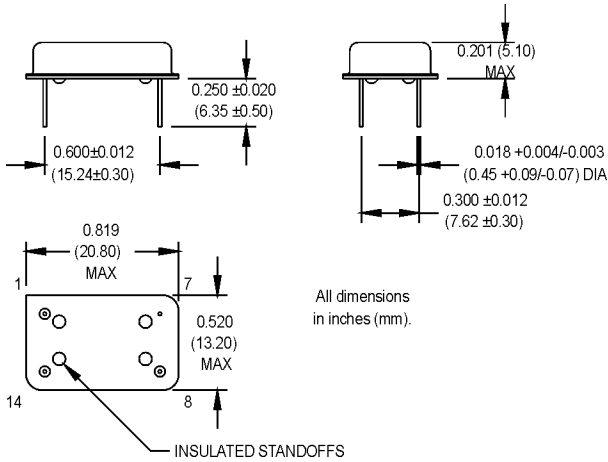


# MHO+ Series

## 14 DIP, 5.0 Volt, HCMOS/TTL, Clock Oscillators



See page 146 for gull wing configuration.

### Pin Connections

PIN	FUNCTION
1	N/C or Tri-state
7	Circuit/Case Ground
8	Output
14	+Vdd

### Ordering Information

Product Series	Temperature Range	Stability	Output Type	Symmetry/Logic Compatibility	Package/Lead Configurations	Frequency (customer specified)
MHO+ 1 3 F A D	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	1: ±1000 ppm 2: ±500 ppm 3: ±100 ppm 4: ±50 ppm 5: ±35 ppm 6: ±25 ppm 7: +0/-200 ppm *8: ±20 ppm	F: Fixed T: Tristate (1.000 to 67.000 MHz)	A: 40/60 CMOS/TTL B: 45/55 TTL C: 45/55 CMOS D: 45/55 CMOS/TTL F: 40/60 TTL G: 40/60 CMOS	D: DIP; Nickel Header G: Gull Wing; Nickel Header	00.0000 MHz

### Available Symmetry

\* Contact factory for availability.

FREQUENCY RANGE	STD.	OPTIONS
0.732 kHz to 50.000 MHz	A	B, C, D
50.001 to 60.000 MHz	A	B, C
60.001 to 67.000 MHz	A	C
67.001 to 80.000 MHz	F,G	

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition
Frequency Range	F	.732 kHz		80	MHz	
Frequency Stability	$\Delta F/F$	(See Ordering Information)				
Operating Temperature	T <sub>A</sub>	(See Ordering Information)				
Storage Temperature	T <sub>s</sub>	-55		+125	°C	
Input Voltage	V <sub>dd</sub>	4.5	5.0	5.5	V	
Input Current	I <sub>dd</sub>			15	mA	0.732 kHz to 2.999 MHz
				25	mA	3.000 to 25.999 MHz
				60	mA	26.000 to 80.000 MHz
Symmetry (Duty Cycle) <sup>1</sup>		(See Ordering Information)				
Load <sup>2</sup>		5 TTL or 50 pF				0.732 kHz to 2.999 MHz
		10 TTL or 50 pF				3.000 to 67.000 MHz
		10 TTL or 15 pF				67.001 to 80.000 MHz
Rise/Fall Time <sup>3</sup>	Tr/Tf			20	ns	
				10	ns	
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
Cycle to Cycle Jitter			7	18	ps RMS	1 Sigma
Tri-State Function		Input Logic "1" or floating; output active Input Logic "0"; output to high-Z				
Mechanical Shock	Per MIL-STD-202, Method 213, Condition C					
Vibration	Per MIL-STD-202, Method 201 & 204					
Wave Solder Conditions	See page 147					
Hermeticity	Per MIL-STD-202, Method 112 (1 x 10 <sup>-8</sup> atm.cc/s of helium)					
Solderability	Per EIAJ-STD-002					

1. Symmetry is measured at 1.4 V with TTL load, and at 50% V<sub>dd</sub> with HCMOS load.  
2. TTL load - See load circuit diagram #1 on page 148. HCMOS load - See load circuit diagram #2 on page 148.  
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.

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