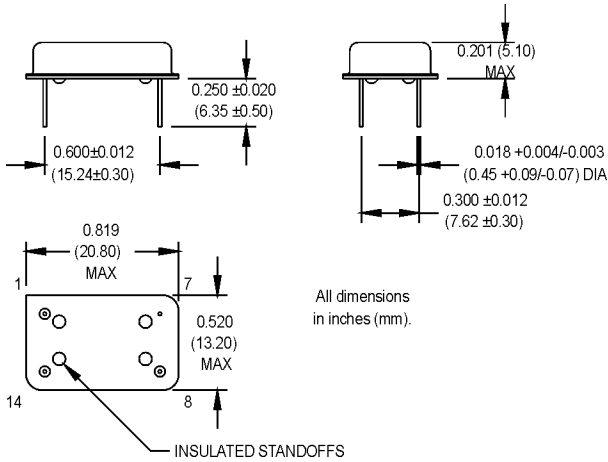


MHO+ Series

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		MHO+	1	3	F	A	D	00.0000 MHz		
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										
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								
Output Type										
F: Fixed		T: Tristate (1.000 to 67.000 MHz)								
Symmetry/Logic Compatibility (See Table Below)										
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	
Package/Lead Configurations										
D: DIP; Nickel Header							G: Gull Wing; Nickel Header			
Frequency (customer specified)										

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	

	Electrical Specifications					
	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 _A	(See Ordering Information)			
	Storage Temperature	T _s	-55		+125	°C
	Input Voltage	V _{dd}	4.5	5.0	5.5	V
	Input Current	I _{dd}			15	mA
					25	mA
					60	mA
	Symmetry (Duty Cycle) ¹		(See Ordering Information)			
	Load ²		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 ³	Tr/Tf			20	ns
	0.732 kHz to 2.999 MHz				10	ns
	3.000 to 80.000 MHz					
	Logic "1" Level	V _{oh}	90% V _{dd}			V
			V _{dd} - 0.5			V
						HCMOS Load
						TTL Load
	Logic "0" Level	V _{ol}			10% V _{dd}	V
					0.5	V
						HCMOS Load
						TTL Load
	Cycle to Cycle Jitter			7	18	ps RMS
	Tri-State Function		Input Logic "1" or floating; output active			1 Sigma
			Input Logic "0"; output to high-Z			
Environmental	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 ⁻⁸ 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_{dd} 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_{dd} and 90% V_{dd} with HCMOS load.

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