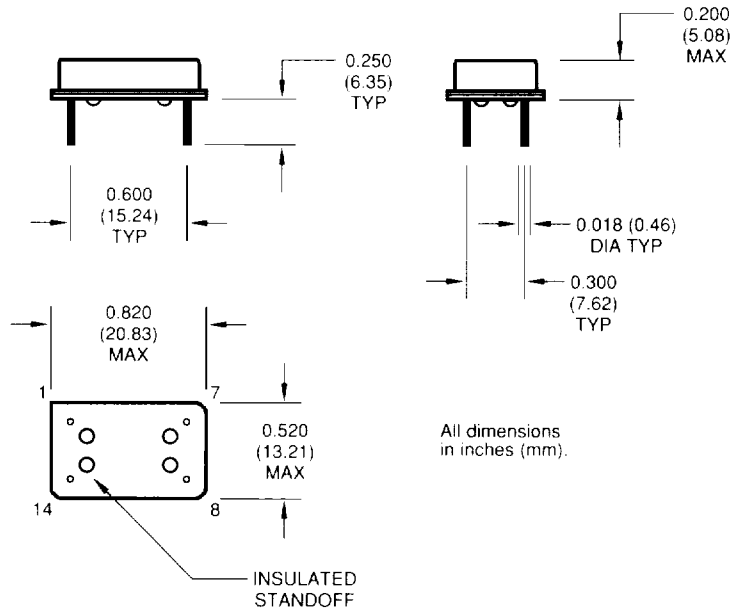


MHO+ Series HCMOS Oscillators

High Performance HCMOS/TTL Compatible Oscillators



Part Marking and Numbering

Part Marking and Numbering	MHO+	1	3	F	A	D
Product Series	MHO+					
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						
Output Type						
F: Fixed						
E: Enable/Disable (300.000 kHz and above)						
T: Tristate (1.000 to 67.000 MHz)						
Symmetry/Logic Compatibility						
A: 40/60 CMOS/TTL						
B: 45/55 TTL						
C: 45/55 CMOS						
D: 45/55 both*						
F: 40/60 TTL						
G: 40/60 CMOS						
Package/Lead Configurations						
D: DIP; Nickel Header						
G: Gull Wing; Nickel Header						

*Standard for frequencies less than 3.000 MHz

Pin Connections

PIN	FUNCTION
1	N/C, Enable/Disable or Tristate
7	Circuit/Case Ground
8	Output
14	+ V _{dd}

ENABLE/DISABLE

Pin 1 high or floating: clock signal output
Pin 1 low: output disables to logic "1"

TRISTATE

Pin 1 high or floating: clock signal output
Pin 1 low: output disables to high impedance

Available Stabilities vs Temperature

T	S	1	2	3	4	5	6	7
1	A	A	S	A	A	A	A	A
2	A	A	A	A	A	A	A	A
3	P	P	P	P	N	N	N	P
4	P	P	P	N	N	N	N	P
5	A	A	A	A	A	A	A	A
6	A	A	A	A	A	A	A	A
7	A	A	A	A	A	A	A	A

Consult factory regarding availability of T-S combinations marked "P."

A = AVAILABLE S = STANDARD
P = PLANNED N = NOT AVAILABLE

Electrical Specifications

(Standard Operating Conditions 0°C to 70°C; V_{dd} = 5.0 ±10% V DC)

Symmetry Types

Symmetry Types	A, B, C, D				F		G		
	TTL Load		CMOS Load		TTL Load		CMOS Load		
PARAMETERS	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	UNITS
Frequency Range	.732 k	67.0 M	.732 k	67.0 M	50.1 M	80.0 M	50.1 M	80.0 M	kHz/MHz
Output Load									
0.732 kHz to 2.990 MHz		5 TTL ¹		50 pF ²					TTL/pF
3.000 to 67.000 MHz		10 TTL ¹		50 pF ²					TTL/pF
50.010 to 80.000 MHz						10 TTL ¹		50 pF ²	TTL/pF
Symmetry*									
0.732 kHz to 67.000 MHz			According to Symmetry code.						
50.010 to 80.000 MHz					40/60	60/40	60/40	40/60	%
Logic "0" Level		0.5		10% V _{dd}		0.5		10% V _{dd}	V
Logic "1" Level	(V _{dd} -0.5)			90% V _{dd}		(V _{dd} -0.5)		90% V _{dd}	V
Rise / Fall Time**									
0.732 kHz to 2.990 MHz		10		20.0					ns
3.000 to 67.000 MHz		5.0		10.0					ns
50.010 to 80.000 MHz						5.0		10.0	ns
Supply Current									
0.732 kHz to 2.990 MHz		15.0		15.0					mA
3.000 to 25.990 MHz		25.0		25.0					mA
26.000 to 67.000 MHz		55.0		60.0					mA
50.010 to 80.000 MHz						55.0		60.0	mA

1- See load circuit #1 on page 32; 2- See load circuit #2 on page 32.

*Symmetry is measured at 1.4 V with TTL load, and at V_{dd}/2 with HCMOS load.

**Rise/fall times are measured between 0.5V and 2.4V with TTL load, and between 10% V_{dd} and 90% V_{dd} with HCMOS load.

M-tron 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. No rights under any patent accompany the sale of such product.