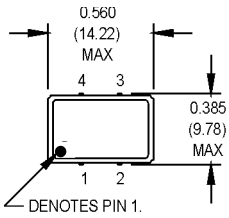
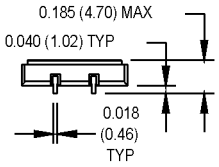
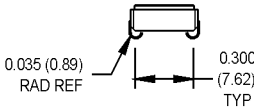
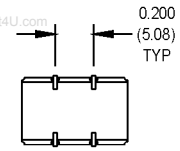
M4S Series
9x14 mm, 5.0 Volt, PECL, Clock Oscillator

- **M4S Series Ceramic J-Lead PECL Clock Oscillators with Optional Complementary Outputs, PLL Version**



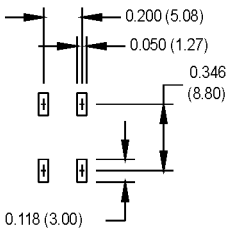






All dimensions
in inches (mm).

SUGGESTED SOLDER PAD LAYOUT



Ordering Information

M4S 1 3 X A J 00.0000 MHz

Product Series

Temperature Range
- **1:** 0°C to +70°C
- **2:** -40°C to +85°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
- ***8:** ±20 ppm

Output Type
- **X:** Single Output
- **Z:** Dual Output

Symmetry/Logic Compatibility
- **A:** 40/60
- **B:** 45/55 (Up to 80.000 MHz)

Package/Lead Configurations
- **J:** J Lead (Gold Flash Leads)

Frequency (customer specified)

Pin Connections

PIN	FUNCTION(S) (Model Dependent)
1	N/C or Output #2, $\overline{Q}$
2	Case Ground
3	Output #1, Q
4	+Vcc

	PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition
Electrical Specifications	Frequency Range	F	19.44		160	MHz	
	Frequency Stability	ΔF/F	(See Ordering Information)				
	Operating Temperature	TA	(See Ordering Information)				
	Storage Temperature	Ts	-55		+125	°C	
	Input Voltage	Vcc	4.75	5.0	5.25	V	
	Input Current	Iee/Icc		70	100	mA	
	Symmetry (Duty Cycle)		(See Ordering Information)				Vcc -1.3 V Level
	Load		130 Ω to Vcc -2 V or Thevenin Equivalent				See Note 1
	Rise/Fall Time	Tr/Tf			2.5	ns	See Note 2
	Logic "1" Level	Voh	Vcc -0.98			V	
	Logic "0" Level	Vol			Vcc -1.63	V	
	Cycle to Cycle Jitter			70	120	ps RMS	1 Sigma
Environmental	Mechanical Shock	Per MIL-STD-202, Method 213, Condition C					
	Vibration	Per MIL-STD-202, Method 201 & 204					
	Reflow Solder Conditions	240°C for 10 s max.					
	Hermeticity	Per MIL-STD-202, Method 112 (1 x 10^{-8} atm.cc/s of helium)					
	Solderability	Per EIAJ-STD-002					

1. Internally terminated outputs. See load circuit diagram #4.
2. Rise/Fall times are measured between Vcc-0.98 V and Vcc-1.63 V.
3. For applications requiring better jitter performance, please refer to the M-tron M4R series.