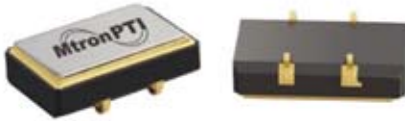
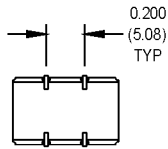
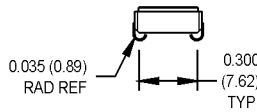
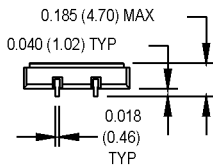
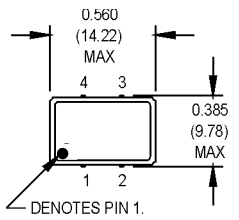


# M4S Series

## 9x14 mm, 5.0 Volt, PECL, Clock Oscillator

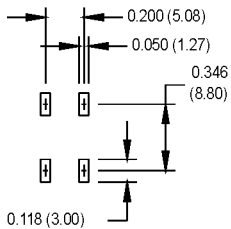


- **M4S Series Ceramic J-Lead PECL Clock Oscillators with Optional Complementary Outputs, PLL Version**



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, $\bar{Q}$
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	$\Delta F/F$	(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>cc</sub>	4.75	5.0	5.25	V		
	Input Current	I <sub>ee/lcc</sub>		70	100	mA		
	Symmetry (Duty Cycle)		(See Ordering Information)					V <sub>cc</sub> -1.3 V Level
	Load		130 Ω to V <sub>cc</sub> -2 V or Thevenin Equivalent					See Note 1
	Rise/Fall Time	T <sub>r</sub> /T <sub>f</sub>			2.5	ns	See Note 2	
	Logic "1" Level	V <sub>oh</sub>	V <sub>cc</sub> -0.98			V		
	Logic "0" Level	V <sub>ol</sub>			V <sub>cc</sub> -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 <sup>3</sup> 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 V<sub>cc</sub>-0.98 V and V<sub>cc</sub>-1.63 V.
3. For applications requiring better jitter performance, please refer to the M-tron M4R series.

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.

Please see [www.mtronpti.com](http://www.mtronpti.com) for our complete offering and detailed datasheets. Contact us for your application specific requirements: MtronPTI 1-800-762-8800.