



# M7S/M8S Series

## 9x14 mm, 5 or 3.3 Volt HCMOS/TTL

### SMT Clock Oscillator

#### FEATURES

J-lead ceramic package  
Low profile, Surface mount  
Wide operating temperature range  
Compliant to RoHS directive  
Operating Voltage: 3.3/5.0 Volt

#### APPLICATIONS

Avionics and Aerospace  
Communication and Navigation  
Military Radios  
Instrumentation and Industrial  
Test and Measurement Equipment

#### ORDERING INFORMATION

	MxS	2	3	T	C	J	-R	00.0000 MHz
<b>Product Series</b> M7S = 5.0 V M8S = 3.3 V								
<b>Temperature Range</b> 1: 0°C to +70°C 6: -20°C to +70°C 2: -40°C to +85°C			3: -55°C to +105°C 4: -55°C to +125°C					
<b>Stability</b> 3: ± 100 ppm 4: ± 50 ppm			6: ± 25 ppm 8: ± 20 ppm					
<b>Output Type</b> F: Fixed T: Tristate								
<b>Symmetry/Logic Compatibility</b> A: 40/60% HCMOS/TTL    B: 45/55% TTL C: 45/55% HCMOS D: 45/55% HCMOS/TTL (1.000 – 107.000 MHz)								
<b>Package/Lead Configurations</b> J: Gold Flash J-Leads    S: Solder Dip								
<b>RoHS Compliance</b> Blank: non-RoHS Compliant part -R: RoHS Compliant part								

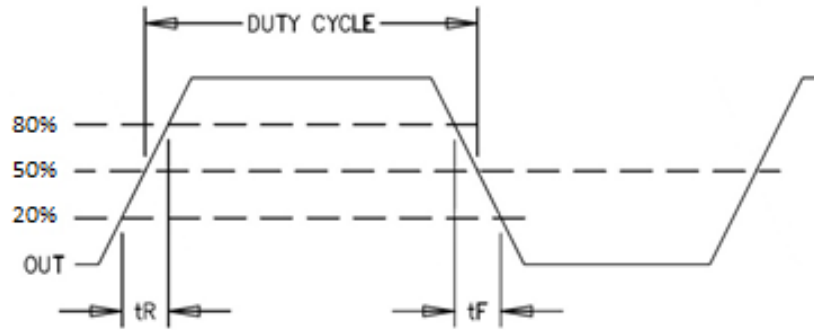
Example Part Number: M8S24TCJ-R 16 .0000 MHz

06/01/21 Rev. A

**ELECTRICAL SPECIFICATIONS**

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency Range	F <sub>0</sub>	1		125	MHz	
<b>Frequency Stabilities</b>						
vs. Operating Temperature	$\Delta F/F$	(See ordering information)			ppm	Includes initial tolerance @ +25°C and deviation over operating temperature range.
vs. Aging			±3		ppm	1st year
			±2		ppm	Thereafter (per year)
<b>RF Output</b>						
		HCMOS/TTL Compatible				
Output Load M7S  M8S		10 TTL or 50 pF 10 TTL or 15 pF 15 pF				See Note 1 1.000 to 80.000 MHz 80.001 to 125.000 MHz 1.000 to 125.000 MHz
Symmetry (Duty Cycle)		(See Ordering Information)				
Logic "1" Level	V <sub>OH</sub>	90% V <sub>DD</sub> V <sub>DD</sub> -0.5				HCMOS Load TTL Load
Logic "0" Level	V <sub>OL</sub>			10%V <sub>DD</sub> 0.5	V V	HCMOS Load TTL Load
Output Current 1 to 80 MHz 80.001 to 125 MHz 1 to 80 MHz 80.001 to 125 MHz			±16 +16/-8 ±4 ±4		mA mA mA mA	M7S M7S M8S M8S
Rise/Fall Time 1 to 40 MHz 40.001 to 125 MHz	T <sub>R</sub> /T <sub>F</sub>			7/6 5/4	ns ns	M7S/M8S M7S/M8S
Tristate Function		Input Logic "1" or floating: Input Logic "0":				Output Active Output Disables to High Z
Start-up Time	T <sub>SU</sub>			10	ms	T <sub>ambient</sub> = +25°C
<b>Other Parameters</b>						
Random Jitter (RMS)	R <sub>J</sub>		5 12	12 100	ps RMS ps RMS	1.000 to 80.000 MHz 80.001 to 125.000 MHz
<b>Operating Voltage and Current</b>						
Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Operating Voltage	V <sub>DD</sub>	4.5	5.0	5.5	V	M7S
		3.135	3.3	3.465	V	M8S
Operating Current	I <sub>DD</sub>			85	mA	M7S
				35	mA	M8S

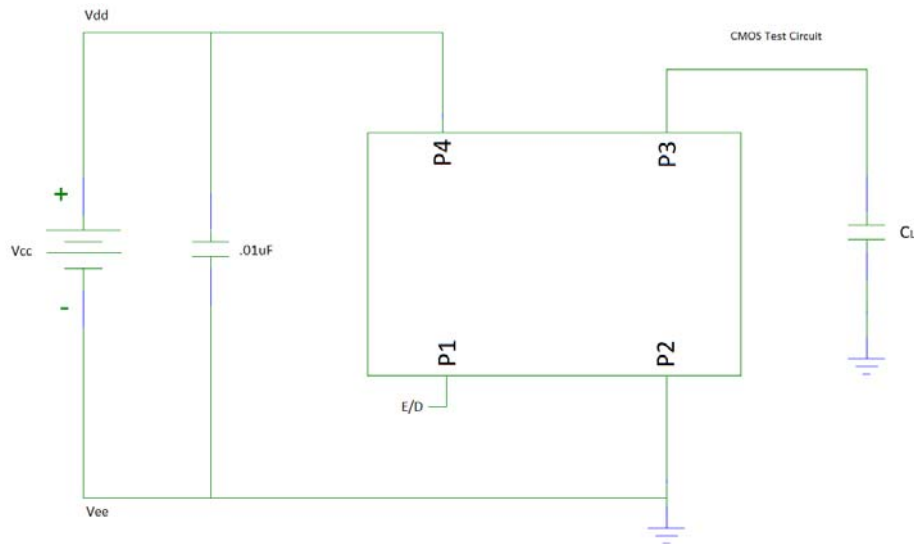
**OUTPUT WAVEFORM**



**ENVIRONMENTAL CONDITIONS**

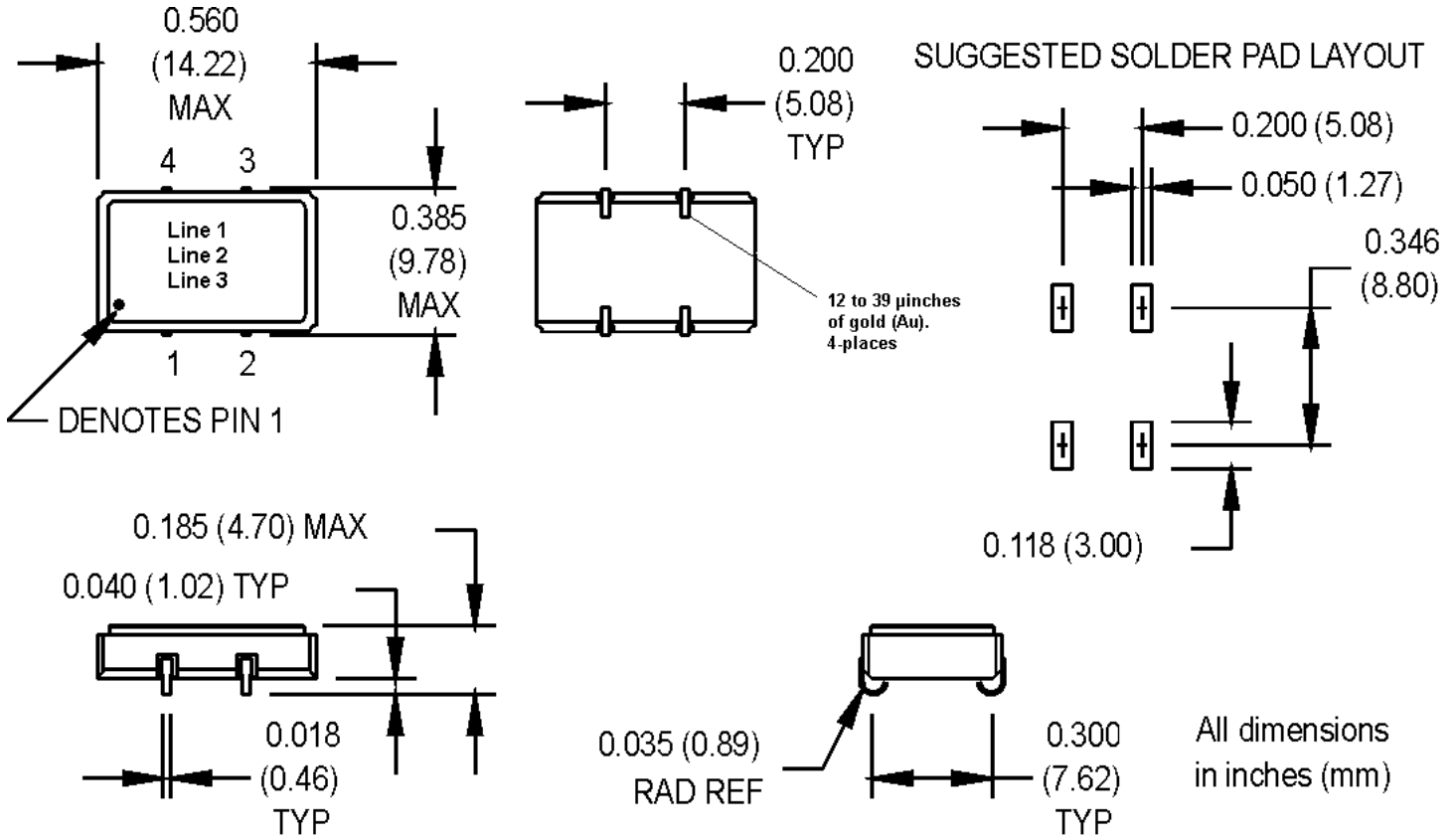
Temperature						
Operating Temperature	T <sub>A</sub>	See ordering information			°C	
Storage Temperature	T <sub>S</sub>	-55		+125	°C	
Shock	Per MIL-STD-202, Method 213, Condition C (100 g's, 6 ms duration, ½ sinewave)					
Vibration	Per MIL-STD-202, Method 201 & 204 (10 g's from 10-2000 Hz)					
Solderability	Per EIAJ-STD-002					
Hermeticity	Per MIL-STD-202, Method 112 (1 x 10 <sup>-8</sup> atm cc/s of helium)					

**LOAD CIRCUIT DIAGRAM**

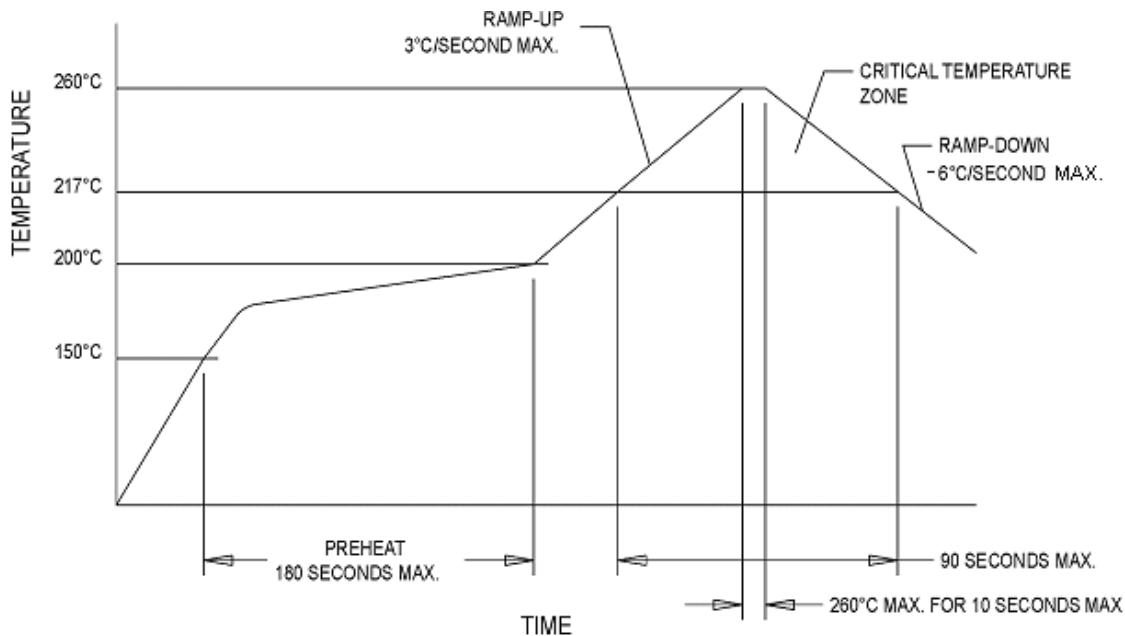


## MECHANICAL AND PIN OUT INFORMATION

Pad	Function
1	Tristate or N/C
2	Ground
3	Output Q
4	Supply Voltage

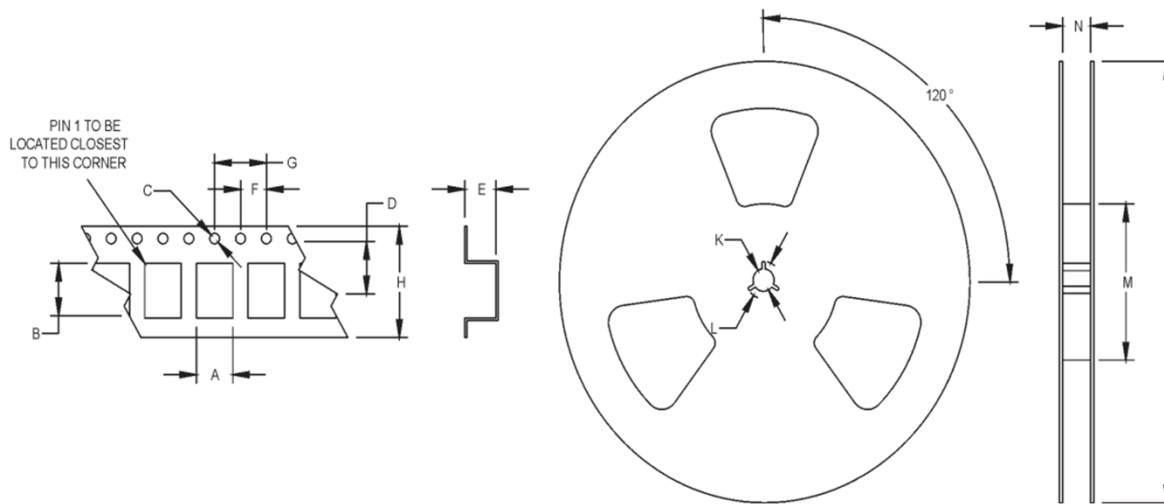


## LEAD FREE SOLDER PROFILE



## TAPE AND REEL SPECIFICATIONS

All units in mm



A	B	C	D	E	F	G	H	J	K	L	M
9.54	14.62	1.5	11.5	5.4	4	12	24	330	6.5		100

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