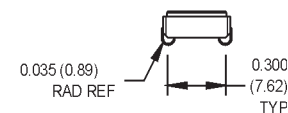
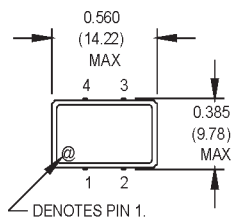


# M7S & M8S Series

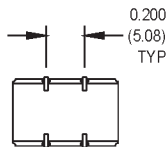
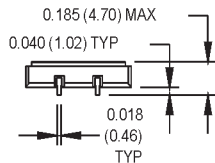
## 9x14 mm, 5.0 or 3.3 Volt, HCMOS/TTL, Clock Oscillator



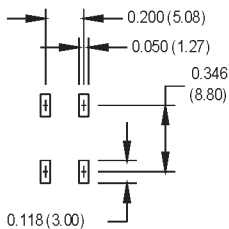
- J-lead ceramic package
- Wide operating temperature range
- RoHS version (-R) available



All dimensions  
in inches (mm).



### SUGGESTED SOLDER PAD LAYOUT



### Pin Connections

| PIN | FUNCTION        |
|-----|-----------------|
| 1   | N/C or Tristate |
| 2   | Ground          |
| 3   | Output          |
| 4   | +Vdd            |

### Ordering Information

|                                          |                    |             |   |   |   |    |             |
|------------------------------------------|--------------------|-------------|---|---|---|----|-------------|
| M7S/M8S                                  | 1                  | 3           | F | A | J | -R | 00.0000 MHz |
| Product Series                           |                    |             |   |   |   |    |             |
| M7S = 5.0 Volt                           |                    |             |   |   |   |    |             |
| M8S = 3.3 Volt                           |                    |             |   |   |   |    |             |
| 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  |   |   |   |    |             |
| *8: ±20 ppm                              |                    |             |   |   |   |    |             |
| Output Type                              |                    |             |   |   |   |    |             |
| F: Fixed                                 | T: Tristate        |             |   |   |   |    |             |
| Symmetry/Logic Compatibility             |                    |             |   |   |   |    |             |
| A: 40/60 HCMOS/TTL                       | B: 45/55 TTL       |             |   |   |   |    |             |
| C: 45/55 HCMOS                           |                    |             |   |   |   |    |             |
| D: 45/55 HCMOS/TTL (1.000 - 107.000 MHz) |                    |             |   |   |   |    |             |
| Package/Lead Configurations              |                    |             |   |   |   |    |             |
| J: J Lead (Gold Flash Leads)             |                    |             |   |   |   |    |             |
| RoHS Compliance                          |                    |             |   |   |   |    |             |
| Blank: non-RoHS compliant part           |                    |             |   |   |   |    |             |
| -R: RoHS compliant part                  |                    |             |   |   |   |    |             |
| Frequency (customer specified)           |                    |             |   |   |   |    |             |

\* Contact factory for availability.

M2005Sxxx & M2015Sxxx - Contact factory for datasheets.

|                           | PARAMETER                | Symbol | Min.                                                                   | Typ.            | Max.    | Units  | Condition/Notes       |
|---------------------------|--------------------------|--------|------------------------------------------------------------------------|-----------------|---------|--------|-----------------------|
|                           |                          |        |                                                                        |                 |         |        |                       |
| Electrical Specifications | Frequency Range          | F      | 1                                                                      |                 | 125     | MHz    |                       |
|                           | Operating Temperature    | TA     | (See ordering information)                                             |                 |         |        |                       |
|                           | Storage Temperature      | TS     | -55                                                                    |                 | +125    | °C     |                       |
|                           | Frequency Stability      | ΔF/F   | (See ordering information)                                             |                 |         |        |                       |
|                           | Aging                    |        |                                                                        |                 |         |        |                       |
|                           | 1st Year                 |        |                                                                        | ±3              |         | ppm    |                       |
|                           | Thereafter (per year)    |        |                                                                        | ±2              |         | ppm    |                       |
|                           | Input Voltage            | Vdd    | 4.5                                                                    | 5.0             | 5.5     | V      | M7S                   |
|                           |                          |        | 3.135                                                                  | 3.3             | 3.465   | V      | M8S                   |
|                           | Input Current            | Idd    |                                                                        |                 | 85      | mA     | M7S                   |
|                           |                          |        |                                                                        |                 | 35      | mA     | M8S                   |
|                           | Output Type              |        |                                                                        |                 |         |        | HCMOS/TTL             |
|                           | Load                     |        |                                                                        |                 |         |        |                       |
|                           | M7S                      |        |                                                                        | 10 TTL or 50 pF |         |        | See Note 1            |
|                           | M8S                      |        |                                                                        | 10 TTL or 15 pF |         |        | 1.000 to 80.000 MHz   |
|                           |                          |        |                                                                        | 10 TTL or 15 pF |         |        | 80.001 to 125.000 MHz |
|                           |                          |        |                                                                        |                 |         |        | 1.000 to 125.000 MHz  |
|                           | Symmetry (Duty Cycle)    |        | (See ordering information)                                             |                 |         |        |                       |
| Environmental             | Logic "1" Level          | Voh    | 90% Vdd                                                                |                 |         | V      | HCMOS Load            |
|                           |                          |        | Vdd-0.5                                                                |                 |         | V      | TTL Load              |
|                           | Logic "0" Level          | Vol    |                                                                        |                 | 10% Vdd | V      | HCMOS Load            |
|                           |                          |        |                                                                        |                 | 0.5     | V      | TTL Load              |
|                           | Output Current           |        |                                                                        |                 | ±16     | mA     | M7S                   |
|                           | 1 to 80 MHz              |        |                                                                        |                 | +16/-8  | mA     | M7S                   |
|                           | 80.001 to 125 MHz        |        |                                                                        |                 | ±8      | mA     | M8S                   |
|                           | 1 to 80 MHz              |        |                                                                        |                 | +8/-4   | mA     | M8S                   |
|                           | 80.001 to 125 MHz        |        |                                                                        |                 |         |        |                       |
|                           | Rise/Fall Time           | Tr/Tf  |                                                                        |                 | 7/6     | ns     | M7S/M8S               |
|                           | 1 to 40 MHz              |        |                                                                        |                 | 5/4     | ns     | M7S/M8S               |
|                           | 40.001 to 125 MHz        |        |                                                                        |                 |         |        |                       |
|                           | Tristate Function        |        | Input Logic "1" or floating: output active                             |                 |         |        |                       |
|                           |                          |        | Input Logic "0": output disables to high-Z                             |                 |         |        |                       |
|                           | Start up Time            |        |                                                                        |                 | 10      | ms     |                       |
|                           | Random Jitter            | Rj     |                                                                        | 5               | 12      | ps RMS | 1.000 to 80.000 MHz   |
|                           | 1-Sigma                  |        |                                                                        | 40              | 100     | ps RMS | 80.001 to 125.000 MHz |
|                           | Mechanical Shock         |        | MIL-STD-202, Method 213, C (100 g's)                                   |                 |         |        |                       |
|                           | Vibration                |        | MIL-STD-202, Method 201 & 204 (10 g's from 10-2000 Hz)                 |                 |         |        |                       |
|                           | Thermal Cycle            |        | MIL-STD-883, Method 1010, B (-55°C to +125°C, 15 min dwell, 10 cycles) |                 |         |        |                       |
|                           | Hermeticity              |        | MIL-STD-202, Method 112                                                |                 |         |        |                       |
|                           | Solderability            |        | Per EIAJ-STD-002                                                       |                 |         |        |                       |
|                           | Max Soldering Conditions |        | See solder profile, Figure 1                                           |                 |         |        |                       |

1. TTL load - see Load Circuit Diagram #1. HCMOS load - see Load Circuit Diagram #2.

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## MtronPTI Lead Free Solder Profile

