MtronPTI ...when timing matters

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# SPECIFICATION FOR SMT – GULLWING OSCILLATOR
# MtronPTI P/N: M2002S436

## I. General & Electrical Specifications:

| Parameter | Symbol | Min. | Typ. | Max. | Units | Conditions |
|---|---|---|---|---|---|---|
| Frequency of Operation | $F_O$ | | 25.000000 | | MHz | |
| Initial Accuracy | | -25 | | +25 | ppm | @ +23°C ± 3°C |
| **Frequency Stability** | | | | | | |
| Frequency Stability | ΔF/F | -100 | | +100 | ppm | Includes initial tolerance ±25ppm, deviation over temperature, shock, vibration, voltage & load variations, and aging |
| **RF Output** | | | | | | |
| Output Type | | HCMOS/TTL Compatible | | | | |
| Output Load | | | | 15 | pF | |
| Symmetry (duty cycle) | $T_{DC}$ | 40 | 50 | 60 | % | Ref to ½ $V_{DD}$ |
| Logic "1" Level | $V_{OH}$ | 90% $V_{DD}$ | | | V | 15pF load |
| Logic "0" Level | $V_{OL}$ | | | 10% $V_{DD}$ | V | 15pF load |
| Rise/Fall Time | $T_R/T_F$ | | | 10 | nS | 10% to 90% Output Levels |
| Start-Up Time | | | | 10 | ms | |
| Enable/Disable Time | | | | 150 | ns | |
| High Level Input Voltage | $V_{IH}$ | 2.0 | | | V | $V_{DD}$ = 3.3V, IH = 10uA |
| Tristate Logic | | Logic "1" or Open | | | V | Pad 1: Output Enabled |
| | | Logic "0" | | | V | Pad 1: Output Disabled to high-Z |
| **Supply Voltage & Power Consumption** | | | | | | |
| Operating Voltage | $V_{DD}$ | 2.97 | 3.30 | 3.63 | V | |
| Operating Current | $I_{DD}$ | | | 15 | mA | @+25°C, 50MHz, 15pF |
| | | | | 4 | mA | Oscillation Shutdown: Pin 1 = LOW, Pin 3 = HIGH |

## II. Environmental & Mechanical Requirements:

| | | | | | | |
|---|---|---|---|---|---|---|
| Operating Temperature | $T_A$ | -55 | | +125 | °C | |
| Storage Temperature | $T_S$ | -55 | | +125 | °C | |
| Vibration | MIL-STD-202, Methods 201 & 204 | | | | | |
| Mechanical Shock | MIL-STD-202, Method 213, Condition C | | | | | |
| Hermeticity | MIL-STD-883, Method 1014, Test Condition A1 for Fine Leak, Test Condition C1 for Gross Leak | | | | | |
| Lead Attachment | Thermo-compression Weld using Copper Leads and Gold Pads | | | | | |
| Lead Pull Test | Shall withstand 8oz. pull per MIL-STD-883, Method 2004, Condition A | | | | | |
| Solderability | Per MIL-STD-883, Method 2003 | | | | | |
| Lead Finish | Hot Solder Dipped | | | | | |
| Max. Soldering Conditions | +260°C for 10 secs. max., Figure 1 | | | | | |
| Package Type | Pad leadless ceramic package with (4) Gullwing Leads attached (M2 Type) | | | | | |
| Part Marking | All parts that have completed all test and screen requirements shall be marked with a dot on the top surface | | | | | |

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## III. Test/Screen Requirements:

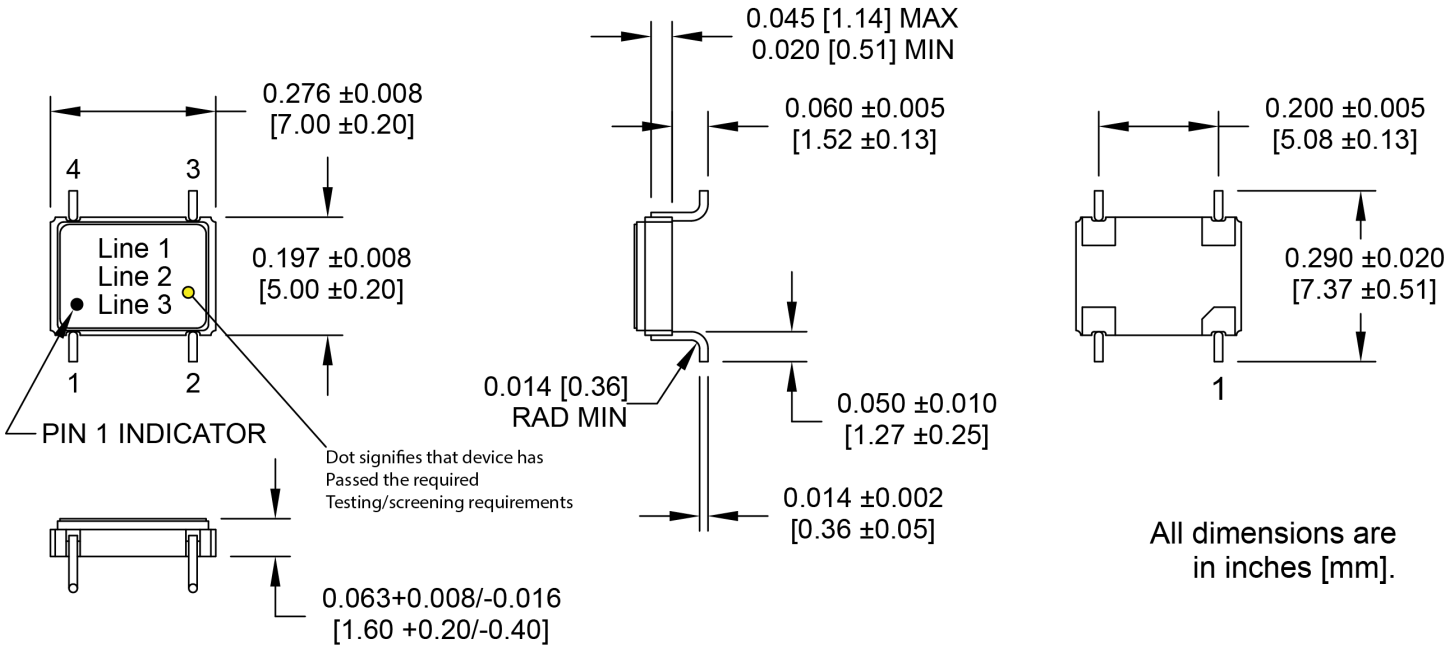
| | |
|---|---|
| Product Testing | All lots supplied to Hamilton shall have all electrical parameters shown in Table I verified at -55°C to +125°C. |
| Date Code | All parts from one lot should be from one date code. Product should be no older than one year from receiving date of the purchase order from Hamilton. |
| Visual Inspection | 100% external inspection shall be performed under a minimum 30x magnification to validate that there are no flaws associated with the Lead attach – positioning, connection, and integrity of lead and carrier should be inspected. Per Mil-STD-883, Method 2009. |

## IV. Dimensions, Marking, and Pin Out Information:

| Pad | Function |
|---|---|
| 1 | Tristate |
| 2 | Ground |
| 3 | Output |
| 4 | $+V_{DD}$ |

| Part Marking | |
|---|---|
| Line 1 | M2002S436 |
| Line 2 | 25M0000 |
| Line 3 | M yy ww |

| Legend | |
|---|---|
| yy | Year |
| ww | Work week |



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## V. Soldering Conditions

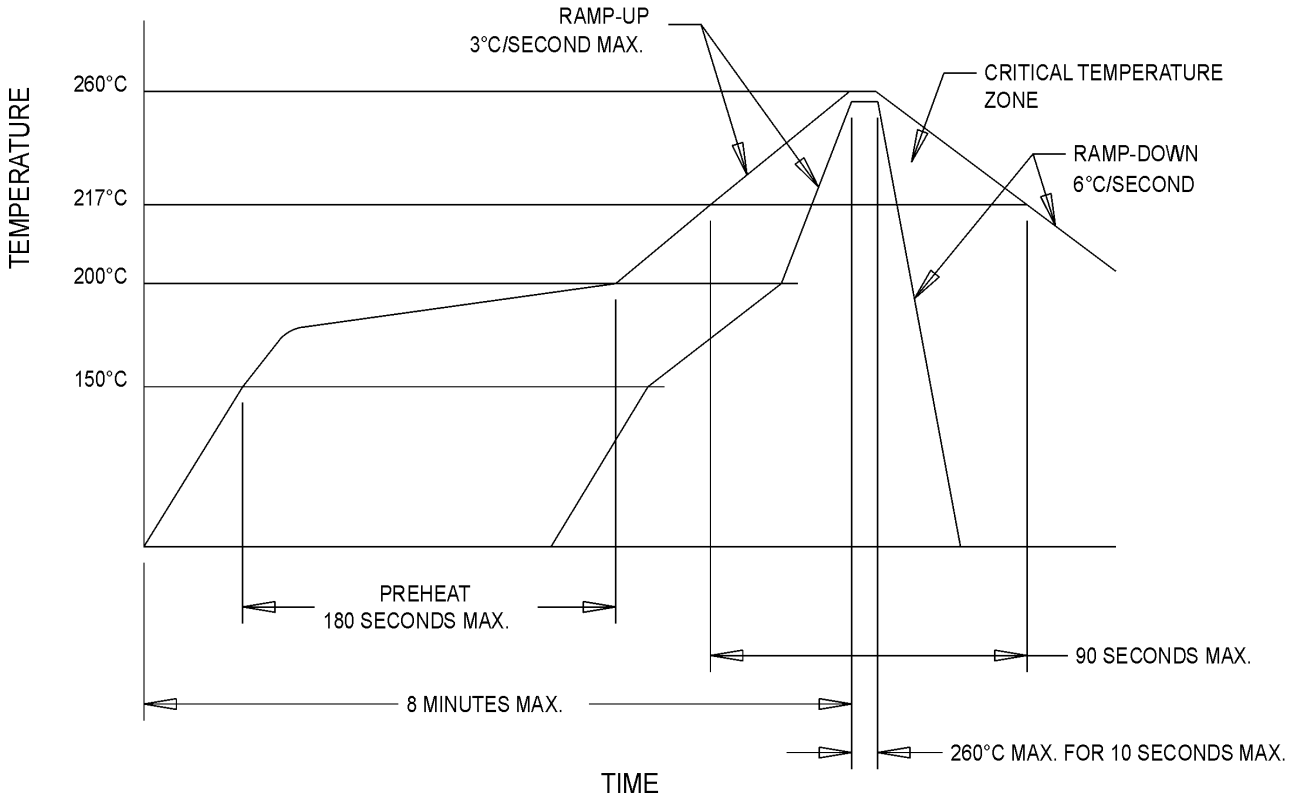


**Figure 1**

## VI. Datasheet Revision Table:

| Date | Rev. | Author | Details of Revision |
|---|---|---|---|
| 07/17/05 | 0 | MM | Original release. |
| 04/19/18 | A | MM | Updated datasheet to be in line with customer drawing. |