

### CMOS Compatible Enable/Disable HA-1380 Series

#### Description

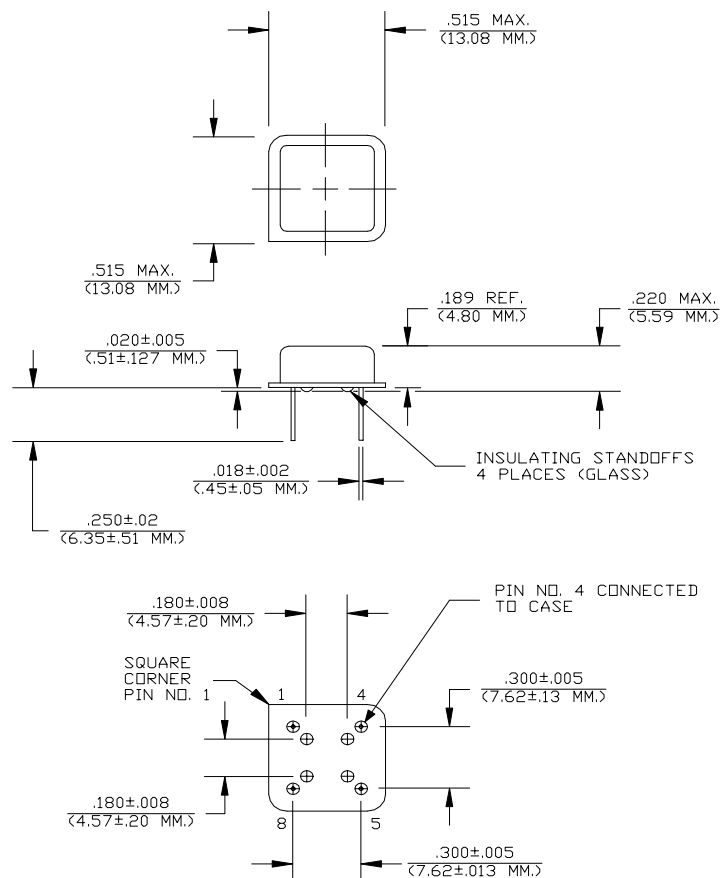
The **HA-1380 Series** of quartz crystal oscillators provide enable/disable 3-state CMOS compatible signals for bus connected systems. Supplying pin 1 of the **HA-1380** units with a logic "1" enables its Pin 5 output. In the disabled mode, Pin 5 presents a high impedance to the load. All units are resistance welded in an all metal package, offering RFI shielding, and are designed to survive standard wave soldering operations without damage. Insulated standoffs to enhance board cleaning are standard.

#### Features

- Wide frequency range— 0.5MHz to 36MHz
- User specified tolerance available
- Will withstand vapor phase temperatures of 253°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 3000g
- All metal, resistance weld, hermetically sealed package
- Low Jitter
- High Q Crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- Low power consumption
- Gold plated leads - Solder dipped leads available upon request
- RoHS Compliant, Lead Free Construction (unless solder dipped leads are supplied)

#### Electrical Connection

| Pin | Connection      |
|-----|-----------------|
| 1   | Enable Input    |
| 4   | Grd & Case      |
| 5   | Output          |
| 8   | V <sub>DD</sub> |



Dimensions are in inches and (MM)

HA-1380 Series Continued  
CMOS Compatible - Enable/Disable

### Operating Conditions and Output Characteristics

#### Electrical Characteristics

| Parameter                          | Symbol   | Conditions   | Min           | Typical | Max     |
|------------------------------------|----------|--|---------------|---------|---------|
| Frequency                          | -----    | -----  | 0.5MHz        | -----   | 36.0MHz |
| Duty Cycle                         | -----    | @ $V_{DD}/2$   | 40/60%        | -----   | 60/40%  |
| Logic 0                            | $V_{OL}$ | @ 600 $\mu$ A  | -----         | -----   | 0.2V    |
| Logic 1                            | $V_{OH}$ | @ 600 $\mu$ A  | $V_{DD}-0.2V$ | -----   | -----   |
| Rise & Fall Time                   | tr,tf    | 10-90%   | -----         | -----   | 5 ns    |
| Tpz                                | -----    | -----  | -----         | -----   | 25 ns   |
| Enable/Disable                     |          |  |               |         |         |
| Logic High Voltage                 | -----    | -----  | 3.0V          | 2.5V    | -----   |
| Enable/Disable                     |          |  |               |         |         |
| Logic Low Voltage                  | -----    | -----  | -----         | -----   | 0.4V    |
| Jitter, RMS <sup>(2)</sup>         | -----    | -----  | -----         | -----   | 8 psec  |
| Frequency Stability <sup>(1)</sup> | dF/F     | Overall conditions including:<br>voltage, calibration, temp.,<br>10 yr aging, shock, vibration | -100ppm       | -----   | +100ppm |

#### General Characteristics

| Parameter             | Symbol   | Conditions         | Min    | Typical | Max           |
|-----------------------|----------|--------------------|--------|---------|---------------|
| Supply Voltage        | $V_{DD}$ | -----              | 4.5V   | 5.0V    | 5.5V          |
| Supply Current        | $I_{DD}$ | No Load            | 0.0 mA | -----   | 55 mA         |
| Output current        | $I_O$    | -----              | 0.0 mA | -----   | $\pm 16.0$ mA |
| Operating temperature | $T_A$    | -----              | 0°C    | -----   | 70°C          |
| Storage temperature   | $T_S$    | -----              | -55°C  | -----   | 125°C         |
| Power Dissipation     | $P_D$    | -----              | -----  | -----   | 303 mW        |
| Lead temperature      | $T_L$    | Soldering, 10 sec. | -----  | -----   | 300°C         |
| Load                  | ----     | -----              | -----  | -----   | 15pf          |
| Start-up time         | $t_s$    | -----              | -----  | 2 ms    | 10 ms         |

#### Environmental and Mechanical Characteristics

|                     |   |
|---------------------|---|
| Mechanical Shock    | Per MIL-STD-202, Method 213, Condition E                      |
| Thermal Shock       | Per MIL-STD-833, Method 1011, Condition A                     |
| Vibration           | 0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz |
| Soldering Condition | 300°C for 10 seconds  |
| Hermetic Seal       | Leak rate less than $1 \times 10^{-8}$ atm.cc/sec of helium   |

#### Footnotes:

- Standard frequency stability ( $\pm 20, \pm 25, \pm 50$ ppm & others available)
- Jitter performance is frequency dependent. Please contact factory for full characterization. RMS jitter bandwidth of 12kHz to 20MHz.

| Creating a Part Number      |                              |
|-----------------------------|------------------------------|
| <b>HA - A138X - FREQ</b>    |                              |
| <b>Package Code</b>         | <b>Tolerance/Performance</b> |
| HA Ledged 4 pin (8 pin)     | 0 $\pm 100$ ppm 0-70°C       |
| SA Ledged 4 pin (8 pin) SMD | 1 $\pm 50$ ppm 0-70°C        |
| Gull Wing                   | 7 $\pm 25$ ppm 0-70°C        |
| <b>Input Voltage</b>        | 9 Customer Specific          |
| Code Specification          | A $\pm 20$ ppm 0-70°C        |
| A 3.3V                      | B $\pm 50$ ppm -40 to +85°C  |
| 5V                          | C $\pm 100$ ppm -40 to +85°C |

#### Test Load:

