

CMOS HA-A1420 Series

Description

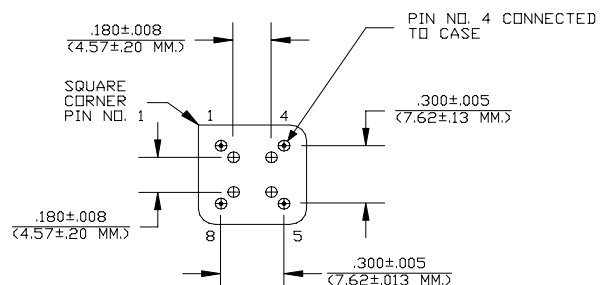
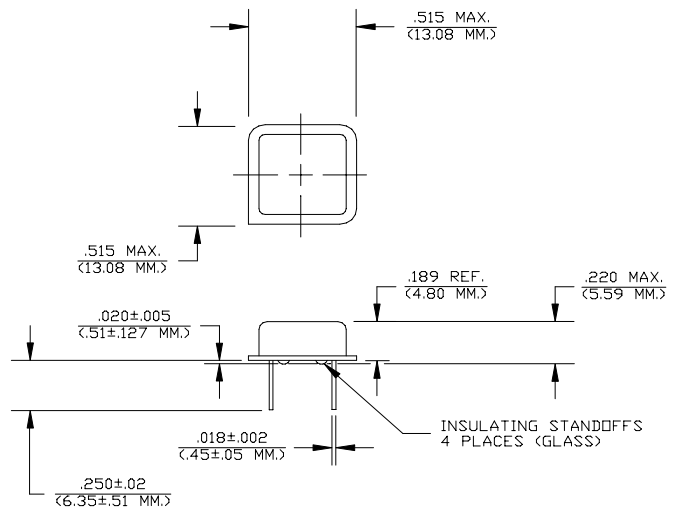
The **HA-A1420 Series** of quartz crystal oscillators provide enable/disable 3-state CMOS compatible signals for bus connected systems. Supplying Pin 1 of the HA-A1420 units with a logic "1" or open enables its output. In the disabled mode, output pin presents a high impedance to the load. All units 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— 1.0MHz to 80.0MHz
- 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
- 3.3 Volt operation
- 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)
- COTS/Dual use

Electrical Connection

| Pin | Connection |
|-----|-----------------|
| 1 | Enable Input |
| 4 | Grd & Case |
| 5 | Output |
| 8 | V _{DD} |



Dimensions are in inches and (MM)

HA-A1420 Series Continued
CMOS

Rev. K

Operating Conditions and Output Characteristics

Electrical Characteristics

| Parameter | Symbol | Conditions | Min | Typical | Max |
|---|-----------------|--|---------------|-------------|---------|
| Frequency | ----- | ----- | 1.0MHz | ----- | 80.0MHz |
| Duty Cycle | ----- | @ $V_{DD}/2$ | 45/55% | ----- | 55/45% |
| Logic 0 | V_{OL} | @ 600 μ A | ----- | ----- | 0.2V |
| Logic 1 | V_{OH} | @ 600 μ A | $V_{DD}-0.2V$ | ----- | ----- |
| Rise & Fall Time | tr,tf | 10-90% | ----- | ----- | 8 ns |
| Tpz | ----- | ----- | ----- | ----- | 25 ns |
| Enable/Disable | | | | | |
| Logic High Voltage | ----- | ----- | 2.0V | ----- | ----- |
| Enable/Disable | | | | | |
| Logic Low Voltage | ----- | ----- | ----- | ----- | 0.8V |
| Jitter, Integrated | J | Integrated from phase noise, 12kHz to 20MHz, RMS | ----- | 0.1 ps | ----- |
| Jitter, Wavecrest Characterized ⁽²⁾ | ----- | Random Period | ----- | 2.3ps | ----- |
| | | Accum, pk-to-pk | ----- | 26ps | ----- |
| Phase Noise | $\xi(\Delta f)$ | @ 10Hz | ----- | -70 dBc/Hz | ----- |
| | | @ 100Hz | ----- | -105 dBc/Hz | ----- |
| | | @ 1kHz | ----- | -130 dBc/Hz | ----- |
| | | @ 10kHz | ----- | -145 dBc/Hz | ----- |
| | | @ 100kHz | ----- | -150 dBc/Hz | ----- |
| | | @ >1Mhz | ----- | -150 dBc/Hz | ----- |
| Frequency Stability ⁽¹⁾ | dF/F | Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration | -100ppm | ----- | +100ppm |

General Characteristics

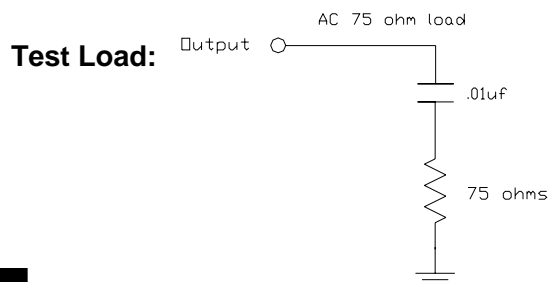
| Parameter | Symbol | Conditions | Min | Typical | Max |
|-----------------------|----------|--------------------|--------|---------|---------------|
| Supply Voltage | V_{DD} | ----- | 3.135V | 3.3V | 3.465V |
| Supply Current | I_{DD} | No Load | 0.0 mA | ----- | 40mA |
| Output current | I_O | ----- | 0.0 mA | ----- | ± 16.0 mA |
| Operating temperature | T_A | ----- | 0°C | ----- | 70°C |
| Storage temperature | T_S | ----- | -55°C | ----- | 125°C |
| Power Dissipation | P_D | ----- | ----- | ----- | 138 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-883, 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 1×10^{-8} atm.cc/sec of helium |

Footnotes:

- 1) Standard frequency stability ($\pm 20, \pm 25, \pm 50$ ppm & others available)
- 2) Jitter performance is frequency dependent. Please contact factory for full characterization.



Creating a Part Number

HA - A142X - FREQ

Package Code

HA Leaded 4 pin (8 pin)
SA Leaded 4 pin (8 pin) SMD
Gull Wing

Input Voltage

Code Specification
A 3.3V
5V

Tolerance/Performance

0 ± 100 ppm 0-70°C
1 ± 50 ppm 0-70°C
7 ± 25 ppm 0-70°C
9 Customer Specific
A ± 20 ppm 0-70°C
B ± 50 ppm -40 to +85°C
C ± 100 ppm -40 to +85°C