

CMOS HA-1450 Series

Description

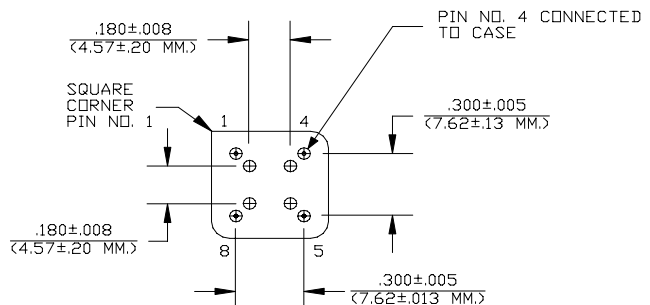
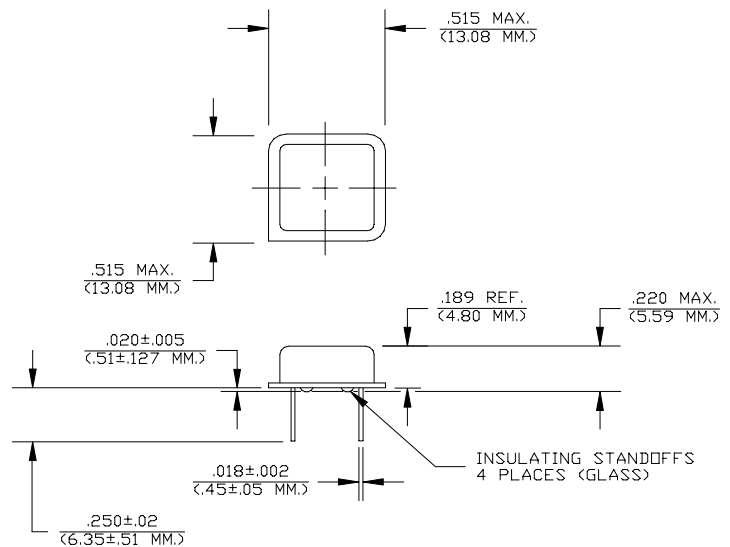
The **HA-1450 Series** of quartz crystal oscillators provide enable/disable 3-state CMOS compatible signals for bus connected systems. Supplying Pin 1 of the HA-1450 units with a logic "1" or open enables its pin 8 output. In the disabled mode, pin 8 presents a high impedance to the load. All units are designed to survive wave soldering operations without damage.

Features

- Wide frequency range— 0.5MHz to 30.0MHz
- 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
- 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
- CMOS and TTL output levels
- 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-1450 Series Continued
CMOS

Rev. H

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	0.5MHz	-----	30.0MHz
Duty Cycle	-----	@ V _{DD} /2	45/55%	-----	55/45%
Logic 0	V _{OL}	@ 600μA	-----	-----	0.2V
		@ 16mA	-----	-----	0.4V
Logic 1	V _{OH}	@ 600μA	V _{DD} -0.2V	-----	-----
		@ 16mA	V _{DD} -0.4V	-----	-----
Rise & Fall Time	tr,tf	10-90%	-----	-----	3 ns
Tpz	-----	-----	-----	-----	25 ns
Jitter, RMS ⁽²⁾	-----	-----	-----	-----	8 psec
Enable/Disable					
Logic High Voltage	-----	-----	V _{DD} -1.5V	-----	-----
Logic Low Voltage	-----	-----	-----	-----	1.5V
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}	-----	4.75V	5.0V	5.25V
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	-----	-----	-----	210 mW
Lead temperature	T _L	Soldering, 10 sec.	-----	-----	300°C
Load	-----	-----	-----	-----	15pf
Start-up time	t _s	-----	-----	2 ms	10 ms

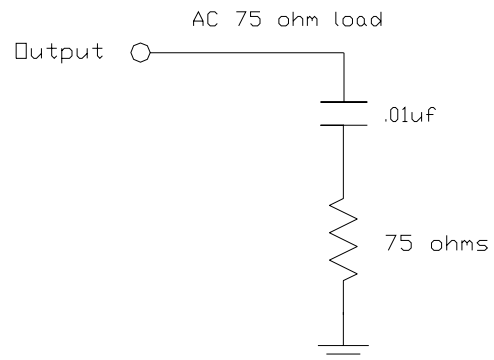
Environmental and Mechanical Characteristics

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 x 10 ⁻⁸ atm.cc/sec of helium

Footnotes:

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

Test Load:



Creating a Part Number	
HA - A145X - FREQ	
Package Code	Tolerance/Performance
HA Leaded 4 pin (8 pin)	0 ±100ppm 0-70°C
SA Leaded 4 pin (8 pin) SMD	1 ±50ppm 0-70°C
Gull Wing	7 ±25ppm 0-70°C
Input Voltage	9 Customer Specific
Code Specification	A ±20ppm 0-70°C
A 3.3V	B ±50ppm -40 to +85°C
5V	C ±100ppm -40 to +85°C