



## CMOS HS-1450 Series

Rev. D

### Description

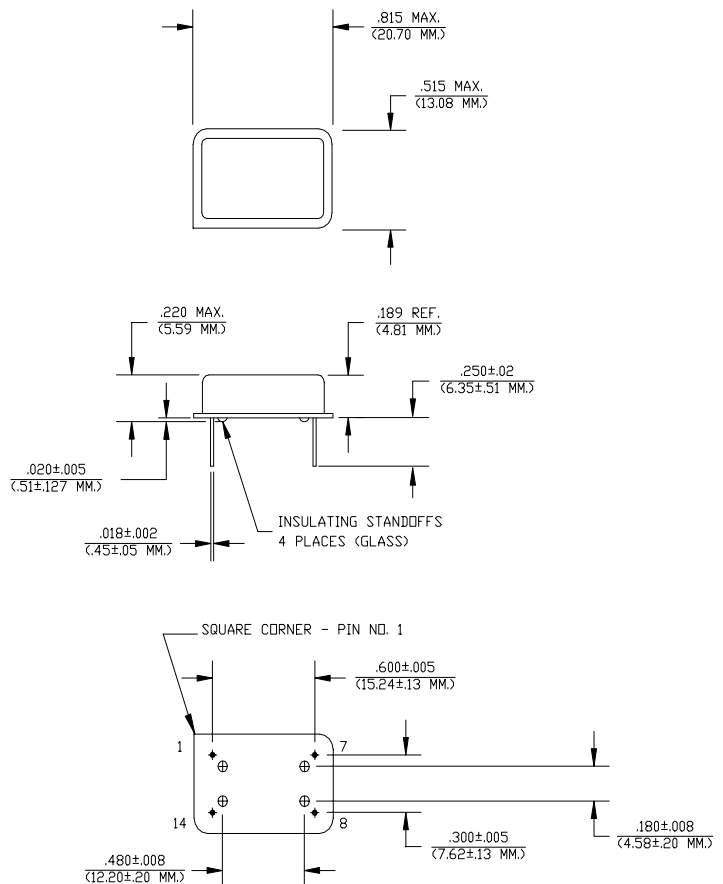
The **HS-1450 Series** of quartz crystal oscillators provide enable/disable 3-state CMOS compatible signals for bus connected systems. Supplying Pin 1 of the HS-1450 units with a logic "1" or open enables its pin 8 output. In the disabled mode, pin 8 presents a high impedance to the load. All units are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

### Features

- Wide frequency range– 4.0MHz to 40.0MHz
- 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
- TTL compatible (HCT) at specified supply voltage

### Electrical Connection

Pin	Connection
1	Enable Input
7	Grd & Case
8	Output
14	V <sub>DD</sub>



Dimensions are in inches and (MM)

**HS-1450 Series**    Continued  
**CMOS**

**Rev. D**

### Operating Conditions and Output Characteristics

#### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	----	----	4.0MHz	----	40.0MHz
Duty Cycle	----	@ V <sub>DD</sub> /2	45/55%	----	55/45%
Logic 0	V <sub>OL</sub>	@ 600μA	----	----	0.2V
Logic 1	V <sub>OH</sub>	@ 600μA	V <sub>DD</sub> -0.2V	----	----
Rise & Fall Time	tr,tf	10-90%	----	----	3 ns
Tpz	----	----	----	----	25 ns
Jitter, RMS <sup>(2)</sup>	----	----	----	----	8 psec
Frequency Stability <sup>(1)</sup>	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 <sub>DD</sub>	----	4.75V	5.0V	5.25V
Supply Current	I <sub>DD</sub>	No Load	0.0 mA	----	30mA
Output current	I <sub>O</sub>	----	0.0 mA	----	±16.0 mA
Operating temperature	T <sub>A</sub>	----	0°C	----	70°C
Storage temperature	T <sub>S</sub>	----	-55°C	----	125°C
Power Dissipation	P <sub>D</sub>	----	----	----	158 mW
Lead temperature	T <sub>L</sub>	Soldering, 10 sec.	----	----	300°C
Load	----	----	----	----	15pf
Start-up time	t <sub>s</sub>	----	----	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 x 10 <sup>-8</sup> atm.cc/sec of helium

**Footnotes:**

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

**Creating a Part Number**

**HS - A145X - FREQ**

<p><b>Package Code</b></p> <p>HS    Leaded 4 pin (14 pin)</p> <p>SM    Leaded 4 pin (14 pin) SMD</p> <p style="padding-left: 20px;">Gull Wing</p> <p><b>Input Voltage</b></p> <p>Code    Specification</p> <p>A        3.3V</p> <p>        5V</p>	<p><b>Tolerance/Performance</b></p> <p>0    ±100ppm 0-70°C</p> <p>1    ±50ppm 0-70°C</p> <p>7    ±25ppm 0-70°C</p> <p>9    Customer Specific</p> <p>A    ±20ppm 0-70°C</p> <p>B    ±50ppm -40 to +85°C</p> <p>C    ±100ppm -40 to +85°C</p>
---	---

**Test Load:**

