



### HS-169 Single Frequency Oscillator 53.125MHz

#### Description

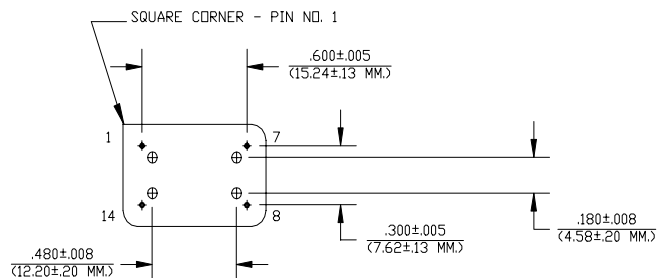
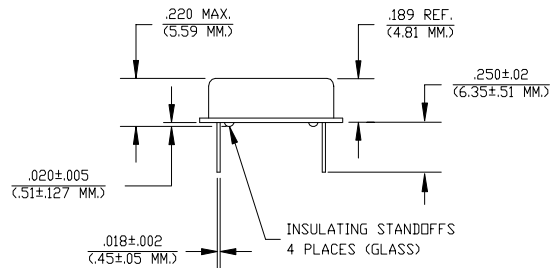
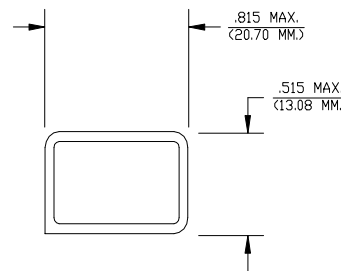
The **HS-169** crystal oscillator is designed to support the Tachyon™ clocking requirements at 53.125MHz.

#### Features

- Meets HP TACHYON™ Clock Generator
- 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
- Gold plated leads - Solder dipped leads available upon request
- Low power consumption

#### Electrical Connection

| Pin | Connection      |
|-----|-----------------|
| 1   | N.C.            |
| 7   | Grd & Case      |
| 8   | Output          |
| 14  | V <sub>CC</sub> |



## HS-169 Continued Single Frequency Oscillator 53.125MHz

Rev. E

### Operating Conditions and Output Characteristics

#### Electrical Characteristics

| Parameter                          | Symbol   | Conditions   | Min     | Typical | Max     |
|------------------------------------|----------|--|---------|---------|---------|
| Duty Cycle                         | -----    | @ $V_{CC}/2$   | 45/55%  | -----   | 55/45%  |
| Logic 0                            | $V_{OL}$ | @ 16mA   | -----   | 0.3V    | 0.4V    |
| Logic 1                            | $V_{OH}$ | @ 0.4mA  | 2.4V    | 4.0V    | -----   |
| Rise & Fall Time                   | tr,tf    | @ 0.4 to 2.4V  | -----   | -----   | 2.8 ns  |
| Jitter, RMS <sup>(2)</sup>         | -----    | -----  | -----   | -----   | 5 psec  |
| Frequency Stability <sup>(1)</sup> | dF/F     | Overall conditions including:<br>voltage, calibration, temp.,<br>20 yr aging, shock, vibration | -100ppm | -----   | +100ppm |

#### General Characteristics

| Parameter             | Symbol   | Conditions         | Min    | Typical | Max         |
|-----------------------|----------|--------------------|--------|---------|-------------|
| Supply Voltage        | $V_{CC}$ | -----              | 4.75V  | 5.0V    | 5.25V       |
| Supply Current        | $I_{CC}$ | No Load            | 0.0 mA | -----   | 60 mA       |
| Output current        | $I_O$    | -----              | 0.0 mA | -----   | ±25.0 mA    |
| Operating temperature | $T_A$    | -----              | 0°C    | -----   | 70°C        |
| Storage temperature   | $T_S$    | -----              | -55°C  | -----   | 125°C       |
| Power Dissipation     | $P_D$    | -----              | -----  | -----   | 315 mW      |
| Lead temperature      | $T_L$    | Soldering, 10 sec. | -----  | -----   | 300°C       |
| Load                  | -----    | -----              | -----  | -----   | 10 TTL gate |
| Start-up Time         | $t_s$    | -----              | -----  | -----   | 3 ms        |

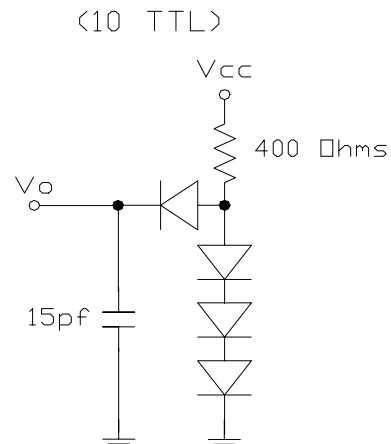
#### Environmental and Mechanical Characteristics

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

#### Test Load:



| Creating a Part Number       |                              |
|------------------------------|------------------------------|
| <b>HS - X16X - FREQ</b>      |                              |
| <b>Package Code</b>          | <b>Tolerance/Performance</b> |
| HS Leaded 4 pin (14 pin)     | 0 ±100ppm 0-70°C             |
| SM Leaded 4 pin (14 pin) SMD | 1 ±50ppm 0-70°C              |
| Gull Wing                    | 7 ±25ppm 0-70°C              |
| <b>Input Voltage</b>         | 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       |