

## Full-Size, TTL and HCMOS Compatible Clock Oscillators

# 970H • 970HHT\* • 980H • 980HHT\*

\*Tristate / Enable-Disable

### FEATURES

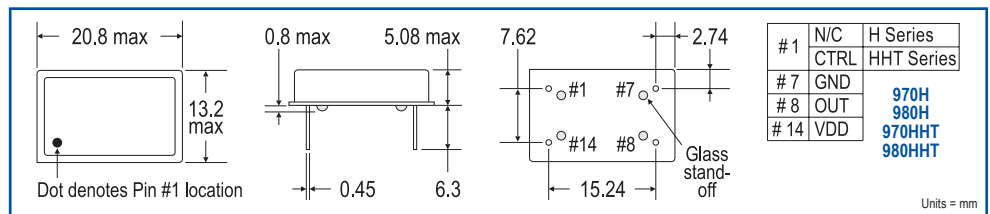
- Low power consumption
- Surface mount option
- Tristate function on 970HHT & 980HHT

Monitor Products' 970H/HHT and 980H/HHT series of half-size clock oscillators combine state-of-the-art, thick film, hybrid technology with precision manufacturing, resulting in products of unsurpassed accuracy and reliability. Their all-metal, resistance-welded cases ensure environmental protection and shielding to minimize EMI/RFI.



### APPLICATIONS

- Systems clock
- Disk drives
- Cameras
- Computer applications
- Measuring instruments
- Communications equipment



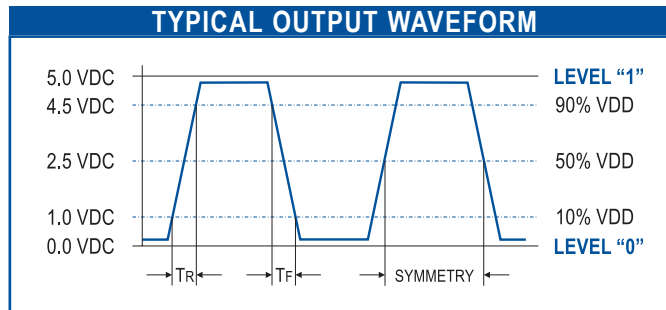
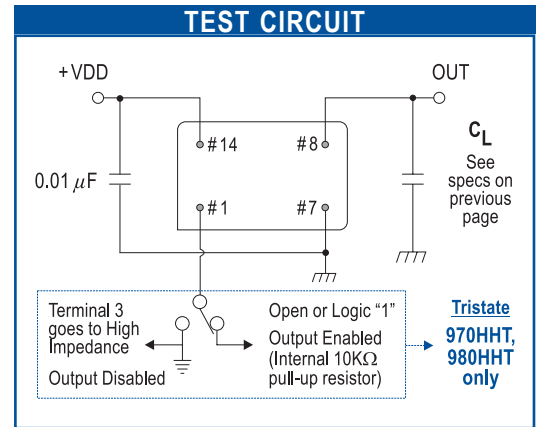
| ELECTRICAL SPECIFICATIONS       | 970H<br>HCMOS   | 970HHT<br>HCMOS / Tristate   | 980H<br>HCMOS  | 980HHT<br>HCMOS / Tristate                          |
|---------------------------------|---|--|--|---|
| Supply Voltage                  | 5.0 VDC $\pm$ 0.5 V   |  | 3.0 VDC $\pm$ 0.3 V                                      |   |
| Frequency Range                 | 1.0 ~ 100.0 MHz   | 1.0 ~ 120.0 MHz  | 1.0 ~ 100.0 MHz  | 1.0 ~ 70.0 MHz                                      |
| Frequency Stability             | $\pm$ 100 ppm standard<br>( $\pm$ 25 ppm available)                                   | 1.0 ~ 100.0 MHz = $\pm$ 100 ppm<br>100.0 ~ 120.0 MHz = $\pm$ 200 ppm | $\pm$ 100 ppm standard<br>( $\pm$ 25 ppm available)      | $\pm$ 100 ppm standard<br>( $\pm$ 25 ppm available) |
| Input Current<br>MHz: mA max    | 1.0 ~ 20.0 : 20<br>20.1 ~ 70.0 : 40<br>70.1 ~ 100.0 : 60                              | 1.0 ~ 20.0 : 20<br>20.1 ~ 70.0 : 40<br>70.1 ~ 120.0 : 60             | 1.0 ~ 20.0 : 20<br>20.1 ~ 70.0 : 40<br>70.1 ~ 100.0 : 60 | 1.0 ~ 20.0 : 10<br>20.1 ~ 70.0 : 20                 |
| Rise & Fall Time<br>MHz: nS max | 1.0 ~ 25.0 : 10<br>25.1 ~ 70.0 : 6<br>70.1 ~ 100.0 : 4                                | 1.0 ~ 25.0 : 10<br>25.1 ~ 70.0 : 6<br>70.1 ~ 120.0 : 4               | 1.0 ~ 25.0 : 10<br>25.1 ~ 70.0 : 6<br>70.1 ~ 100.0 : 4   | 1.0 ~ 25.0 : 10<br>25.1 ~ 70.0 : 6                  |
| Load Capacitance                | 1.0 ~ 49.9 MHz = 50 pF<br>50.0 MHz and up = 5 TTL or 10 LSTTL or 15pF max             |  | 5 TTL or 10 LSTTL or 15pF max                            |   |
| Symmetry                        | 60% / 40% @ $\frac{1}{2}$ Vdd max standard (55% / 45% available)                      |  |  |   |
| Oper Temp Range                 | 0°C ~ 70°C standard (extended temp ranges available - call factory for other options) |  |  |   |
| Logic 0 Level                   | 10% x Vdd max   |  |  |   |
| Logic 1 Level                   | 90% x Vdd min   |  |  |   |

Monitor Products has a proven track record as a pioneer manufacturer in the frequency control market. If our extensive selection of standard and engineered crystals and oscillators does not meet your spec, we will work with you towards a customized solution.

# 970H • 970HHT • 980H • 980HHT

## ENVIRONMENTAL PERFORMANCE SPECIFICATIONS

|                             |   |
|-----------------------------|---|
| <b>Oper Temp Range</b>      | 0°C~70°C (call factory for other ranges)                    |
| <b>Storage Temp Range</b>   | -55°C~125°C   |
| <b>Vibration</b>            | MIL-STD-202F, Method 204, 35G, 50 to 2000 Hz                |
| <b>Shock</b>                | MIL-STD-202F Method 213B, Test Cond E, 1000G, 1/2 Sine Wave |
| <b>Humidity</b>             | 85% RH, 85°C, 48 Hours                                      |
| <b>Hermetic Seal</b>        | Leak Rate $2 \times 10^{-8}$ ATM-cm <sup>3</sup> /sec max   |
| <b>Reflow Solderability</b> | 260°C, 10 secs max  |
| <b>Solderability</b>        | MIL-STD-202F, Method 208E                                   |



## PART NUMBERING KEY

Sample Part Numbers:

|                         | SERIES | SYMMETRY | FREQUENCY STABILITY | TEMPERATURE RANGE | PACKAGING | FREQUENCY (MHz) |
|-------------------------|--------|----------|---------------------|-------------------|-----------|-----------------|
| 970H1B2A @ 44.000 MHz   | 970H   | 1        | B                   | 2                 | A         | 44.000          |
| 970HHT2C2A @ 80.000 MHz | 970HHT | 2        | C                   | 2                 | A         | 80.000          |
| 980H2B2A @ 36.000 MHz   | 980H   | 2        | B                   | 2                 | A         | 36.000          |
| 980HHT1B3A @ 66.666 MHz | 980HHT | 1        | B                   | 3                 | A         | 66.666          |

\* Standard + 970HHT only

Call factory for additional options. Use full descriptive part number when ordering. Parts will be marked with series and frequency only.