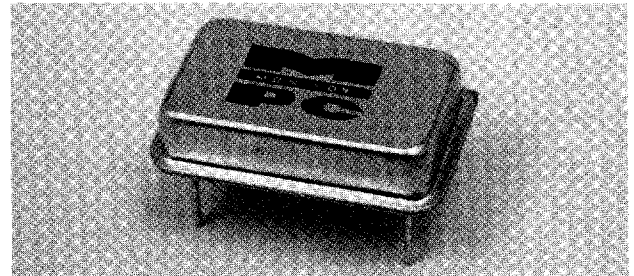


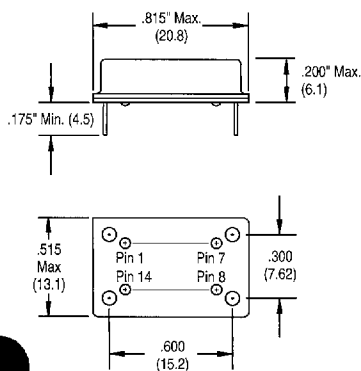


# MONITOR PRODUCTS

## 970HD HIGH SPEED CMOS INDEPENDENT DUAL FREQUENCY OSCILLATOR



### PACKAGE DIMENSIONS

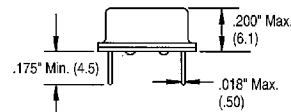


### 970HD

#### Pin Connection

#1 Output 1:F1    #8 Output 2:F2\*  
#7 GND            #14 +5VDC

\* 2 is higher than F1



Dimensions in inches and (mm)

### ELECTRICAL SPECIFICATIONS

- |  |  |
|--|--|
| • Frequency Range                          | *3.5 MHz to 70.0 MHz<br>F1, F2, see table 1:<br>(F1 = Lower Frequency) |
| • Frequency Stability                      | ±0.01% STD   |
| • Operating Temperature Range              | 0°C to 70°C  |
| • Storage Temperature Range                | -55°C to 125°C   |
| • Input Voltage                            | +5 VDC ± 0.5 V   |
| • Input Current                            | 30 mA (max)  |
| • Symmetry                                 | 45/55% (max)   |
| • Rise and Fall Time<br>(0.5 V to 4.5 VDC) | *5 nS (typ), 10 nS (max)   |
| • Start Up Time                            | 5.0 mS (max)   |
| • Logic "0" Level                          | 0.5 V (max)  |
| • Logic "1" Level                          | 4.5 V (min)  |
| • Output Load                              | 50 pF (max)  |

\* Lower frequency: 1.8 - 70.0 MHz available upon special request

### FEATURES

- RUGGED RESISTANCE WELD PACKAGE
- LOW PROFILE
- LOW POWER CONSUMPTION
- TWO INDEPENDENT FREQUENCIES
- THICK FILM TECHNOLOGY
- SURFACE MOUNT OPTION

The MONITOR 970HD clock oscillators are manufactured using the latest hybrid technology and feature hermetically sealed, welded packages that offer superior resistance to environmental extremes. In addition, the metal package provides shielding to minimize RFI/EMI. Many options are available.

MONITOR PRODUCTS also offers clock oscillators in TTL, LSTTL, and ECL. Function logic configurations also available are:

- INDEPENDENT DUAL OUTPUTS
- DUAL OUTPUT DIVIDE BY 2
- DUAL OUTPUT DIVIDE BY 4
- ENABLE/DISABLE
- TRISTATE GATE
- COMPLIMENTARY OUTPUTS
- SURFACE MOUNTING

**MONITOR PRODUCTS COMPANY, INC.** OVER HALF A CENTURY OF FREQUENCY CONTROL

502 Via Del Monte • Oceanside, CA 92054

Western Phone (619) 433-4510

Eastern Phone (904) 725-4384

Western FAX (619) 434-0255

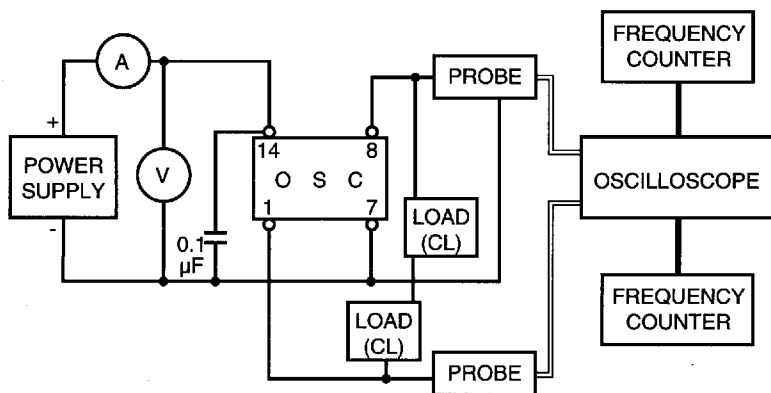
Eastern FAX (904) 725-4584

ENVIRONMENTAL PERFORMANCE SPECIFICATIONS

Ambient Temperature Range

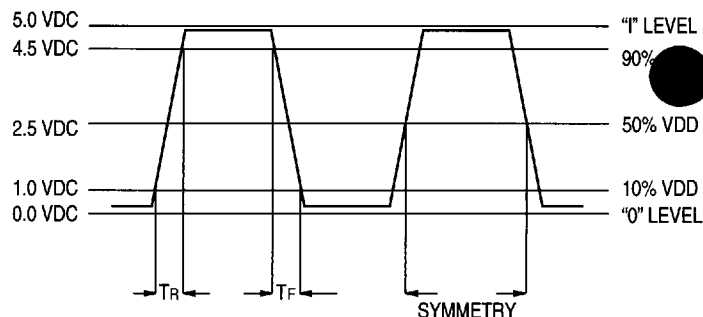
Operating	0°C to 70°C Standard
Storage	-55°C to 125°C
Vibration	MIL-STD-202F Method 204, 35G, 50 to 2000 Hz
Shock	MIL-STD-202F Method 213B Test Cond. E, 1000G, 1/2 Sine Wave
Humidity	85% RH, 85°C, 48 Hours
Hermetic Seal	Leak Rate $2 \times 10^{-8}$ ATM, CC/Sec of helium
Solderability	MIL-STD-202F Method 208E

TEST CIRCUIT



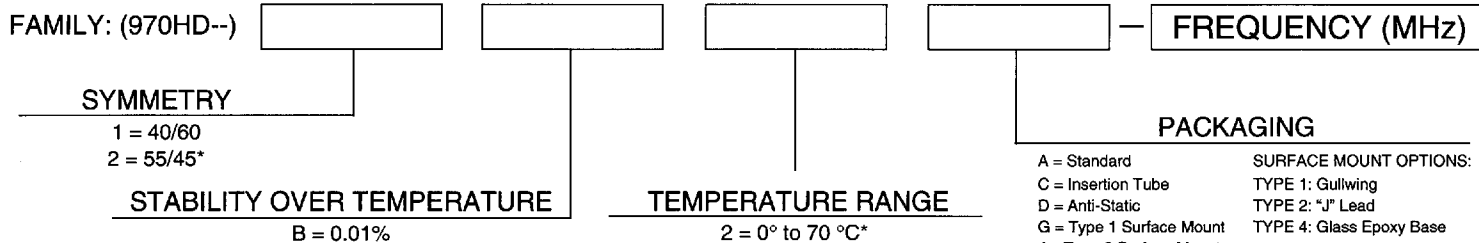
cl = 50 pF MAX, EACH LOAD

TYPICAL OUTPUT WAVEFORM



HOW TO ORDER

EXAMPLE: 970HD2B2A • F1 = Lower  
F2 = Higher



\* Standard  
\*\* Suffix "x" indicates a customer specification applies to device. Factory will assign part number.  
Parts will be marked with Family and Frequency only. When ordering, use the full descriptive part number.  
Not all options available in all product families, check family data sheet or call factory.  
Specifications subject to change without notice.