



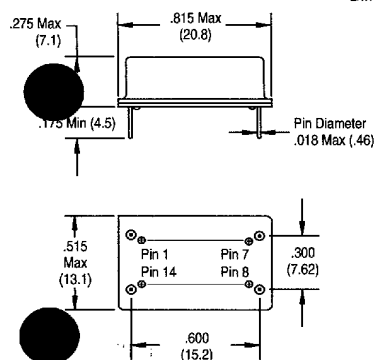
# MONITOR PRODUCTS

## 970E 10KH ECL CLOCK OSCILLATOR



### PACKAGE DIMENSIONS

Dimensions in inches and (mm)



970EAG:	PIN 1. N.C.*	PIN 7. $V_{EE}$ (Case Grounded)
	PIN 14. $V_{CC}$	PIN 8. Output
970EB:	PIN 1. N.C.*	PIN 7. $V_{CC}$ (Case Grounded)
	PIN 14. $V_{EE}$	PIN 8. Output
970EC:	PIN 1. N.C.*	PIN 7. $V_{EE}$ (Case Grounded)
	PIN 14. $V_{CC}$	PIN 8. Output

\* Complementary output on Pin 1 available.  
See "How To Order"

### FEATURES

- HIGH SPEED — 30 MHz TO 200 MHz
- $\pm 100$  PPM STABILITY  $0^{\circ}$  TO  $70^{\circ}\text{C}$
- 2 nSECOND RISE AND FALL TIME
- LOW PROFILE DESIGN
- RUGGED RESISTANCE WELDED PACKAGE
- SURFACE MOUNT OPTIONS
- COMPLEMENTARY OUTPUTS

### ELECTRICAL SPECIFICATIONS

• Frequency Range	30.0 to 200.0 MHz
• Frequency Stability	$\pm 0.01\%$ (100 ppm)
• Operating Range	$0^{\circ}\text{C}$ to $70^{\circ}\text{C}$
• Storage Temperature	$-55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$
• Supply Voltage	970 EB, 970 EC: $-5.2\text{V} \pm 10\%$ 970 EAG: $+5.0 \pm 10\%$
• Input Current	60 mA (max.)

	970 EAG	970 EB/EC
• Logic "0" Level ( $V_{OL}$ )	+3.4 V (max.)	-1.6V (max.)
• Logic "1" Level ( $V_{OH}$ )	+4.0 V (min.)	-1.0V (min.)
• Start Up Time	10.0 ms (max.)	10.0 ms (max.)
• Symmetry	40/60 (max.)	40/60 (max.)
• Rise and Fall Time	2 ns (max.)	2 ns (max.)
• Output Load	330 OHMS	50 OHMS

MONITOR 970E ECL 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 offers a full line of clock oscillators and crystals in many package configurations; TXCO's and VCXO's in standard and custom designs for both commercial/ industrial and MIL/AERO applications.

MONITOR CLOCK OSCILLATORS are also available in LSTTL, HCMOS and TTL in the following configurations:

- INDEPENDENT DUAL OUTPUT
- ENABLE/DISABLE
- TRISTATE GATE
- COMPLEMENTARY 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,  $\frac{1}{2}$  Sine Wave

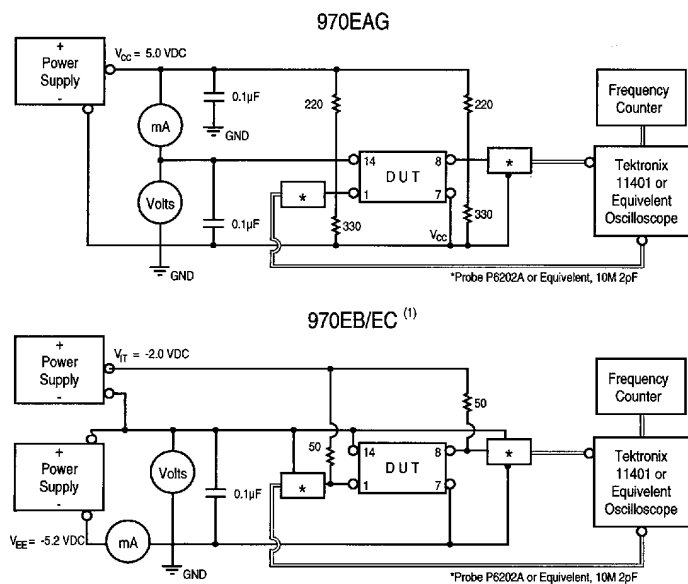
Humidity 85% RH, 85°C, 48 Hours

Hermetic Seal Leak Rate  $2 \times 10^{-8}$  ATMs, CC/Sec of helium

Solderability MIL-STD-202F Method 208E

## OSCILLATOR TEST CIRCUIT

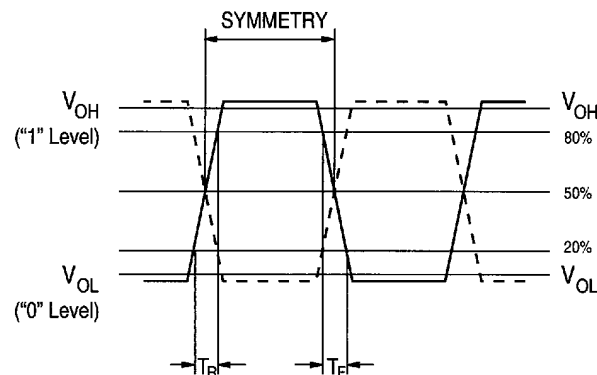
Attention should be given to short direct wiring and probe connections. Good high frequency RF techniques should be employed with any ECL test circuit.



Due to sensitivity of distributing ECL loads, test circuit is for measurement only. Refer to Motorola or Fairchild ECL Handbook for specifics on ECL signal handling.

(1) For 970 EB configurations, connections on Pins 7 and 14 are reversed.

## TYPICAL OUTPUT WAVEFORM



## HOW TO ORDER

FAMILY: 970 EAG, 970 EB\*\*, 970 EC

EXAMPLE: 970EA11B2A-100.00

## SYMMETRY

- 1 = 60/40\*
- 2 = 55/45
- 11 = 60/40 (ECL Complimentary output at Pin 1)
- 21 = 55/45 (ECL Complimentary output at Pin 1)

## FREQUENCY STABILITY

B = 100 PPM (0.01%)

## TEMPERATURE RANGE

2 = 0° to 70 °C\*

## FREQUENCY (MHz)

Expressed as MHz when > 1.0 MHz

KHz < 1.0 MHz

## PACKAGING

- A = Standard
- C = Insertion Tube
- D = Anti-Static
- X = Customer Specification\*\*

\* Standard \*\* Suffix "X" indicates a customer specification applies to device. Factory will assign part number. \*\*\* Limited availability. Please contact factory.

Parts will be marked with family, frequency and complementary output by designator only. When ordering, use full descriptive part number.

Not all options available in all product families, check family datasheet or call factory. Specifications subject to change without notice.