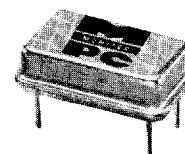
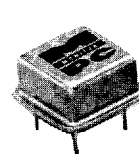


MONITOR PRODUCTS 970 SERIES CLOCK OSCILLATORS

For digital and microprocessor controlled applications, Monitor's 970 Series Clock Oscillators are the pacesetters to rely on for stable signal generation.

Hermetic Seal
Low R.F. Radiation
TTL, CMOS, HCMOS, ECL
Environmental Protection

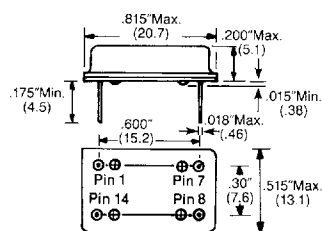
Low Cost
Proven Reliability
Special Outputs



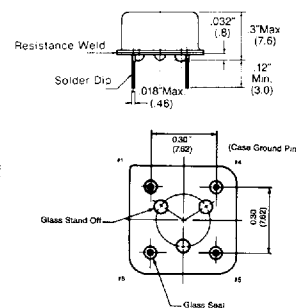
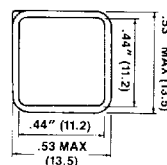
FULL SIZE OSCILLATORS

HALF SIZE OSCILLATORS

Dimensions in inches and (mm)



PIN CONNECTION
#1: N.C. #8: OUTPUT
#7: GND #14: +5V_{DC}



PIN CONNECTION
 # 1: RESET OR N.C.
 # 4: GND
 # 5: OUTPUT
 #14: V_{cc}

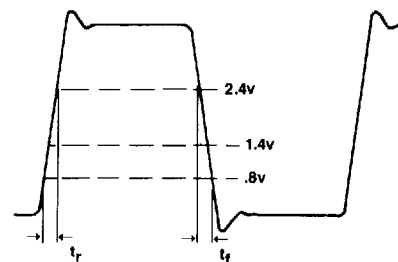
TTL/LSTTL CLOCK OSCILLATORS

4 PRODUCT FAMILIES

250 KHz - 80 MHz

MOST COMMONLY USED FOR
MICROPROCESSOR CLOCK SIGNAL
APPLICATIONS

TTL 970T
LSTTL 970L
TYPICAL OUTPUT WAVE SHAPE



CMOS/HCMOS CLOCK OSCILLATORS

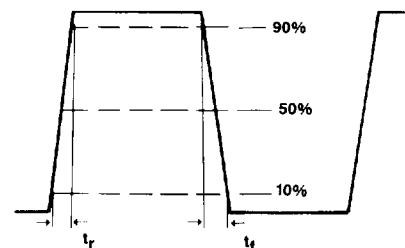
12 PRODUCT FAMILIES

500 KHz - 100 MHz

DUAL OUTPUTS & TRISTATE
AVAILABLE

MOST COMMONLY USED IN LOW
CURRENT AND HIGH DENSITY
APPLICATIONS

HCMOS 970H
TYPICAL OUTPUT WAVE SHAPE

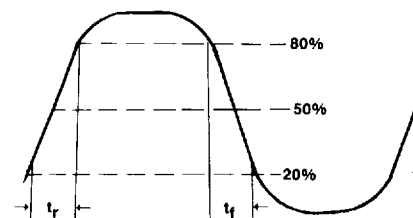
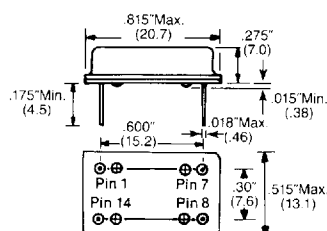


ECL CLOCK OSCILLATORS

3 PRODUCT FAMILIES

30 MHz - 200 MHz

**MOST COMMONLY USED IN HIGH
SPEED GRAPHICS APPLICATIONS**



ECL 970E TYPICAL OUTPUT WAVE SHAPE

MONITOR PRODUCTS 970 SERIES CLOCK OSCILLATOR CHARACTERISTICS



Operating Temperature Range: 0°C to 70°C, except 970TX Family (0° to 50°C only)

Storage Temperature Range: -55°C to +125°C

Maximum Tolerance Available: ±25 PPM @ 25°C

Product Family	Frequency Range	Frequency Stability Available	Output Symmetry	TR and TF (Max)	"0" Level (Max)	"1" Level (Min)	Input Voltage Current (Max)	Output Load
970T (TTL)	250 KHz - 80 MHz	±100 ppm (.01%)	50/50 ±10% ±5% Avail.	15nS 250 KHz - 3.5 MHz 10nS 3.5 MHz - 20 MHz 6nS 20 MHz - 80 MHz	+ 0.4V	+ 2.4V	5V ±10% 70mA 250 KHz-3.19 MHz 30mA 3.2 MHz-24.9 MHz 50mA 25 MHz - 80 MHz	10 TTL Gates
970TX (Tight Tolerance)	9.9 MHz - 24.0 MHz	±5 ppm (.0005%)	50/50 ±10%	30nS Max	+ 0.4V	+ 2.4V	5V ±10% 20mA Max	5 TTL Gates
975T (1/2 Size)	500 KHz - 70 MHz	±100 ppm (.01%)	50/50 ±10% ±5% Avail.	10nS Max	+ 0.4V	+ 2.4V	5V ±10% 50mA Max	5 TTL Gates
970L (LSTTL)	4 MHz - 80 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 2.4V	5V ±10% 30mA Max	4-25 MHz 10 LSTTL 25-50 MHz 5 LSTTL 50-80 MHz 3 TTL
970CX (Tight Tolerance CMOS)	9.9 MHz - 24.0 MHz	±5 ppm (.0005%)	50/50 ±10% @ 1.4V _c	30nS Max	+ 1.0V	+ 3.2V	5V ±10% 20mA Max	CMOS 15 pf
970H (Hi-Speed CMOS)	500 KHz - 70 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 20mA Max	CMOS CL 20 pf
975H (1/2 Size)	500 KHz - 70 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 15mA Max	CMOS 20pf
970HD (Dual Output HCMOS)	1.8 MHz - 70 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 30mA Max	CMOS 20pf
970HHT (Tristate High Enable CMOS Input)	1.5 MHz - 100 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 50mA Max	CMOS 20pf or 10 TTL Compatible Gates to 50 MHz
970HHTX (Heavy Load Tristate)	1.5 MHz - 70 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 50mA Max	CMOS 50pf or 10 TTL Compatible Gates to 50 MHz
970HTT (Tristate High Enable TTL Input)	1.5 MHz - 70 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 50mA Max	CMOS 20pf or 10 TTL Compatible Gates to 50 MHz
970HTTX (Heavy Load Tristate)	1.5 MHz - 70 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 50mA Max	CMOS 50 pf or 10 TTL Compatible Gates to 50 MHz
975HHT (Tristate High Enable CMOS Input)	1.5 MHz - 100 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 50mA Max	CMOS 20 pf or 10 TTL Compatible Gates to 50 MHz
975HTTX (Heavy Load Tristate)	1.5 MHz - 70 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 50mA Max	CMOS 50pf or 10 TTL Compatible Gates to 50 MHz
975 HTT (Tristate High Enable TTL Input)	1.5 MHz - 70 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 50mA Max	CMOS 20 pf or 10 TTL Compatible Gates to 50 MHz
975 HHTX (Heavy Load Tristate)	1.5 MHz - 70 MHz	±100 ppm (.01%)	50/50 ±5%	10nS Max	+ 0.5V	+ 4.5V	5V ±10% 50mA Max	CMOS 50pf or 10 TTL Compatible Gates to 50 MHz
970EAG (ECL)	30 MHz - 200 MHz	±100 ppm (.01%)	50/50 ±10%	2nS Max	+3.4V	+4.0 V	+5V ±10% 60mA Max	330 ohms
970EB 970EC (ECL)	30 MHz - 200 MHz	±100 ppm (.01%)	50/50 ±10%	2nS Max	-1.60V	-1.00V	- 5.2V ±10% 60mA Max	50 ohms