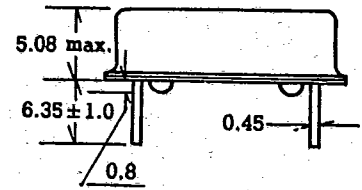
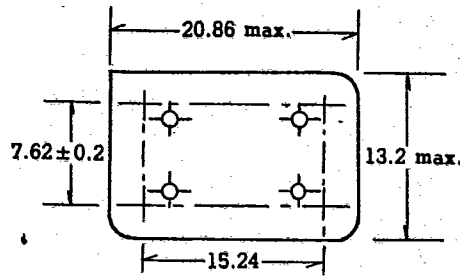
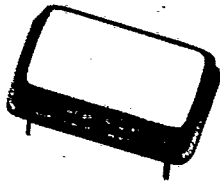


# CRYSTAL CLOCK OSCILLATORS

T-50-23

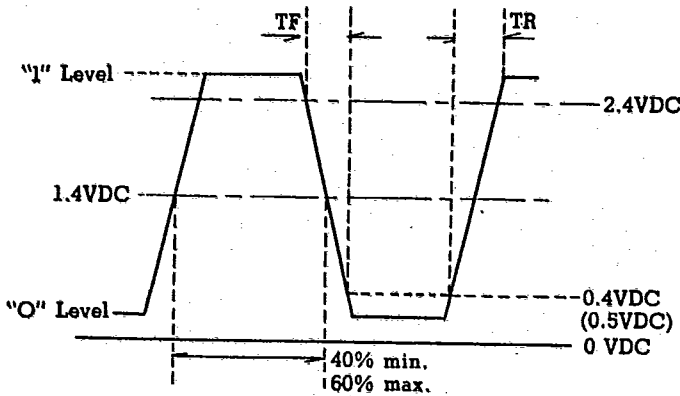
Our Crystal Clock Oscillator series are available over the high frequency range 4.01 MHz to 70 MHz. Their design can meet TTL compatible output. Those internal used crystal has been operated either fundamental or overtone oscillation mode. The characteristic high quality is achieved by integration of technologies, hybrid and crystal.



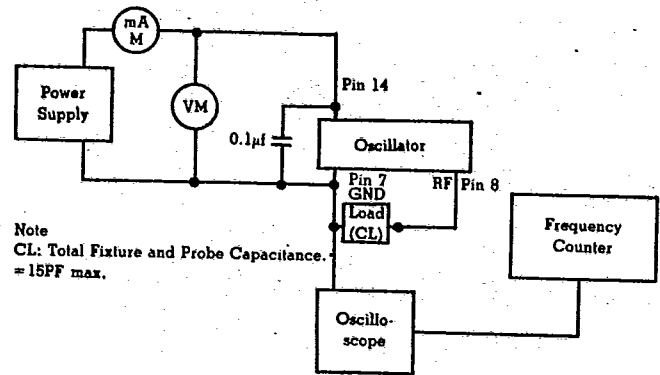
**PIN CONNECTION**

1	NC
7	GND.
8	OUT PUT
14	+8 DVC

## WAVE SHAPE



## TEST CIRCUIT



ITEM \ TYPE	DOC-2S	DOC-20(E.N)	DOC-20S	DOC-70
Frequency Range	1.0 to 4.0 MHz	4.01 to 20 MHz		20.1 to 70 MHz
Freq. Tolerance	50ppm, 100ppm, 200ppm, SELECT reserve			
Operating Temp. Range	0°C to +70°C			
Storage Temp.	-55°C to +125°C			
OUT PUT	Level	TTL Level standard		
	"0" Level	+0.4V max.	+0.4V max.	+0.4Vmax./20.1—32.0 MHz +0.5Vmax./32.1—70.0 MHz
	"1" Level	+2.4V min.		
	Symmetry	60/40 to 40/60 at 1.4V DC Level		
	Rise and Fall Time 0.4—2.4 DC Level	15ns max.	15ns max./4.01—8.99 MHz 10ns max./9.0—20.0 MHz	10ns max./20.1—32 MHz 6ns max./32.1—70 MHz
	Output Load	1 to 10 TTL STD Gates	1 to 10 TTL STD Gates	1 to 5 TTL STD Gates
Power Voltage	+5V DC ±0.5V			
Consumption Current	30mA max./+5V/25°C			

## ORDERING INFORMATION

Please state clearly the following qualifications when you place an order.

## CRYSTAL OSCILLATOR

1. Package Size:
2. Nominal Frequency: \_\_\_\_\_ MHz (KHz)
3. Frequency Tolerance: \_\_\_\_\_ × 10<sup>-6</sup> at 25°C
4. Output/Waveform: "0" Level \_\_\_\_\_ "1" Level \_\_\_\_\_

## 2 OUT PUT CRYSTAL CLOCK OSCILLATOR

### CHARACTERISTICS

- 2 output frequencies are available between 8,000MHz and 32,000 MHz upon request.
- Capable to match C-MOS or 10 LS TTL.
- High reliability by metal sealing.

### DIMENSIONS AND OUT PUT TERMINAL

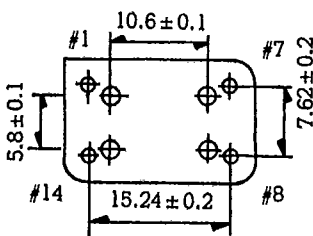
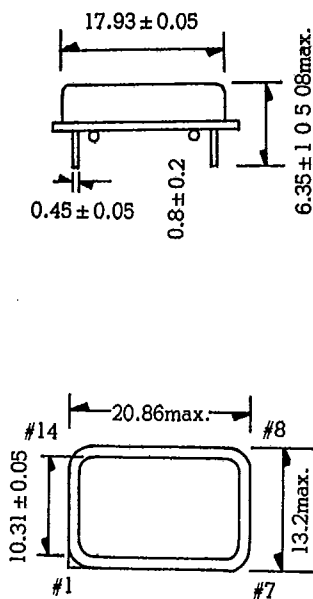


Fig-1

### PIN CONNECTION

- #1 OUT-1 8.0~32.0MHz
- #7 GND (CASE GND)
- #8 OUT-2 8.0~32.0MHz
- #14 × 5V DC

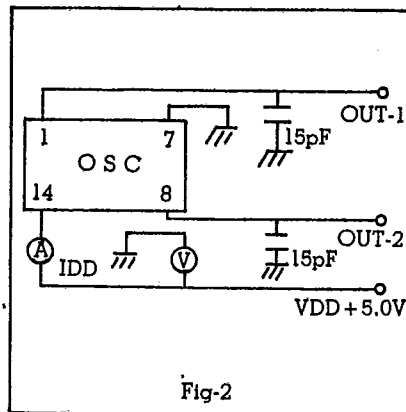


Fig-2

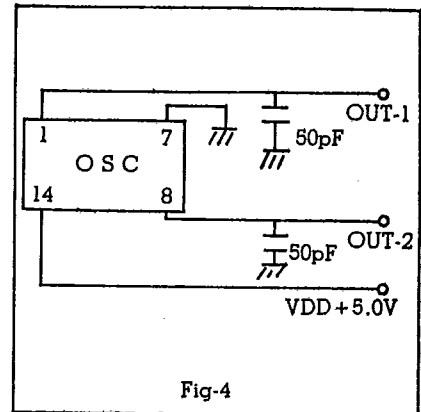


Fig-4

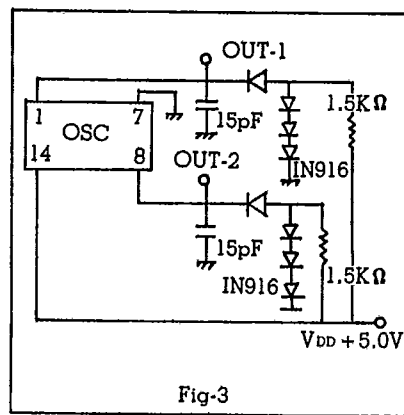
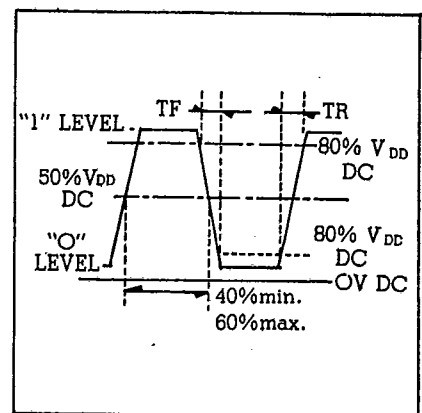


Fig-3



### SPECIFICATIONS

Item	Specifications		
Output Frequency	8.0~32.0MHz 2 Output (Pin #1 8.0~32.0MHz) (Pin #8 8.0~32.0MHz)	Refer to Fig-1	
Frequency Tolerance	± 100ppm max.	Refer to Fig-2	
Operating Temp. Range	0 ~ + 70 °C		
Storage Temp. Range	- 55 ~ + 125 °C		
Out Put characteristics	"0" Level	+ 0.5V max.	Fig-3
	"1" Level	+ 4.0V min.	Fig-3
	Rise and Fall Time Fall	15ns max./20~80% V <sub>DD</sub> DC	Fig-4
	Output Load	50pF or 10LS TTL	
	Symmetry	40/60~60/40%/50% V <sub>DD</sub> DC	Fig-4
	Power Supply Voltage (V <sub>DD</sub> )	+ 5.0V ± 0.5V DC	
	Current Consumption	40mA max.	Fig-2