T-52-23

# Crystal Clock Oscillators TTL and CMOS

## LOW COST HYBRID DIP CLOCK OSCILLATORS

*CRYSTEK Crystal clock oscillators combine the latest technological advances and automated production techniques.*

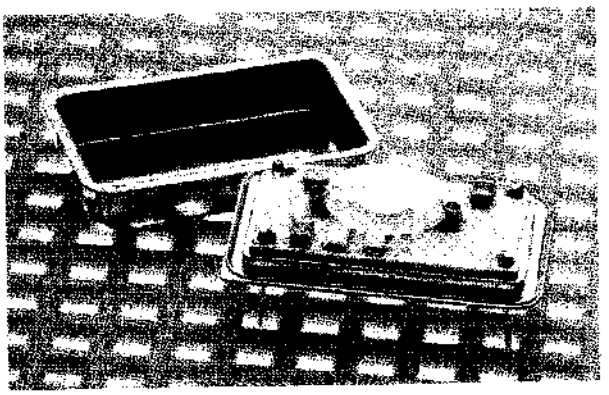
**Some Important Features:**
Low Power Consumption
Hermetically "resistance weld" sealed
Reliable, durable, economical

CRYSTEK's 31 years of experience and expertise in crystals and crystal oscillators assures our customers of dependable quality and state-of-the-art designs.

### GENERAL SPECIFICATIONS

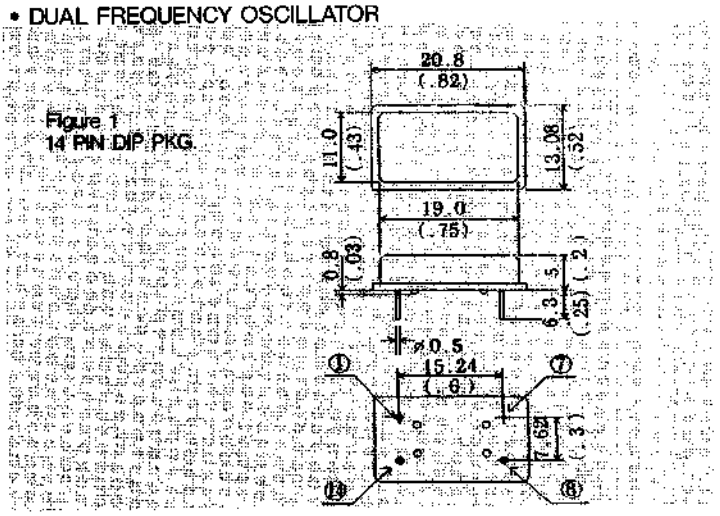
Frequency Tolerances range from ±1000 ppm to ±25 ppm
Standard Tol.: ±100 ppm
Operating Temperature: 0° - 70°C
Storage Temperature: -55° to +125°C
Aging: ±5ppm

| CRYSTEK PT. # | STANDARD SIZE OSC. | | ½ SIZE OSC. | |
|---|---|---|---|---|
| | TTL CCO-010 | C-MOS CCO-020 | TTL CCO-21S | C-MOS CCO-11S |
| FREQ. RANGE | 500 KHz - 70 MHz | 300 KHz - 70 MHz | 300 KHz - 40 MHz | |
| INPUT VOLTAGE | 5.0V ± 5% or 10% | | 5.0V ± 10% | |
| INPUT CURRENT | | 300KHz - 3MHz 10 mA Max. | 30 mA Max. | 30 mA Max. |
| | 300KHz - 39MHz 30 mA Max. | 3 - 20MHz 20 mA Max. | | |
| | 40 - 70MHz 70 mA Max. | 20 - 70MHz 40 mA Max. | | |
| RISE & FALL TIME | 300KHz - 19MHz 15 ns Max. | 10 ns Max. | 5 ns | 10 ns Max. |
| | 19 - 70 MHz 10 ns Max. | | | |
| SYMMETRY | 50/50 ± 10% | | | |
| OPERATING TEMP. | TTL: 0°C - 70°C CMOS: -20°C - +70°C | | | |
| FIGURE | FIG. 1 | | FIG. 2 | |



**OPTIONAL:**
- ENABLE/DISABLE AND TRI-STATE (CCO-011 & CCO-032)
- TTL AND C-MOS COMPATIBLE
- C-MOS OSC. & HC-MOS (HIGH SPEED C-MOS) OSC.
- SURFACE MOUNT TYPE OSCILLATORS
- DUAL FREQUENCY OSCILLATOR

Figure 1
14 PIN DIP PKG.



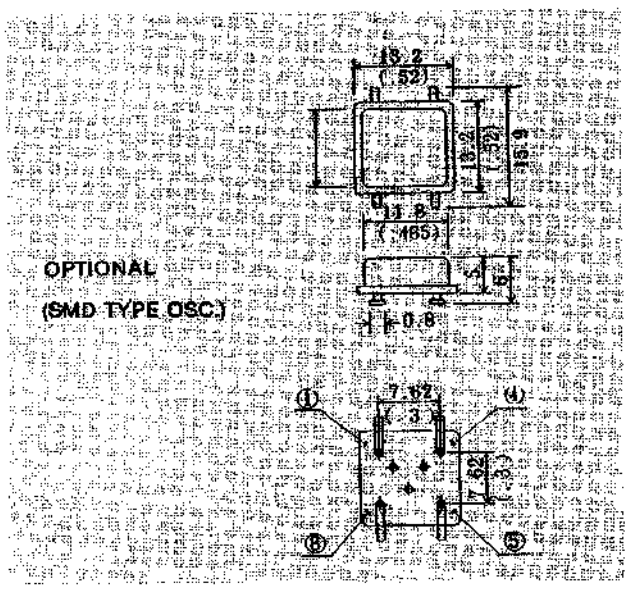
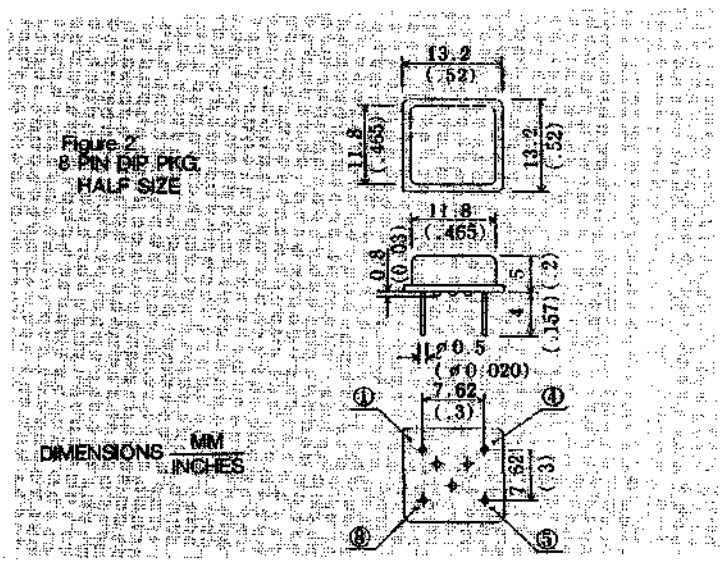



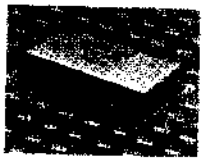

Figure 2
8 PIN DIP PKG.
HALF SIZE

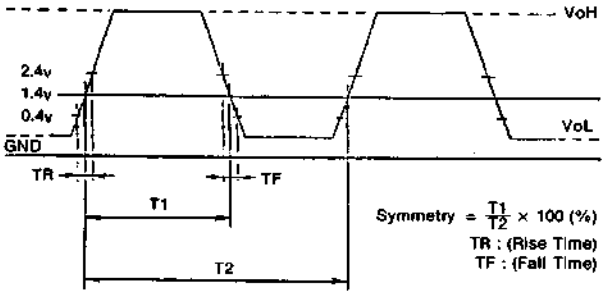



DIMENSIONS MM / INCHES

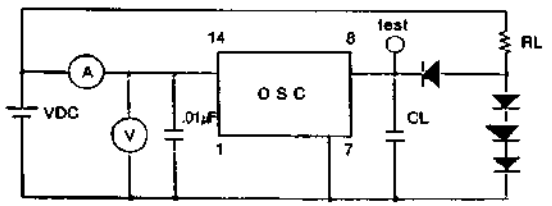
# Output Waveforms/Test Circuits

## TTL

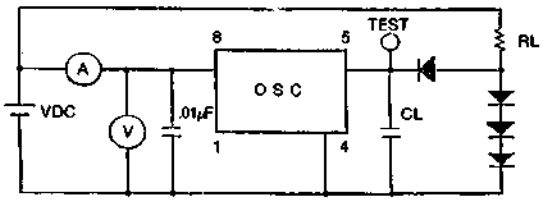





(14 PIN TTL OSC.)

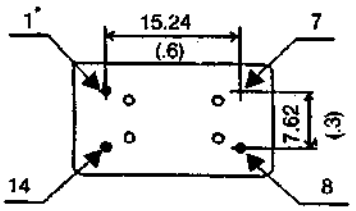



(8 PIN TTL OSC.)

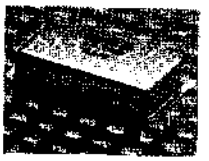


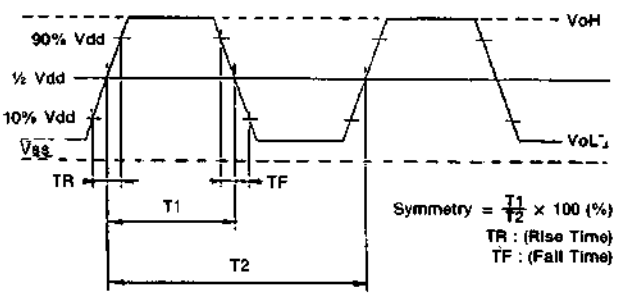

RL : 390 Ω
CL : 15 pF

PIN CONNECTIONS 14-DIP
PIN 1 N/C
PIN 7 GND
PIN 8 OUTPUT
PIN 14 VCC

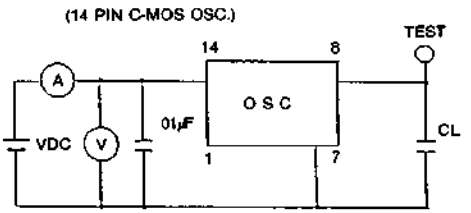



## CMOS

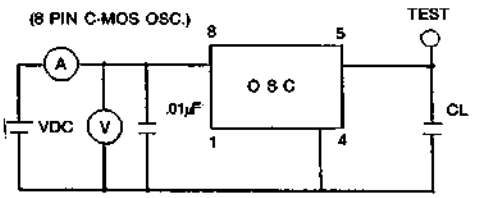





(14 PIN C-MOS OSC.)

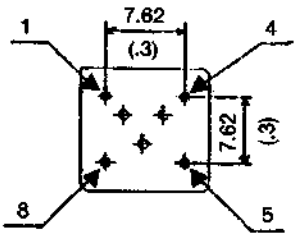



(8 PIN C-MOS OSC.)




CL : 15 pF

PIN CONNECTIONS 8-DIP
PIN 1 N/C
PIN 4 GND
PIN 5 OUTPUT
PIN 8 VDD




When your application calls for different oscillators call our sales department for immediate response.