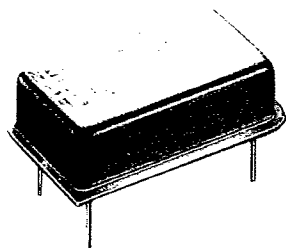


**NEL**

# Crystal Clock Oscillator

T-50-23

HS-150 Series (TTL)  
 HS-360 Series (CMOS)  
 63.0 MHz - 200.0 MHz



## Description

The **HS-150 Series** of quartz crystal clock oscillators are general purpose, TTL and STTL compatible oscillators. The **HS-360 Series** are general purpose CMOS oscillators (including 4000 Series CMOS, ACMOS, MOS, HCMOS, 74C, 74HC and NMOS).

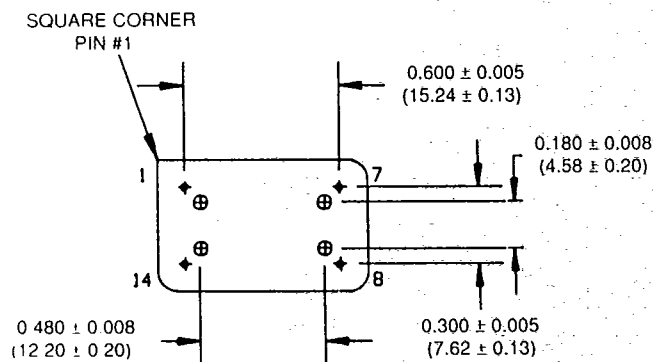
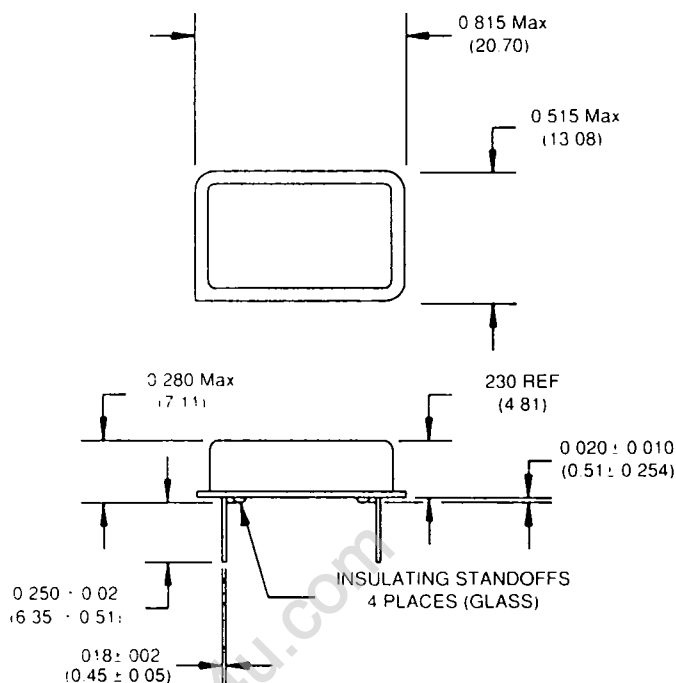
All units are resistance welded in an all metal package, offering RFI shielding, and are designed to survive standard wave soldering operations without damage. Insulated standoffs to enhance board cleaning are standard.

## Suggested Applications

- HS-150 and HS-360 Series oscillators are ideally suited for microprocessor timing control and use in instrument controllers. The HS-150 Series is TTL compatible; the HS-360 Series is CMOS compatible.

## Features

- Wide frequency range - 63.0 to 200.0 MHz (consult factory for higher frequency requirements)
- User specified tolerance from  $\pm 0.0025\%$
- Low power consumption
- All metal, resistance weld, hermetically sealed package
- High shock resistance, to 3000 G's



Dimensions are for reference only, inches (mm).

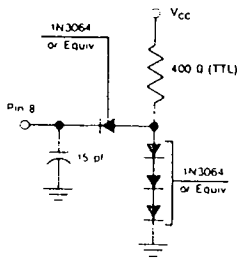
# Crystal Clock Oscillator

HS-150 Series (TTL)  
 HS-360 Series  
 (CMOS)  
 63.0 MHz - 200.0 MHz

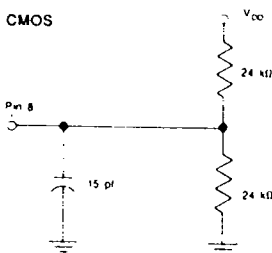
Parameter	Min	Max	Units
V <sub>C</sub> DC Supply Voltage	-0.5	7.0*	V
T <sub>S</sub> Storage Temperature	-65	125	°C
P <sub>D</sub> Power Dissipation		450	mW
T <sub>L</sub> Lead Temperature (soldering, 10 sec)		300	°C

**Equivalent Loads**

**TTL**



**CMOS**

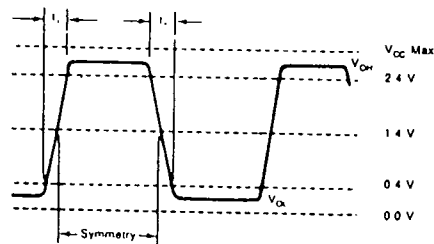


Optional 50pf load for HCMOS & ACMOS also available

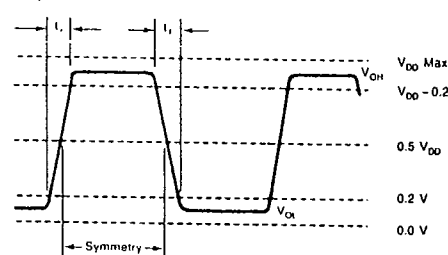
PARAMETER	CONDITIONS	MINIMUM	MAXIMUM
<b>General Characteristics</b>			
Supply voltage (V <sub>CC</sub> , V <sub>DD</sub> )	Supply Breakdown	4.75 V <sup>1</sup> -0.5 V	5.25 V 7.0 V
Supply current (I <sub>CC</sub> , I <sub>DD</sub> )	No Output Load, @ 100 MHz	0.0 mA	80 mA
Output current (I <sub>O</sub> )	—	0.0 mA	16.0 mA
Operating temperature (T <sub>A</sub> ) <sup>2</sup>	—	0°C	70°C
Storage temperature (T <sub>S</sub> )	—	-65°C	+125°C
Power dissipation (P <sub>D</sub> )	—	—	450 mW
Lead temperature (T <sub>L</sub> )	Soldering, 10 s	—	300°C
<b>Output Characteristics</b>			
Frequency	—	63.0	200.0 MHz
Tolerance	User Specified	±0.0025%	—
Symmetry	TTL, @ 1.4 V CMOS, @ 0.5 V <sub>DD</sub>	40/60%	60/40% 60/40%
Logic 0 (V <sub>OL</sub> )	TTL, driving equiv. load CMOS driving equiv. load	—	0.4 V 0.2 V
Logic 1 (V <sub>OH</sub> )	TTL driving equiv. load CMOS, driving equiv. load	2.4 V V <sub>DD</sub> - 0.2 V	—
Logic 0 (I <sub>OL</sub> sink)	TTL driving equiv. load CMOS, driving equiv. load	—	16 mA 600 µA
Logic 1 (I <sub>OH</sub> source)	TTL driving equiv. load CMOS, driving equiv. load	—	400 µA 600 µA
Rise & fall time (t <sub>r</sub> , t <sub>f</sub> )	TTL, @ 0.4 V to 2.4 V CMOS, @ 10% to 90% of V <sub>DD</sub>	—	3 ns 3 ns

<sup>1</sup> Lower voltage operation option to 3V available.  
<sup>2</sup> -55°C to +125°C available for some frequencies.  
 \* Overvoltage causes the oscillator to draw extreme current, and damage occurs.

**TTL Output Waveform**



**CMOS Output Waveform**



This information is believed to be reliable at the time of printing; no responsibility is assumed for inaccuracies. NEL Frequency Controls reserves the right to make changes at any time.

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