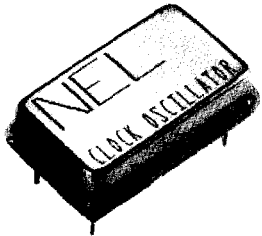


# NEL Crystal Clock Oscillators

## TTL Compatible

### HS-100 Series (General Purpose) 7.8 KHz - 63.0 MHz



HS-100 Series

## Description

The HS-100 Series of quartz crystal oscillators are general purpose, TTL and STTL compatible oscillators.

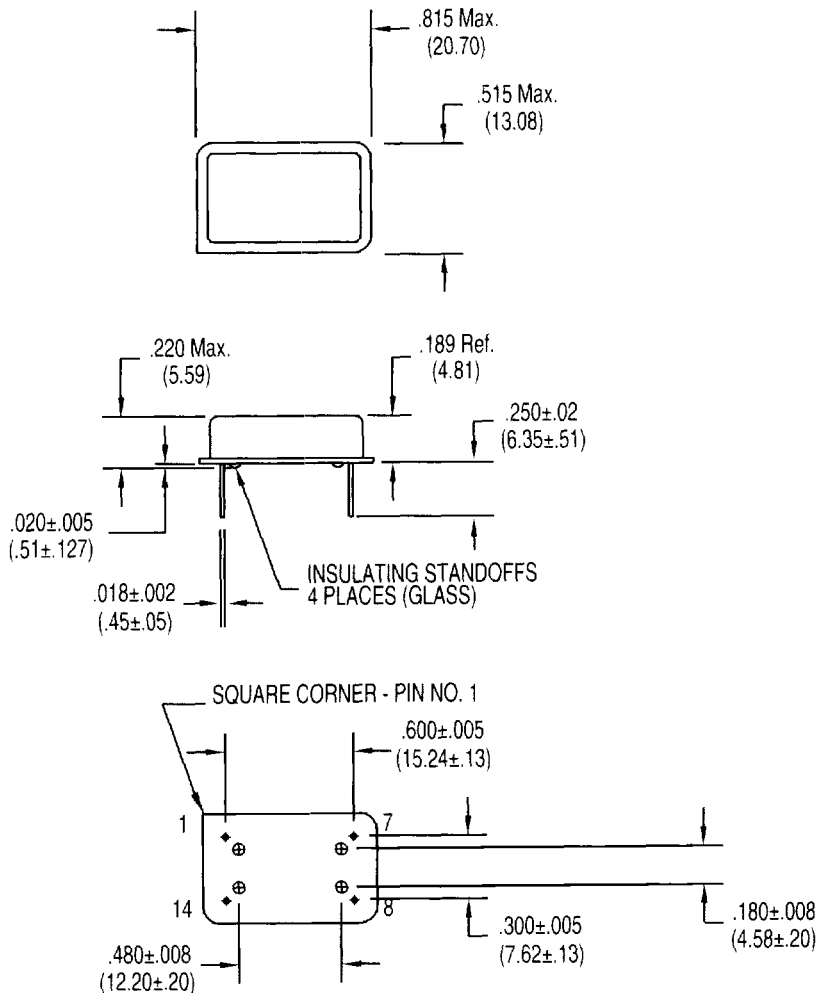
## Suggested Applications

The HS-100 Series oscillators can be used for microprocessor timing control, and TTL based synchronous systems.

## Features

- Wide frequency range - 7.8 KHz to 63.0 MHz
- User specified tolerance from  $\pm 25$ ppm
- Case at electrical ground
- Will withstand vapor phase temperatures of 253 °C for 4 minutes maximum
- Low power consumption
- All metal, resistance weld, hermetically sealed package
- High shock resistance, to 3000 G's

## Dimensions inches (mm)



Pin	Connection
1	N.C.
7	Grd & Case
8	Output
14	VCC

# Crystal Clock Oscillators



## Operating Conditions and Output Characteristics

TTL Compatible

**HS-100 Series**  
**(General Purpose)**  
**7.8 KHz - 63.0 MHz**

PARAMETER	CONDITIONS	MINIMUM	MAXIMUM
<b>General Characteristics</b>			
Supply voltage ( $V_{CC}$ )	<25 MHz	4.50 V	5.50 V
	$\geq 25$ MHz	4.75 V	5.25 V
	Breakdown	-0.5 V	7.0 V
Supply current ( $I_{CC}$ )	$\leq 625$ KHz	---	50 mA
	>625 KHz to 20MHz	---	30 mA
	>20 MHz	---	50 mA
Output current ( $I_O$ )	High or Low level	---	$\pm 25.0$ mA
Tolerance <sup>(1)</sup>	User specified	$\pm 25$ ppm	---
Operating temperature ( $T_A$ )	---	0 C	70 C
Storage temperature ( $T_S$ )	---	-55 C	125 C
Power dissipation ( $P_D$ )	---	---	275 mW
Lead temperature ( $T_L$ )	Soldering, 10 sec.	---	300 C

### Output Characteristics - TTL, HS-100

Frequency	---	7.8 KHz	25.0 MHz
Symmetry	@ 1.4V	40/60%	60/40%
HS-110	Optional, $\leq 20$ MHz	45/55%	55/45%
Logic 0 ( $V_{OL}$ )	Driving equiv. load	0.3V typical	0.4V
Logic 1 ( $V_{OH}$ )	Driving equiv. load	2.4V	4.0V typical
Logic 0 ( $I_{OL}$ sink)	Driving equiv. load	---	16.0 mA
Logic 1 ( $I_{OH}$ source)	Driving equiv. load	---	0.4 mA
Rise & fall time ( $t_r, t_f$ )	<20 MHz (0.4V to 2.4V)	---	10 ns
	>20 MHz (0.4V to 2.4V)	---	5 ns
Start time ( $t_{ON}$ )	---	---	2 ms

### Output Characteristics - STTL, HS-100

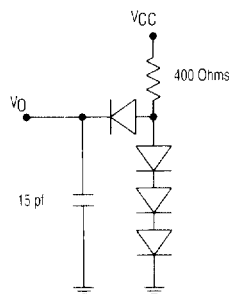
Frequency	---	25.0 MHz	63.0 MHz
Symmetry	@ 1.4V	40/60%	60/40%
Logic 0 ( $V_{OL}$ )	Driving equiv. load	0.25V typical	0.5V
Logic 1 ( $V_{OH}$ )	Driving equiv. load	2.7V	4.0V typical
Logic 0 ( $I_{OL}$ sink)	Driving equiv. load	---	20.0 mA
Logic 1 ( $I_{OH}$ source)	Driving equiv. load	---	1.0 mA
Rise & fall time ( $t_r, t_f$ )	0.5V to 2.7V	---	5 ns
Start time ( $t_{ON}$ )	---	---	20 ms

Footnote:

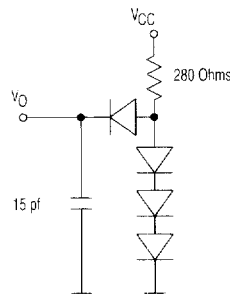
(1) Tighter tolerances available upon request.

### Equivalent Loads

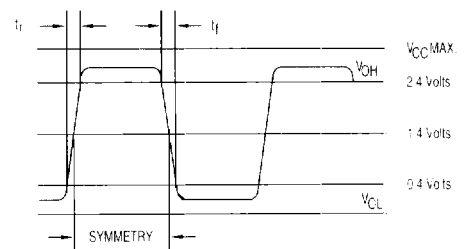
#### 10 TTL



#### 10 STTL



### TTL Output Waveform



This information has been carefully prepared and is believed to be entirely reliable. However, no responsibility is assumed for inaccuracies. NEL reserves the right to make changes at any time in order to improve design and supply the best product possible.