

# NEL CRYSTAL CLOCK OSCILLATORS

## SPECIFICATION HS-350

### Pin Connection

- 1 NC
- 7 Grd&Case
- 8 Output
- 14 V<sub>DD</sub>

### Description

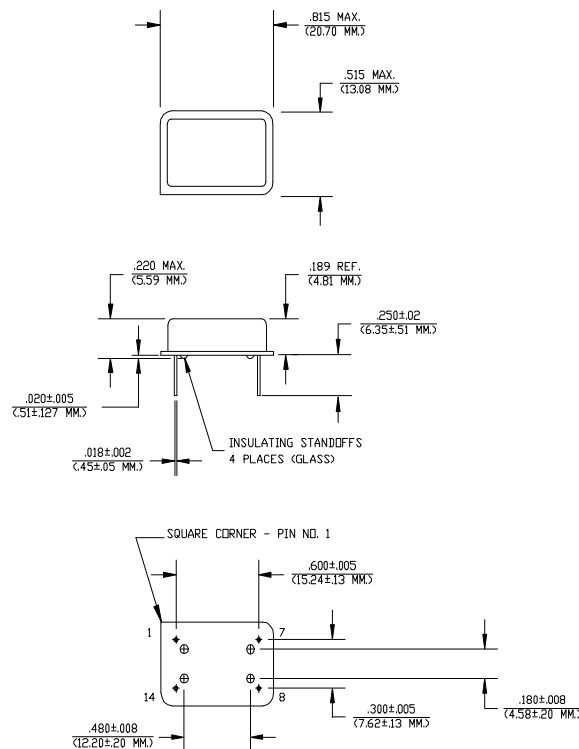
The **HS-350 Series** of quartz crystal oscillators feature a custom integrated circuit for improved reliability. They are MOS compatible (4000 Series CMOS, 74C, 74HC and NMOS driving up to 15pf).

### Suggested Applications

The **HS-350 Series** oscillators work well in microprocessor applications and instrument controllers.

### Features

- Wide frequency range - 7.8KHz to 63.0MHz
- 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 3000g
- 3.3V available upon request



# Crystal Clock Oscillators

## Operating Conditions and Output Characteristics

HS-350

(Continued)

PARAMETER	CONDITIONS	MINIMUM	MAXIMUM
<b>General Characteristics</b>			
Supply voltage ( $V_{DD}$ )	<25MHz	4.50V	5.50V
	≥25MHz	4.75V	5.25V
	Breakdown	-0.5V	7.0V
Supply current ( $I_{DD}$ )	≤625kHz	-----	50 mA
	>625kHz to 20MHz	-----	30 mA
	> 20MHz	-----	50 mA
Output current ( $I_O$ )	High or Low level	-----	±25.0 mA
Tolerance <sup>(1)</sup>	User specified	±25ppm	-----
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
<b>Output Characteristics - CMOS, HS-350</b>			
Frequency	-----	7.8kHz	63.0MHz
Symmetry	@ $.5V_{DD}$	40/60%	60/40%
	Optional, ≤20MHz	45/55%	55/45%
Logic 0 ( $V_{OL}$ )	$I_O=600\mu A$	0.05V typical	0.2V
Logic 1 ( $V_{OH}$ )	$I_O=600\mu A$	$V_{DD}-0.2V$	4.95V typical
Logic 0 ( $I_{OL}$ sink)	Driving equiv. load	-----	600μA
Logic 1 ( $I_{OH}$ source)	Driving equiv. load	-----	600μA
Rise & fall time ( $t_r, t_f$ )	10-90% $V_{DD}$ ≤20MHz	-----	10 ns
	>20MHz	-----	7ns
Start time ( $t_{on}$ )	<25MHz	-----	2 ms
	≥25MHz	-----	20ms

Footnote:

(1) Tighter tolerances available upon request.

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.

