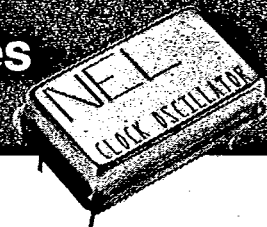


NEL

Crystal Clock Oscillators

Emitter-Coupled Logic Compatible

HS-600/610, HS-640/690, HS-650/660, HS-2600/2610 and HS-2650/2660 Series



Description

ECL crystal clock oscillators provide MECL 10 k and 10 kH series compatible signals in industry standard four-pin DIP hermetic packages. Systems designers may now specify space-saving, cost-effective packaged ECL oscillators to meet their timing requirements.

Suggested Applications

High speed system design applications using ECL technology include:

- ☐ HS-600/610 and HS-640 Series for 10 k
- ☐ HS-650/660 and HS-690 Series for 10 k or 10 kH
- ☐ HS-2600/2610 Series for complementary 10 k
- ☐ HS-2650/2660 Series for complementary 10 k or 10 kH

Features

- ☐ Wide frequency range — 30.0 MHz to 200.0 MHz

- ☐ User specified tolerance, from $\pm 0.005\%$
- ☐ Case at electrical ground
- ☐ MECL 10 k and 10 kH Series compatible output on Pin 8, complement on Pin 1, or both
- ☐ Space-saving alternative to discrete component oscillators
- ☐ All metal, resistance weld, hermetically sealed package
- ☐ High shock resistance, to 3,000 G

Specifications

PARAMETER	CONDITIONS	HS-600/610 Series HS-640 Series HS-2600/2610 Series		HS-650/660 Series HS-690 Series HS-2650/2660 Series	
		MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
General Characteristics					
Supply voltage (V_{EE})	Supply – 5.2 V	–5%	+5%	–5%	+5%
	Breakdown	+0.5 V	–8.0 V	+0.5 V	–8.0 V
Supply current (I_{EE})	—	—	60 mA	—	60 mA
Output current (I_O)	—	—	50 mA	—	50 mA
Operating temperature (T_A)	Functionality only	0° C	75° C	0° C	75° C
Storage temperature (T_S)	—	–55° C	+125° C	–55° C	+125° C
Output Characteristics¹					
Frequency	—	30 MHz	100 MHz	100+ MHz	200 MHz
Tolerance ²	@ 25° C	±0.005%	—	±0.005%	—
Stability	0° to 75° C	±0.01%	—	±0.01%	—
Symmetry ³	@ +0.71 V	40/60%	60/40%	40/60%	60/40%
Logic 0 (V_{OL})	$T_A = 0^\circ \text{C}$	–1.87 V	–1.665 V	–1.95 V	–1.63 V
	$T_A = 25^\circ \text{C}$	–1.85 V	–1.65 V	–1.95 V	–1.63 V
	$T_A = 75^\circ \text{C}$	–1.83 V	–1.625 V	–1.95 V	–1.60 V
Logic 1 (V_{OH})	$T_A = 0^\circ \text{C}$	–1.11 V	–0.84 V	–1.02 V	–0.84 V
	$T_A = 25^\circ \text{C}$	–1.07 V	–0.81 V	–0.98 V	–0.81 V
	$T_A = 75^\circ \text{C}$	–1.01 V	–0.72 V	–0.92 V	–0.72 V
Rise & fall time (t_r, t_f) ⁴	$T_A = 25^\circ \text{C}$	—	3.3 ns	—	3.0 ns
	$T_A = 0^\circ \text{ to } 75^\circ \text{C}$	—	3.6 ns	—	3.3 ns

Note: Limits are for -5.2 V ± 0.01 V @ 25° C unless otherwise specified.

1. Tested per test circuit diagram.

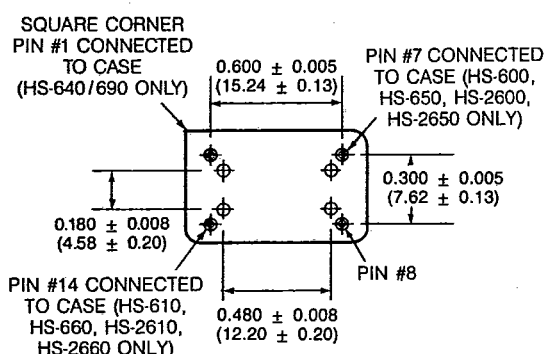
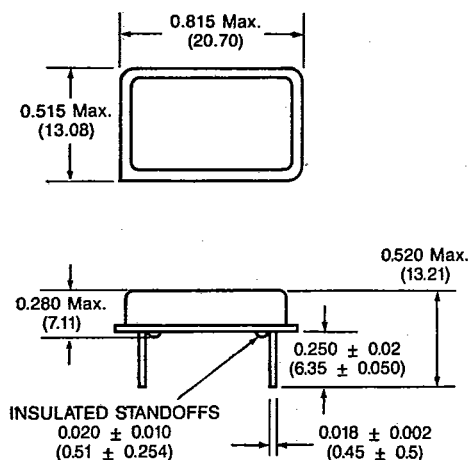
2. Unless otherwise specified by customer.

3. Referenced to ground.

4. Measured between 20% and 80% of output.



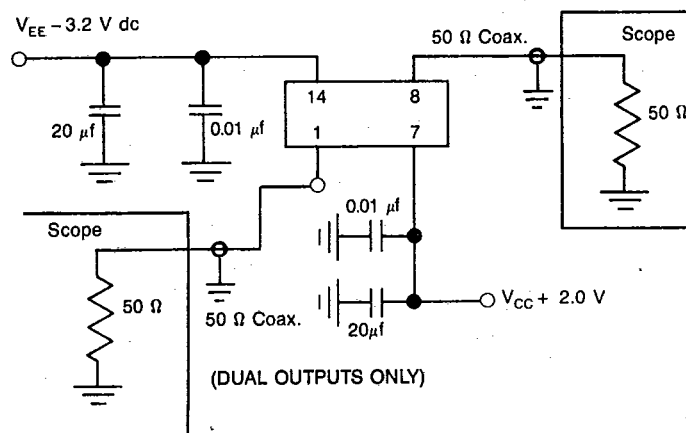
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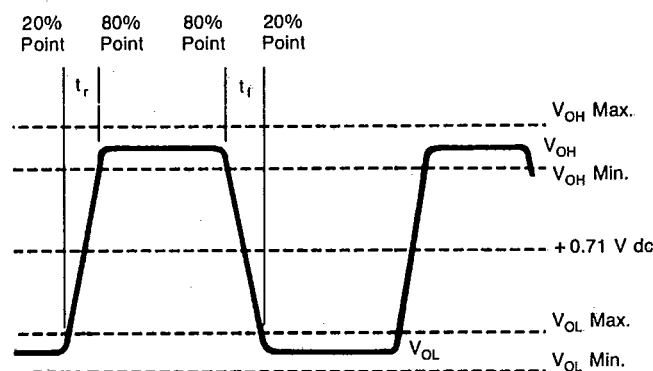
Pin	Connection
1	Complementary output for HS-2600 & HS-2650
7	V _{CC} gnd
8	Output
14	V _{EE} -5.2 V dc

Dimensions are for reference only.

Test Circuit



Output Waveform



HS-600/610, HS-640/690, HS-650/660, HS-2600/2610, HS-2650/2660 Series

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

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