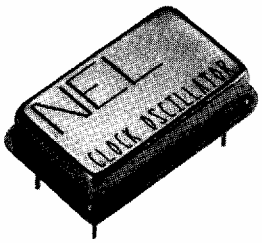
NEL Crystal Clock Oscillators

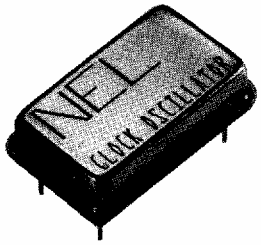
ECL COMPATIBLE

HS-600/2600 Series (Available from 30MHz to 64.9 MHz)

HS-800/2800 Series (Available from 65MHz to 250 MHz)



HS-600/2600 Series



HS-800/2800 Series

Description

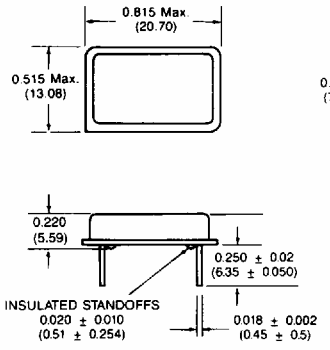
The HS-600 & HS-800 Series of quartz crystal clock oscillators provide MECL 10k, 10kH and 100k series compatible signals on pin 8.

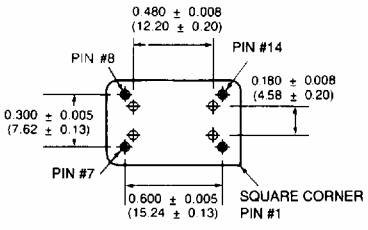
The HS-2600 & HS-2800 series of quartz crystal clock oscillators provide complementary signals on pin 1. System designers may now specify space saving, cost effective ECL oscillators up to 250 MHz to meet their timing requirement. A wide frequency range is available, from 30 MHz to 250 MHz, with user specified tolerances from ± .005%, 0°C to +70°C.

Features

- ☐ Wide frequency range — 30.0 MHz to 250.0 MHz
- ☐ User specified tolerance, from ± .005%
- ☐ Case at electrical ground
- ☐ MECL 10 k, 10 kH and 100 k 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 Gs

Dimensions





Pin Connection
See Chart to Right

Dimensions are for reference only, inches (mm).

NEL TYPE, FREQUENCY RANGE, PIN CONNECTIONS

NEL OSC. TYPE	FREQUENCY RANGE	PIN CONNECTION				SIGNAL COMPAT-IBILITY
		1	7	8	14	
HS-600	30 MHz to 64.9 MHz	N/C	CASE & GRD (V_{CC})	OUTPUT	V_{EE}(-5.2V)	10k & 10kH
HS-610	30MHz to 64.9 MHz	N/C	V_{EE}(-5.2V)	OUTPUT	CASE & GRD (V_{CC})	10k & 10kH
HS-620	30MHz to 64.9 MHz	N/C	CASE & GRD (V_{CC})	OUTPUT	V_{EE} (-4.5V)	100k
HS-630	30MHz to 64.9 MHz	N/C	V_{EE}(-4.5V)	OUTPUT	CASE & GRD (V_{CC})	100k
HS-670	30MHz to 64.9 MHz	N/C	CASE & GRD	OUTPUT	V_{CC} (+5V)	10k & 10kH
HS-800	65MHz to 250 MHz	N/C	CASE & GRD (V_{CC})	OUTPUT	V_{EE}(-5.2V)	10k & 10kH
HS-810	65MHz to 250 MHz	N/C	V_{EE}(-5.2V)	OUTPUT	CASE & GRD (V_{CC})	10k & 10kH
HS-820	65MHz to 250 MHz	N/C	CASE & GRD (V_{CC})	OUTPUT	V_{EE}(-4.5V)	100K
HS-830	65MHz to 250 MHz	N/C	V_{EE}(-4.5V)	OUTPUT	CASE & GRD (V_{CC})	100K
HS-870	65MHz to 250 MHz	N/C	CASE & GRD	OUTPUT	V_{CC} (+5.0V)	10k & 10kH
HS-2600	30MHz to 64.9 MHz	Comp. Out	CASE & GRD (V_{CC})	OUTPUT	V_{EE}(-5.2V)	10k & 10kH
HS-2610	30MHz to 64.9 MHz	Comp. Out	V_{EE}(-5.2V)	OUTPUT	CASE & GRD (V_{CC})	10k & 10kH
HS-2670	30MHz to 64.9 MHz	Comp. Out	CASE & GRD	OUTPUT	V_{CC} (+5.0V)	10k & 10kH
HS-2800	65MHz to 250 MHz	Comp. Out	CASE & GRD (V_{CC})	OUTPUT	V_{EE}(-5.2V)	10k & 10kH
HS-2810	65MHz to 250 MHz	Comp. Out	V_{EE}(-5.2V)	OUTPUT	CASE & GRD (V_{CC})	10k & 10kH
HS-2870	65MHz to 250 MHz	Comp. Out	CASE & GRD	OUTPUT	V_{CC} (+5.0V)	10k & 10kH

NEL FREQUENCY CONTROLS, INC. 357 Beloit Street, P.O. Box 457, Burlington WI 53105-0457 U.S.A. Phone 414/763-3591 FAX 414/763-2881

Crystal Clock Oscillators

ECL Operating Conditions and Output Characteristics

ECL COMPATIBLE

HS-600/2600 Series (Available from 30MHz to 64.9 MHz)

HS-800/2800 Series (Available from 65MHz to 250 MHz)

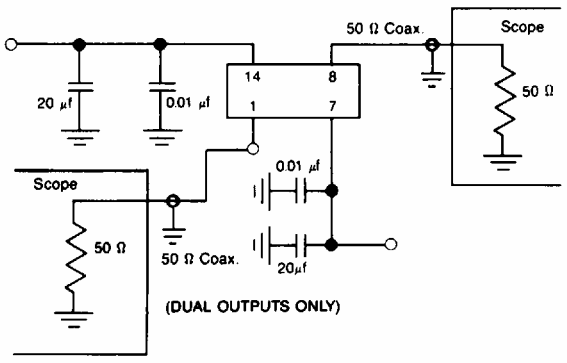
		HS-600/610 Series HS-800/810 Series HS-2600/2610 Series HS-2800/2810 Series		HS-620/630 Series HS-820/830 Series		HS-670 Series HS-870 Series HS-2670 Series HS-2870 Series	
PARAMETER	CONDITIONS	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
		(Note 1)		(Note 2)		(Note 3)	
General Characteristics							
Supply voltage (V_{EE})	–5.2V	–5.46V	–4.94 V	—	—	—	—
	–4.5V	—	—	–4.8V	–4.2V	—	—
	+5.0V	—	—	—	—	+4.75V	+5.25V
	Breakdown	+0.5V	–8.0V	+0.5V	–8.0V	–0.5V	+8.0V
Supply current (I_{EE})	—	—	80 mA	—	80 mA	—	80 mA
Output current (I_O)	HS-6XX/26XX Series	—	50 mA	—	50 mA	—	50 mA
	HS-8XX/28XX Series	—	50 mA	—	50 mA	—	50 mA
Operating temperature (T_A)	Functionality only	0° C	70° C	0° C	70° C	0° C	70° C
Storage temperature (T_S)	—	–55° C	+125° C	–55° C	+125° C	–55° C	+125° C
Output Characteristics (1)							
Frequency	HS-6XX/26XX Series	30 MHz	64.9 MHz	30 MHz	64.9 MHz	30 MHz	64.9 MHz
	HS-8XX/28XX Series	65 MHz	250 MHz	65 MHz	250 MHz	65 MHz	250 MHz
Tolerance(2)	@ 25°C	±.005%	—	±.005%	—	±.005%	—
Stability	0-70°C	±.01%	—	±.01%	—	±.01%	—
Symmetry(3)	@-1.29 V	40/60%	60/40%	—	—	—	—
	@-1.33 V	—	—	40/60%	60/40%	—	—
	@+3.71V	—	—	—	—	40/60%	60/40%
Logic 0 (V_{OL}) (4)	HS-6XX/26XX Series	–1.87 V	–1.625 V	–1.81 V	–1.475 V	3.13 V	3.375V
	HS-8XX/28XX Series	–1.95 V	–1.60 V	–1.81 V	–1.475 V	3.05 V	3.40 V
Logic 1 (V_{OH}) (4)	HS-6XX/26XX Series	–1.06 V	–0.74 V	–1.165 V	–0.88 V	3.94 V	4.28 V
	HS-8XX/28XX Series	–1.02 V	–0.74 V	–1.165 V	–0.88 V	3.98 V	4.26 V
Rise & fall time (t_r,t_f) (5)	HS-6XX/26XX Series	—	3.6 ns	—	3.6 ns	—	3.6 ns
	HS-8XX/28XX Series	—	2.25 ns	—	2.25 ns	—	2.25 ns

Note 1 – Limits are for –5.2 V ±0.01 V @ 25° C unless otherwise specified.
Note 2 – Limits are for –4.5 V ±0.01 V @ 25° C unless otherwise specified.
Note 3 – Limits are for +5.0 V ±0.01 V @ 25° C unless otherwise specified.

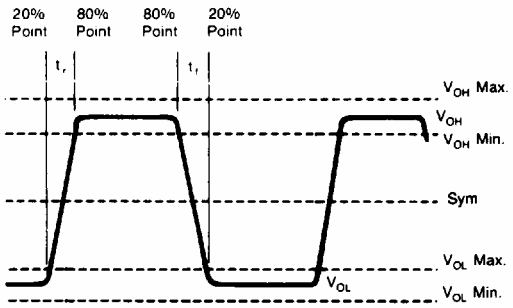
Footnotes:

1. Tested per test circuit diagram
2. Unless otherwise specified by customer
3. Reference test circuit below
4. V_{OL}, V_{OH} referenced to ground
5. Measured between 20% and 80% of output

Test Circuit



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.

NEL FREQUENCY CONTROLS, INC. 357 Beloit Street, P.O. Box 457, Burlington WI 53105-0457 U.S.A. Phone 414/763-3591 FAX 414/763-28