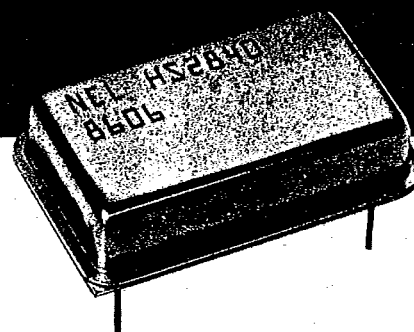


NEL Crystal Clock Oscillators

Dual Output MOS/TTL Compatible HS-2840 Series



Application

The HS-2840 oscillator is suited for Z80, Z80A/B and Z8000 micro-computer systems applications where a TTL compatible clock at 2^n times the MOS clock is required ($n = 1, 2, 4, \text{ or } 8$).

Description

HS-2840 Series crystal clock oscillators, using hybrid technology and all metal, resistance welded DIP hermetic packaging, provide digital systems and microcomputer designers with a TTL and MOS compatible dual output clock that uses 5 V single pin power sources.

The output frequency range available at the TTL output is 6 MHz to 16 MHz. The frequency range available at the MOS output is 0.75 MHz to 8 MHz. The standard HS-2848 oscillator, available at 4 MHz and 6 MHz, is specifically intended for use with the 4 MHz Z80A and 6 MHz Z80B/Z8000 microprocessors. The available tolerances are:

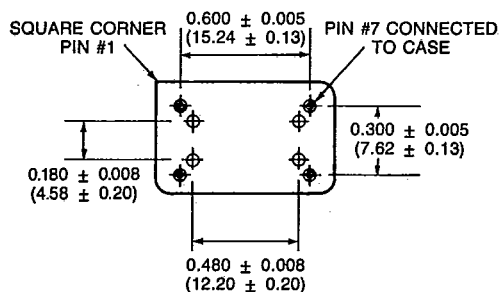
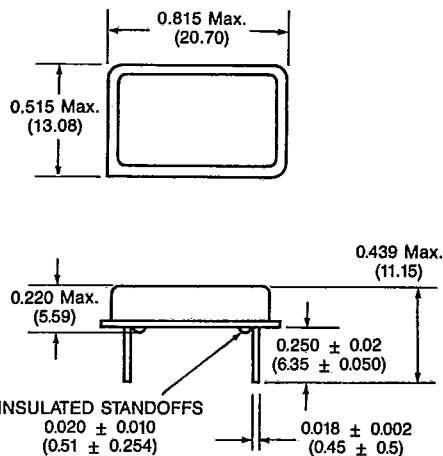
Product Number	Tolerance
HS-2840	$\pm 0.01\%$
HS-2841	$\pm 0.005\%$
HS-2842	$\pm 0.05\%$
HS-2843	$\pm 0.1\%$
HS-2844	$\pm 1.0\%$
HS-2848	+0%; -0.02%

Specifications

PARAMETER	CONDITIONS	MINIMUM	MAXIMUM
General Characteristics			
Supply voltage (V_{CC})	Supply	+4.5 V	+5.5 V
	Breakdown	—	7.0 V
Supply current (I_{CC})	Supply	—	120 mA
	Breakdown	—	150 mA
Operating temperature (T_A)	—	0° C	70° C
Storage temperature (T_S)	—	-55° C	+125° C
MOS Outputs			
Frequency	—	0.75 MHz	8.0 MHz
Tolerance	—	$\pm 0.005\%$	$\pm 1.0\%$
Symmetry	@ 2.5 V	60/40%	40/60%
	@ 2.5 V Optional	55/45%	45/55%
Logic 0 (V_{OL})	I_o sink = 18 mA Max.	0.3 V dc	0.45 V dc
Logic 1 (V_{OH})	I_o source = 0.5 A Max.	$V_{CC} - 0.4$ V	$V_{CC} - 0.3$ V
Output load	—	—	$C_L = 150$ pf
Rise & fall time (t_r, t_f)	From 0.45 to $V_{CC} - 0.4$ V	—	15 ns
Start time (t_{on})	From 0.9 V_{CC} @ Pin 7 to 2.5 V dc	—	5 ms
TTL Outputs			
Frequency	—	6.0 MHz	16.0 MHz
Tolerance	—	$\pm 0.005\%$	$\pm 1.0\%$
Symmetry	@ 1.4 V dc	55/45%	45/55%
Logic 0 (V_{OL})	I_o sink = 16 mA Max.	—	0.5 V
Logic 1 (V_{OH})	I_o source = 400 μ A Max.	—	2.4 V
Output load	—	—	10 TTL loads
Rise & fall time (t_r, t_f)	From 0.5 to 2.4 V	—	10 ns
Start time (t_{on})	From 0.9 V_{CC} to 2.5 V dc @ Pin 8	—	5 ms
Propagation delay time (t_{pd})	MOS relative to TTL	12 ns	51 ns
Output short-circuit current (I_{OS})	—	18 mA	—

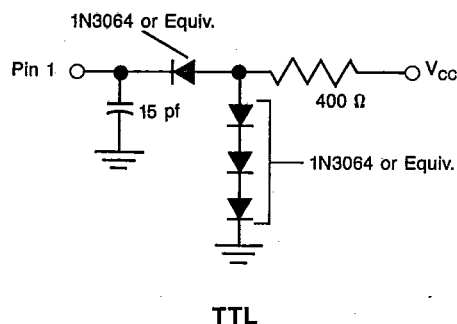
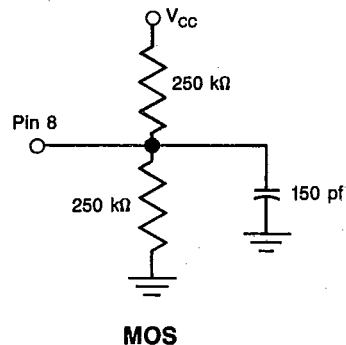
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Equivalent Loads

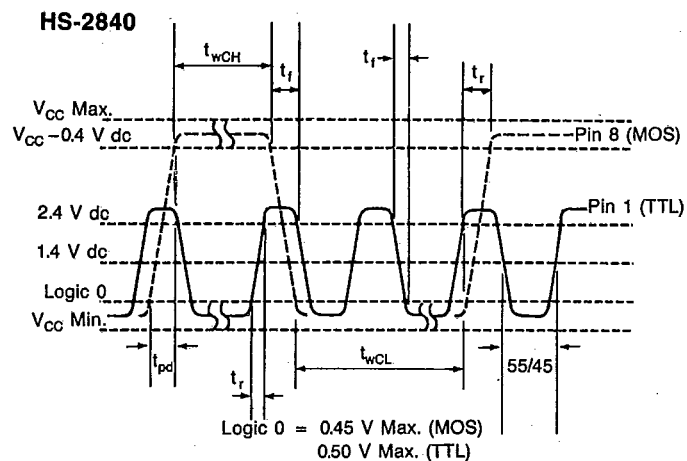


Pin	Connection
1	TTL output
7	gnd and case
8	MOS output
14	V _{CC}

Dimensions are for reference only.



Output Waveforms



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

Midland-Ross Corporation
NEL Unit
 357 Beloit Street, Burlington, WI 53105
 414/763-3591 TWX 910 278-2450
 FAX 414/763-2881