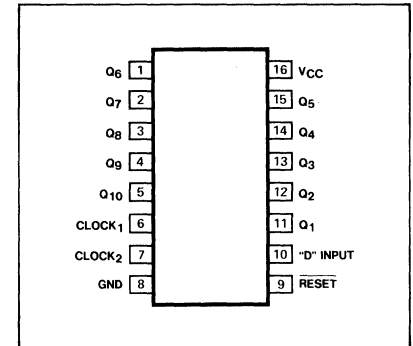


DESCRIPTION

The 8273, 10-Bit Shift Register is an array of binary elements interconnected to perform the serial-in, parallel-out shift function. This device utilizes a common buffered reset and operates from either a positive or negative edge clock pulse. Clock 1 is triggered by a negative going clock pulse and Clock 2 is triggered by a positive going clock pulse. The unused clock input performs the inhibit function. The circuit configuration is arranged as a single serial input register with ten true parallel outputs.

PIN CONFIGURATION**ORDERING CODE** (See Section 9 for further Package and Ordering Information)

PACKAGES	COMMERCIAL RANGES $V_{CC}=5V \pm 5\%$; $T_A=0^\circ\text{C}$ to $+75^\circ\text{C}$	MILITARY RANGES $V_{CC}=5V \pm 5\%$; $T_A=-55^\circ\text{C}$ to $+125^\circ\text{C}$
Plastic DIP	N8273N	
Ceramic DIP	N8273F	S8273F
Flatpak		S8273W

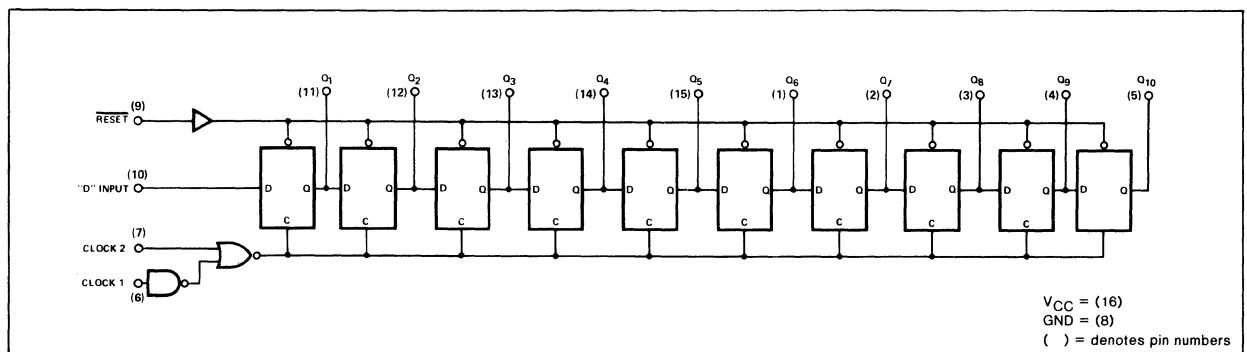
MODE SELECT—FUNCTION TABLE

INPUT	RESET	CLOCK 1	CLOCK 2	OUTPUTS Q_n
H	H	↓	L	H
L	H	↓	L	L
H	H	H	↑	H
L	H	H	↑	L
H	H	↓	H	Q_{n-1}
L	H	↓	H	Q_{n-1}
H	H	L	↑	Q_{n-1}
L	H	L	↑	Q_{n-1}
X	L	X	X	L

NOTE

The unused clock input performs the INHIBIT function.

RESET = 0 Q = 0

LOGIC DIAGRAM

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (b)

PARAMETER	TEST CONDITIONS	8273		UNIT
		Min	Max	
V _{OH} Output HIGH voltage	V _{CC} = 4.75V, I _{OH} = -500μA	2.6		V
V _{OL} Output LOW voltage	V _{CC} = 4.75V, I _{OL} = 9.6mA		0.4	V
I _{IH} Input HIGH current	V _{CC} = 5.25V, V _{IN} = 4.5V		40	μA
I _{IL} Input LOW current	V _{CC} = 5.25V, V _{IN} = 0.4V		-1.6	mA
V _{BD} Input breakdown voltage	V _{CC} = 5.25V, I _N = 10mA	5.5		V
I _{OS} Output short circuit current	V _{CC} = 5.25V, V _{OUT} = 0V	-20	-70	mA
I _{CC} Supply current	V _{CC} = 5.25V		103	mA

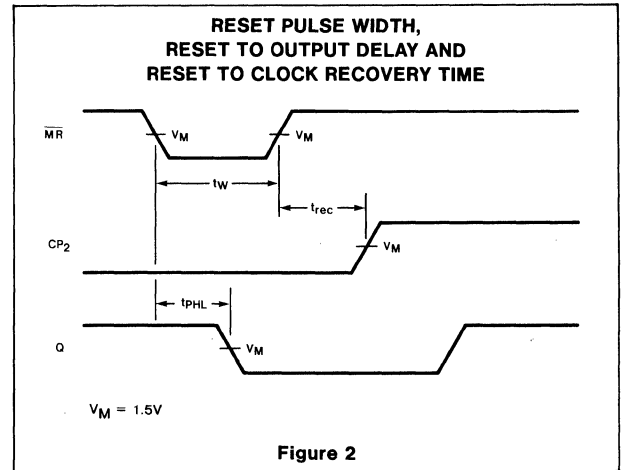
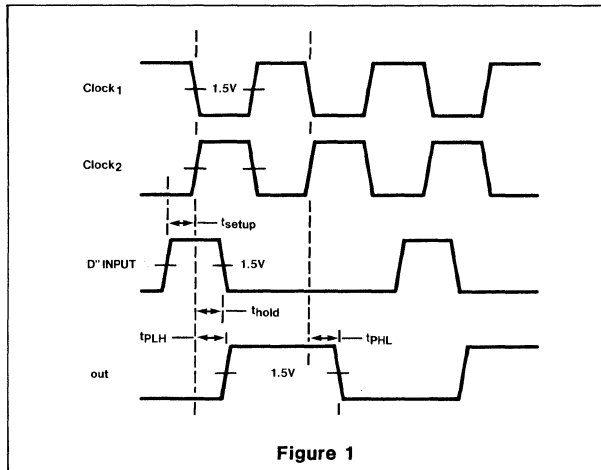
AC CHARACTERISTICS: T_A = 25°C (See Section 4 for Waveforms and Conditions)

PARAMETER		TEST CONDITIONS	8273		UNIT
			C _L = 18pF R ₁ = ∞Ω R ₂ = 150Ω		
			Min	Max	
f _{MAX}	Maximum Clock Frequency	Figure 1	25		MHz
t _{PLH}	Propagation delay	CP ₂ = 0V, Figure 1		40	ns
t _{PHL}	CP ₁ to output			40	ns
t _{PLH}	Propagation delay	CP ₁ = 4.5V, Figure 1		40	ns
t _{PHL}	CP ₂ to output			40	ns
t _{PHL}	Propagation delay Reset to output	Figure 2		50	ns

AC SET-UP REQUIREMENTS: T_A = 25° C (See Section 4 for Waveforms and Conditions)

PARAMETER	TEST CONDITIONS	8273		UNIT
		Min	Max	
t _W CP ₁ pulse width	Figure 1	25		ns
t _s Setup time Data to CP ₁	Figure 1	15		ns
t _h Hold time Data to CP ₁	Figure 1	15		ns
t _W CP ₂ pulse width	Figure 1	20		ns
t _s Setup time Data to CP ₂	Figure 1	10		ns
t _h Hold time Data to CP ₂	Figure 1	10		ns

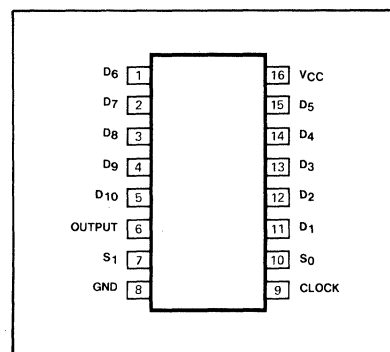
AC WAVEFORMS



DESCRIPTION

The 8274 10-Bit Shift Register is an array of binary elements interconnected to perform the parallel-in serial-out shift function. The circuit has ten parallel inputs and a single true serial output. The D_1 input can also be used for serial entry. Two control inputs, S_0 and S_1 , determine the operating mode of the shift register as shown in the Truth Table. A single buffered clock line connects all ten flip-flops which are activated on the high-to-low transition of the clock pulse.

Guaranteed input clock frequency is 25MHz. With the exception of the Hold Mode, the control inputs may be changed when the clock is in either the high or low state without causing false triggering. The Hold Mode can be entered only when the clock is low. Applications for the 8274 Shift Register include Parallel-to-Serial conversion, Modem Data Transmission, Pseudo-Random Code generation and Modulo-N Frequency Division.

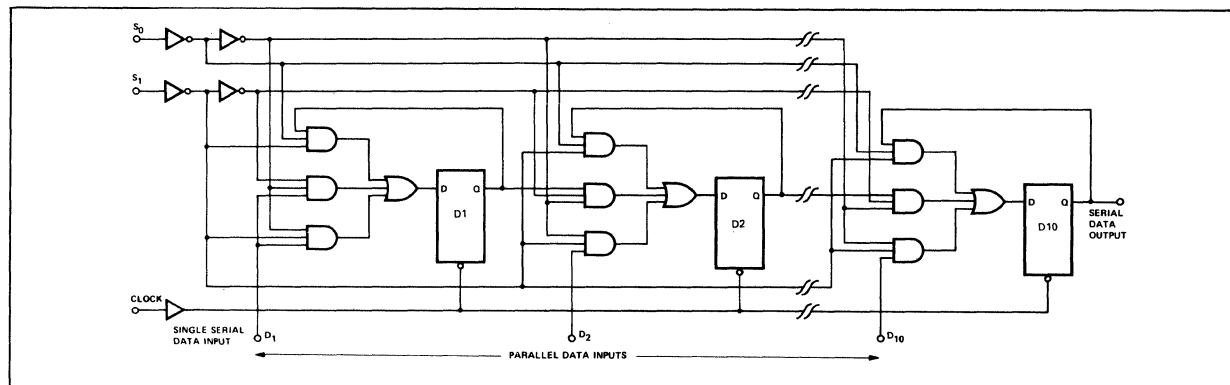
PIN CONFIGURATION**ORDERING CODE** (See Section 9 for further Package and Ordering Information)

PACKAGES	COMMERCIAL RANGES $V_{CC}=5V \pm 5\%$; $T_A=0^\circ C$ to $+75^\circ C$	MILITARY RANGES $V_{CC}=5V \pm 5\%$; $T_A=-55^\circ C$ to $+125^\circ C$
Plastic DIP	N8274N	
Ceramic DIP	N89274F	S8274F
Flatpak		S8274W

**MODE SELECT—
FUNCTION TABLE**

S_0	S_1	OPERATING MODE
L	L	Hold
L	H	Clear
H	L	Load
H	H	Shift

H = HIGH voltage level
L = LOW voltage level

LOGIC DIAGRAM**NOTE**

a. The slashed numbers indicate different parametric values for Military Commercial temperature ranges respectively.

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE

PARAMETER	TEST CONDITIONS	8274		UNIT
		Min	Max	
V _{OH} Output HIGH voltage	V _{CC} = 4.75V, I _{OH} = -800μA	2.6		V
V _{OL} Output LOW voltage	V _{CC} = 4.75V, I _{OL} = 16mA		0.4	V
I _{IH} Input HIGH current	V _{CC} = 5.25V, V _{IN} = 4.5V		40	μA
I _{IL} Input LOW current D _n , S ₀ , S ₁ Clock	V _{CC} = 5.25V, V _{IN} = 0.4V	-0.2	-1.2	mA
		-0.2	-1.6	mA
				mA
V _{BD} Input breakdown voltage	V _{CC} = 5.0V, I _{IN} = 10mA	5.5		V
I _{OS} Output short circuit current	V _{CC} = 5.0V, V _{OUT} = 0V	-20	-70	mA
I _{CC} Supply current	V _{CC} = 5.0V		108	mA

AC CHARACTERISTICS: T_A = 25° C (See Section 4 for Waveforms and Conditions)

PARAMETER		TEST CONDITIONS	8274		UNITS
			C _L = 18pF R ₁ = ∞Ω R ₂ = 84.5Ω		
			Min	Max	
f _{Max}	Maximum clock frequency	Figure 1	25		MHz
t _{PLH}	Propagation delay	Figure 1		40	ns
t _{PHL}	Clock to output			40	ns

AC SET-UP REQUIREMENTS $T_A = 25^\circ\text{C}$ (See Section 4 for Waveforms and Conditions)

PARAMETER	TEST CONDITIONS	8274		UNIT
		Min	Max	
t_W Clock pulse width	Figure 1	20		ns
t_s Set-up time D _n S ₀ , S ₁	Figure 1	10 25		ns ns

AC WAVEFORMS

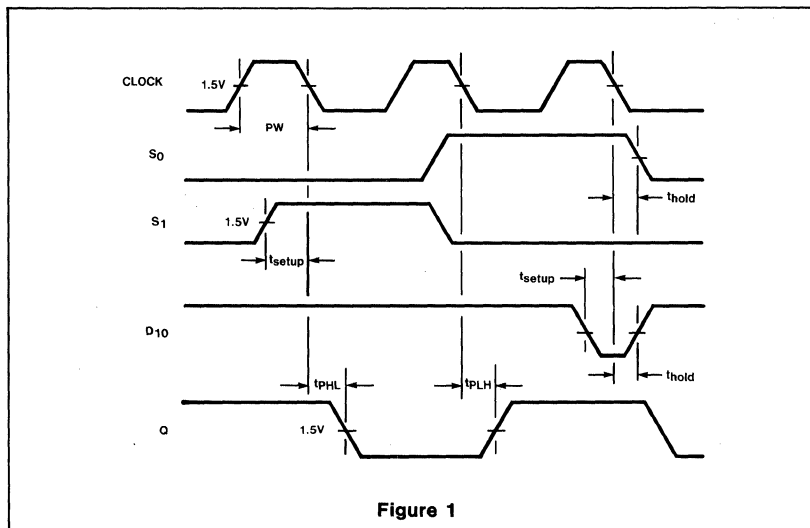


Figure 1