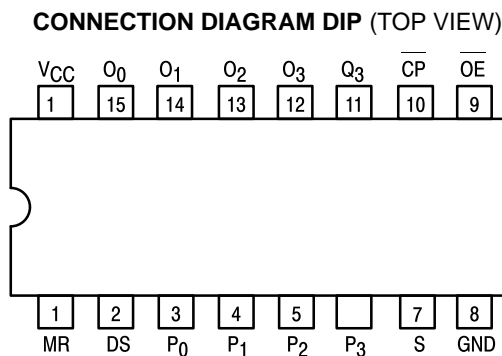




4-BIT SHIFT REGISTER WITH 3-STATE OUTPUTS

The SN74LS395 is a 4-Bit Register with 3-state outputs and can operate in either a synchronous parallel load or a serial shift-right mode, as determined by the Select input. An asynchronous active LOW Master Reset (MR) input overrides the synchronous operations and clears the register. An active HIGH Output Enable (OE) input controls the 3-state output buffers, but does not interfere with the other operations. The fourth stage also has a conventional output for linking purposes in multi-stage serial operations.

- Shift Left or Parallel 4-Bit Register
- 3-State Outputs
- Input Clamp Diodes Limit High-Speed Termination Effects



PIN NAMES

P ₀ –P ₃	Parallel Inputs
D _S	Serial Data Input
S	Mode Select Input
CP	Clock (Active LOW) Input
MR	Master Reset (Active LOW) Input
OE	Output Enable (Active HIGH) Input
O ₀ –O ₃	3-State Register Outputs
Q ₃	Register Output

NOTES:

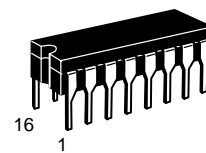
a) 1 TTL Unit Load (U.L.) = 40 μ A HIGH/1.6 mA LOW.

LOADING (Note a)	
HIGH	LOW
0.5 U.L.	0.25 U.L.
0.5 U.L.	0.25 U.L.
0.5 U.L.	0.25 U.L.
0.5 U.L.	0.25 U.L.
0.5 U.L.	0.25 U.L.
0.5 U.L.	0.25 U.L.
65 U.L.	15 U.L.
10 U.L.	5 U.L.

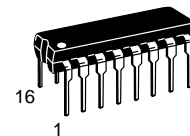
SN74LS395

4-BIT SHIFT REGISTER WITH 3-STATE OUTPUTS

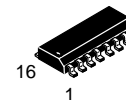
LOW POWER SCHOTTKY



J SUFFIX
CERAMIC
CASE 620-09



N SUFFIX
PLASTIC
CASE 648-08



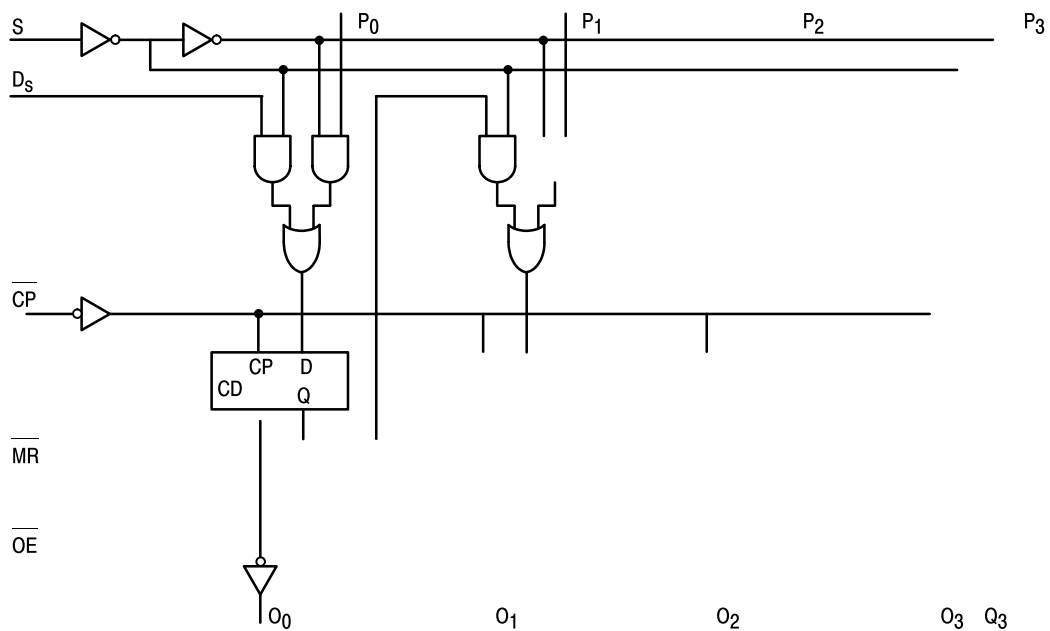
D SUFFIX
SOIC
CASE 751B-03

ORDERING INFORMATION

SN74LSXXXJ	Ceramic
SN74LSXXXN	Plastic
SN74LSXXXD	SOIC

SN74LS395

LOGIC DIAGRAM



SN74LS395

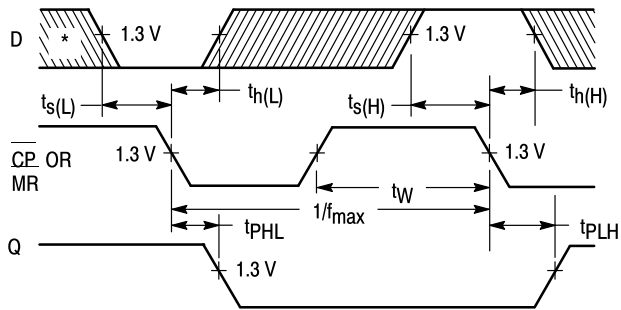
DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

Symbol	Parameter	Limits			Unit	Test Conditions
		Min	Typ	Max		
V_{IH}	Input HIGH Voltage	2.0			V	Guaranteed Input HIGH Voltage for All Inputs
V_{IL}	Input LOW Voltage			0.8	V	Guaranteed Input LOW Voltage for All Inputs
V_{IK}	Input Clamp Diode Voltage		-0.65	-1.5	V	$V_{CC} = \text{MIN}$, $I_{IN} = -18 \text{ mA}$
V_{OH}	Output HIGH Voltage	2.7	3.5		V	$V_{CC} = \text{MIN}$, $I_{OH} = \text{MAX}$, $V_{IN} = V_{IH}$ or V_{IL} per Truth Table
V_{OL}	Output LOW Voltage		0.25	0.4	V	$I_{OL} = 4.0 \text{ mA}$
			0.35	0.5	V	$I_{OL} = 8.0 \text{ mA}$
I_{OZH}	Output Off Current HIGH			20	μA	$V_{CC} = \text{MAX}$, $V_O = 2.4 \text{ V}$
I_{OZL}	Output Off Current LOW			-20	μA	$V_{CC} = \text{MAX}$, $V_O = 0.4 \text{ V}$
I_{IH}	Input HIGH Current			20	μA	$V_{CC} = \text{MAX}$, $V_{IN} = 2.7 \text{ V}$
				-0.1	mA	$V_{CC} = \text{MAX}$, $V_{IN} = 7.0 \text{ V}$
I_{IL}	Input LOW Current			-0.4	mA	$V_{CC} = \text{MAX}$, $V_{IN} = 0.4 \text{ V}$
I_{OS}	Short Circuit Current (Note 1)	-20		-100	mA	$V_{CC} = \text{MAX}$

100

AC WAVEFORMS

The shaded areas indicate when the input is permitted to change for predictable output performance.



*The Data Input is D_S for S = LOW and P_n for S = HIGH.

Figure 1

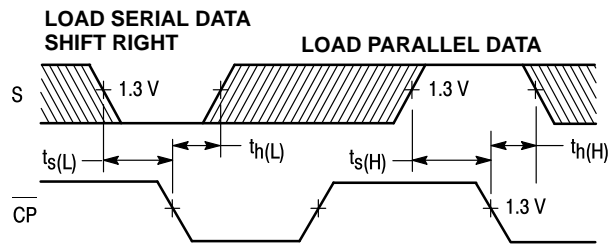


Figure 2

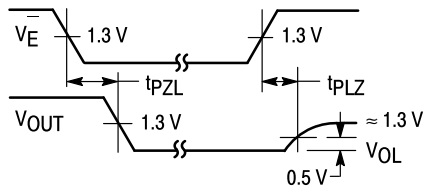


Figure 3

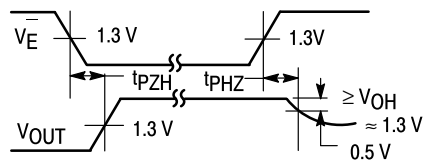


Figure 4

AC LOAD CIRCUIT

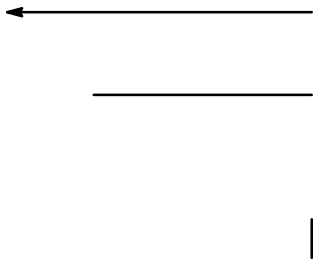
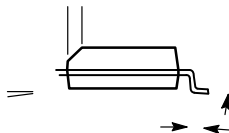
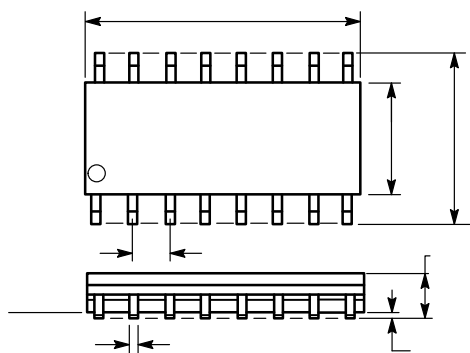



Figure 5



- NOTES:
1. DIMENSIONIN AND TOLERANCIN PER ANSI Y14.5M 1982.
 2. CONTROLLIN DIMENSION: MILLIMETER.
 3. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
 4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
 5. 751B-01 IS OBSOLETE NEW STANDARD 751B-03.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.80	10.00	0.386	0.393
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.050 BSC	
J	0.19	0.25	0.008	0.009
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

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