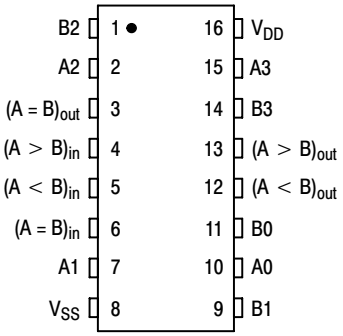
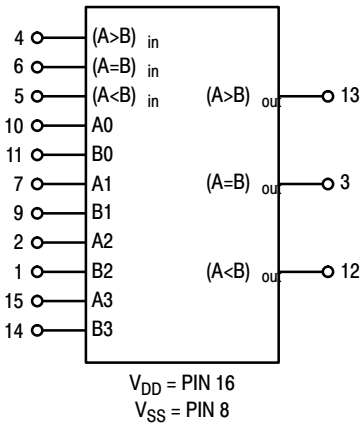
PIN ASSIGNMENT



BLOCK DIAGRAM



TRUTH TABLE (x = Don't Care)

Inputs							Outputs		
Comparing				Cascading					
A3, B3	A2, B2	A1, B1	A0, B0	A < B	A = B	A > B	A < B	A = B	A > B
A3 > B3	x	x	x	x	x	x	0	0	1
A3 = B3	A2 > B2	x	x	x	x	x	0	0	1
A3 = B3	A2 = B2	A1 > B1	x	x	x	x	0	0	1
A3 = B3	A2 = B2	A1 = B1	A0 > B0	x	x	x	0	0	1
A3 = B3	A2 = B2	A1 = B1	A0 = B0	0	0	x	0	0	1
A3 = B3	A2 = B2	A1 = B1	A0 = B0	0	1	x	0	1	0
A3 = B3	A2 = B2	A1 = B1	A0 = B0	1	0	x	1	0	0
A3 = B3	A2 = B2	A1 = B1	A0 = B0	1	1	x	1	1	0
A3 = B3	A2 = B2	A1 = B1	A0 < B0	x	x	x	1	0	0
A3 = B3	A2 = B2	A1 < B1	x	x	x	x	1	0	0
A3 = B3	A2 < B2	x	x	x	x	x	1	0	0
A3 < B3	x	x	x	x	x	x	1	0	0

ELECTRICAL CHARACTERISTICS (Voltages Referenced to V_{SS})

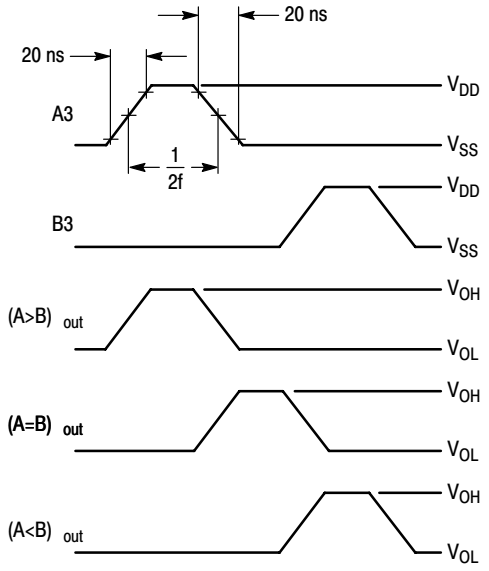
Characteristic	Symbol	V_{DD} Vdc	– 55°C Min	– 55°C Max	25°C Min	25°C Typ (Note 2)	25°C Max	125°C Min	125°C Max	Unit
Output Voltage “0” Level V_{in} = V_{DD} or 0	V_{OL}	5.0 10 15	– – –	0.05 0.05 0.05	– – –	0 0 0	0.05 0.05 0.05	– – –	0.05 0.05 0.05	Vdc
“1” Level V_{in} = 0 or V_{DD}	V_{OH}	5.0 10 15	4.95 9.95 14.95	– – –	4.95 9.95 14.95	5.0 10 15	– – –	4.95 9.95 14.95	– – –	Vdc
Input Voltage “0” Level (V_O = 4.5 or 0.5 Vdc) (V_O = 9.0 or 1.0 Vdc) (V_O = 13.5 or 1.5 Vdc)	V_{IL}	5.0 10 15	– – –	1.5 3.0 4.0	– – –	2.25 4.50 6.75	1.5 3.0 4.0	– – –	1.5 3.0 4.0	Vdc
“1” Level (V_O = 0.5 or 4.5 Vdc) (V_O = 1.0 or 9.0 Vdc) (V_O = 1.5 or 13.5 Vdc)	V_{IH}	5.0 10 15	3.5 7.0 11	– – –	3.5 7.0 11	2.75 5.50 8.25	– – –	3.5 7.0 11	– – –	Vdc
Output Drive Current (V_{OH} = 2.5 Vdc) Source (V_{OH} = 4.6 Vdc) (V_{OH} = 9.5 Vdc) (V_{OH} = 13.5 Vdc)	I_{OH}	5.0 5.0 10 15	– 3.0 – 0.64 – 1.6 – 4.2	– – – –	– 2.4 – 0.51 – 1.3 – 3.4	– 4.2 – 0.88 – 2.25 – 8.8	– – – –	– 1.7 – 0.36 – 0.9 – 2.4	– – – –	mAdc
(V_{OL} = 0.4 Vdc) Sink (V_{OL} = 0.5 Vdc) (V_{OL} = 1.5 Vdc)	I_{OL}	5.0 10 15	0.64 1.6 4.2	– – –	0.51 1.3 3.4	0.88 2.25 8.8	– – –	0.36 0.9 2.4	– – –	mAdc
Input Current	I_{in}	15	–	±0.1	–	±0.00001	±0.1	–	±1.0	μAdc
Input Capacitance (V_{in} = 0)	C_{in}	–	–	–	–	5.0	7.5	–	–	pF
Quiescent Current (Per Package)	I_{DD}	5.0 10 15	– – –	5.0 10 20	– – –	0.005 0.010 0.015	5.0 10 20	– – –	150 300 600	μAdc
Total Supply Current (Notes 3, 4) (Dynamic plus Quiescent, Per Package) (C_L = 50 pF on all outputs, all buffers switching)	I_T	5.0 10 15	I_T = (0.6 μA/kHz) f + I_{DD} I_T = (1.2 μA/kHz) f + I_{DD} I_T = (1.8 μA/kHz) f + I_{DD}							μAdc

2. Data labelled “Typ” is not to be used for design purposes but is intended as an indication of the IC’s potential performance.
3. The formulas given are for the typical characteristics only at 25°C.
4. To calculate total supply current at loads other than 50 pF: $I_T(C_L) = I_T(50\ pF) + (C_L - 50)$ Vfk where: I_T is in μA (per package), C_L in pF, V = (V_{DD} – V_{SS}) in volts, f in kHz is input frequency, and k = 0.001.

SWITCHING CHARACTERISTICS (Note 5) (C_L = 50 pF, T_A = 25°C)

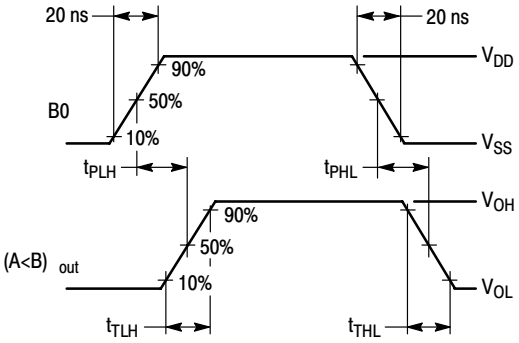
Characteristic	Symbol	V_{DD}	Min	Typ (Note 6)	Max	Unit
Output Rise and Fall Time t_{TLH}, t_{THL} = (1.5 ns/pF) C_L + 25 ns t_{TLH}, t_{THL} = (0.75 ns/pF) C_L + 12.5 ns t_{TLH}, t_{THL} = (0.55 ns/pF) C_L + 9.5 ns	t_{TLH}, t_{THL}	5.0 10 15	– – –	100 50 40	200 100 80	ns
Turn−On, Turn−Off Delay Time t_{PLH}, t_{PHL} = (1.7 ns/pF) C_L + 345 ns t_{PLH}, t_{PHL} = (0.66 ns/pF) C_L + 147 ns t_{PLH}, t_{PHL} = (0.5 ns/pF) C_L + 105 ns	t_{PLH}, t_{PHL}	5.0 10 15	– – –	430 180 130	860 360 260	ns

5. The formulas given are for the typical characteristics only at 25°C.
6. Data labelled “Typ” is not to be used for design purposes but is intended as an indication of the IC’s potential performance.



Inputs (A>B) and (A=B) high, and inputs B2, A2, B1, A1, B0, A0 and (A<B) low.
f in respect to a system clock.

Figure 1. Dynamic Power Dissipation Signal Waveforms



Inputs (A>B) and (A=B) high, and inputs B3, A3, B2, A2, B1, A1, A0, and (A<B) low.

Figure 2. Dynamic Signal Waveforms

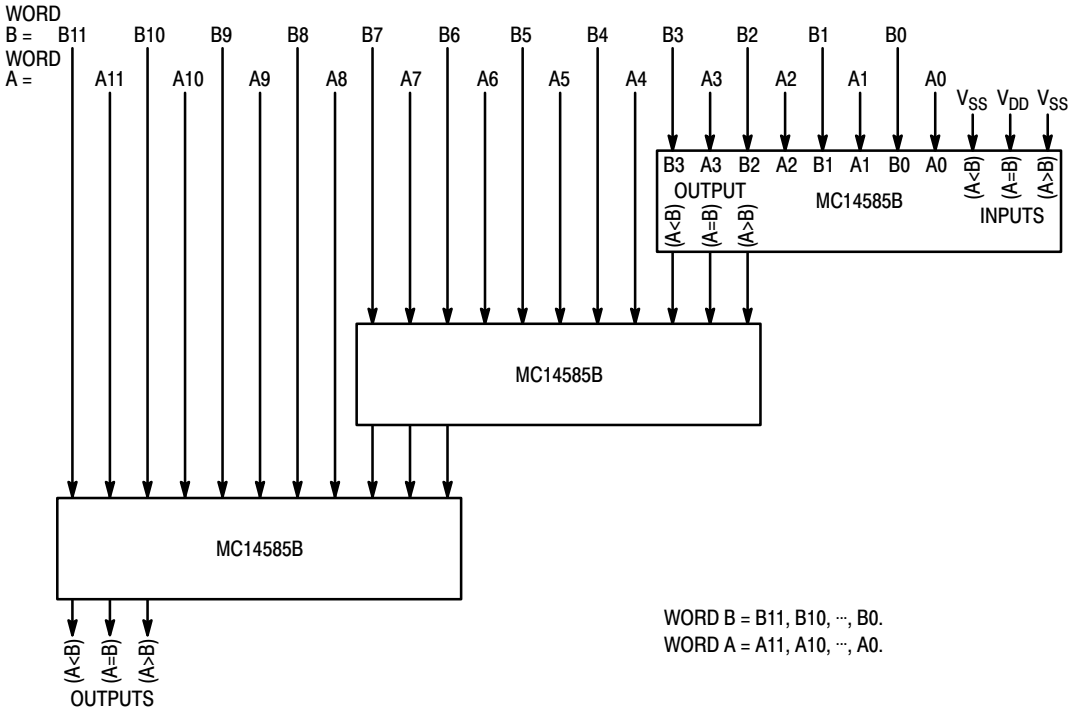
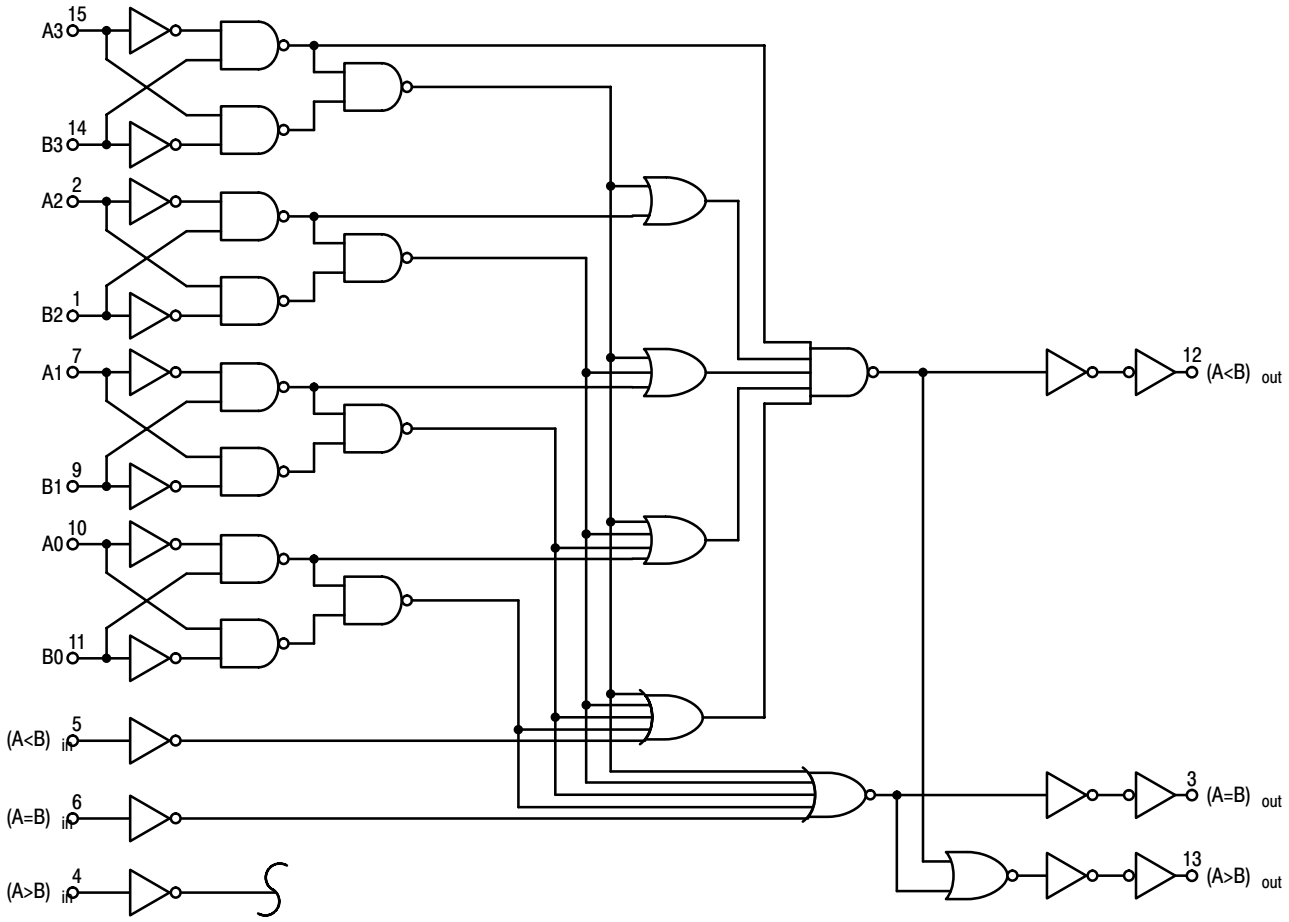


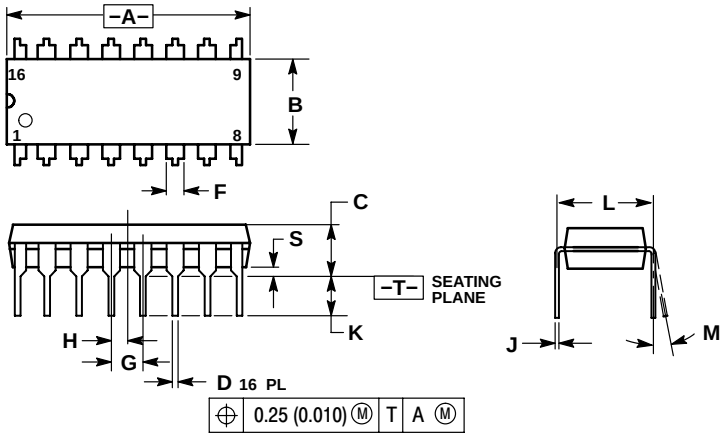
Figure 3. Cascading Comparators

LOGIC DIAGRAM



PACKAGE DIMENSIONS

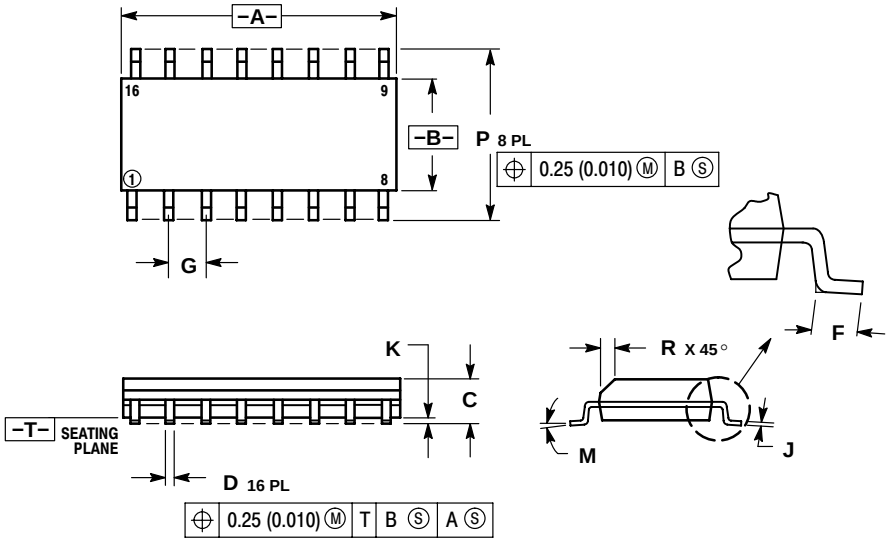
PDIP−16
CASE 648−08
ISSUE T



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
4. DIMENSION B DOES NOT INCLUDE MOLD FLASH.
5. ROUNDED CORNERS OPTIONAL.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.740	0.770	18.80	19.55
B	0.250	0.270	6.35	6.85
C	0.145	0.175	3.69	4.44
D	0.015	0.021	0.39	0.53
F	0.040	0.70	1.02	1.77
G	0.100 BSC		2.54 BSC	
H	0.050 BSC		1.27 BSC	
J	0.008	0.015	0.21	0.38
K	0.110	0.130	2.80	3.30
L	0.295	0.305	7.50	7.74
M	0 °	10 °	0 °	10 °
S	0.020	0.040	0.51	1.01

SOIC−16
CASE 751B−05
ISSUE J

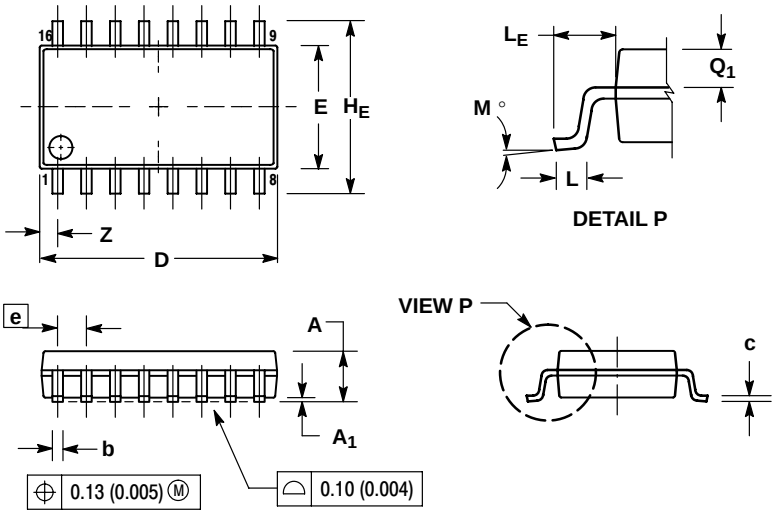


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

	MILLIMETERS		INCHES	
DIM	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

PACKAGE DIMENSIONS

SOEIAJ−16
CASE 966−01
ISSUE A



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS AND ARE MEASURED AT THE PARTING LINE. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
5. THE LEAD WIDTH DIMENSION (b) DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE LEAD WIDTH DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE FOOT. MINIMUM SPACE BETWEEN PROTRUSIONS AND ADJACENT LEAD TO BE 0.46 (0.018).

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	---	2.05	---	0.081
A_1	0.05	0.20	0.002	0.008
b	0.35	0.50	0.014	0.020
c	0.10	0.20	0.007	0.011
D	9.90	10.50	0.390	0.413
E	5.10	5.45	0.201	0.215
e	1.27 BSC		0.050 BSC	
H_E	7.40	8.20	0.291	0.323
L	0.50	0.85	0.020	0.033
L_E	1.10	1.50	0.043	0.059
M	0 °	10 °	0 °	10 °
Q_1	0.70	0.90	0.028	0.035
Z	---	0.78	---	0.031

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