WD1801 Octal Comparator

FEATURES

- +5 VOLT ONLY
- CASCADABLE USING $\overline{E}_{IN}$
- N-MOS SILICON GATE TECHNOLOGY
- 20 PIN PLASTIC OR CERAMIC DIP
- TTL COMPATIBLE
- BUILT IN PULL-UP RESISTORS ON A INPUTS

APPLICATIONS

- ADDRESS COMPARATOR
- BUS COMPARATOR
- STATUS LINE DECODER
- BREAK POINT GENERATOR

GENERAL DESCRIPTION

The WD1801 is an 8 bit wide comparator. It has been designed to minimize the logic required to implement address decoding or break point indications. It is capable of comparing two 8-bit words and is easily expanded by using the external enable input $\overline{E}_{IN}$.

The matching of two 8 bit inputs plus a logic low on $\overline{E}_{IN}$ produces an active low on output $\overline{E}_{OUT}$.

The A bank inputs are implemented with internal pull-up resistors to facilitate programming with inactive devices such as DIP switches

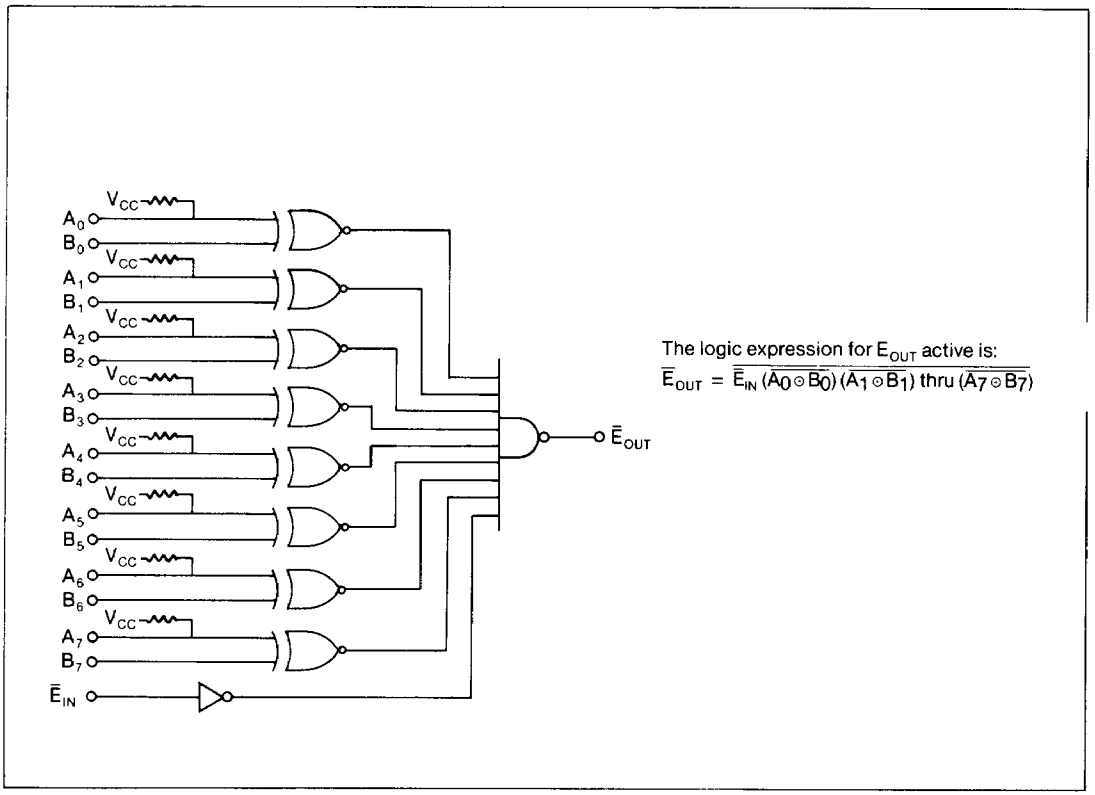

FIGURE 1

LOGIC DIAGRAM

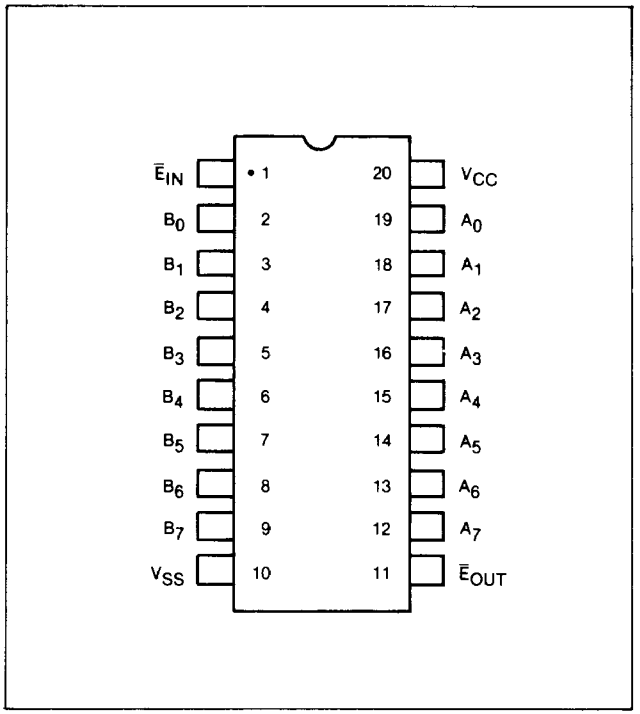

FIGURE 2
PIN CONNECTIONS

PIN DEFINITIONS TABLE I PIN DEFINITIONS

PIN	NAME	SYMBOL	FUNCTION
1	External Enable	$\overline{E}_{IN}$	Active Low Input Enable
2-9	B inputs	B_0-B_7	8 Bit B input to Comparator
10	V_{SS}	V_{SS}	Ground
11	Equal Out	$\overline{E}_{OUT}$	Active Low Output for A = B
12-19	A inputs	A_7-A_0	8 Bit A input to Comparator
20	V_{CC}	V_{CC}	+5V ± 10% Power Supply

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS

Ambient Temperature under Bias ..... – 40°C to 70°C
Voltage on any pin with respect to Ground (V_{SS}) ..... – 0.2 to + 7V
Power Dissipation 0.5W
Storage Temp. — Ceramic – 65°C to + 150°C
Plastic – 55°C to + 125°C

NOTE: Maximum limits indicate where permanent device damage occurs. Continuous operation at these limits is not intended and should be limited to those conditions specified in the DC Electrical characteristics.

TABLE 2
DC ELECTRICAL CHARACTERISTICS
T_A = 0° to 70°C; V_{CC} = 5.0V ± 10%; V_{SS} = 0V;

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT	TEST CONDITIONS
V_{IL}	Input Low Voltage			+ 0.8	V	
V_{IH}	Input High Voltage	2.2			V	
V_{OL}	Output Low Voltage			0.45	V	I_{OL} = 3.2MA
V_{OH}	High Level Output Voltage	2.4			V	I_{OH} = – 200μa
V_{CC}	Supply Voltage	4.5	5.0	5.5	V	
I_{CC}	Supply Current		40	100	MA	All outputs open

TABLE 3
DC ELECTRICAL CHARACTERISTICS
T_A = 0° to 70°C; V_{CC} = 5V ± 10%; V_{SS} = 0V; CL = 50pF

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT	TEST CONDITIONS
t_{PHL}	A_i or B_i to $\bar{E}_{OUT}$ Active		55	70	nsec	$\bar{E}_{IN}$ Active
t_{PLH}	A_i or B_i to $\bar{E}_{OUT}$ Inactive		45	60	nsec	$\bar{E}_{IN}$ Active
t_E	$\bar{E}_{IN}$ to $\bar{E}_{OUT}$		40	50	nsec	A_i = B_i

NOTE: A.C. Timing Measurements at V_{OH} = 2.0V and V_{OL} = 0.8V.

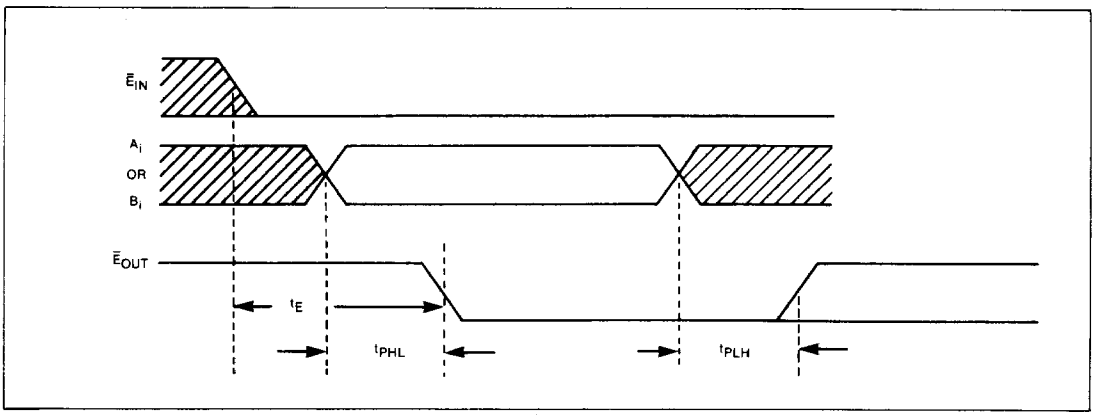

FIGURE 3
TIMING DIAGRAM

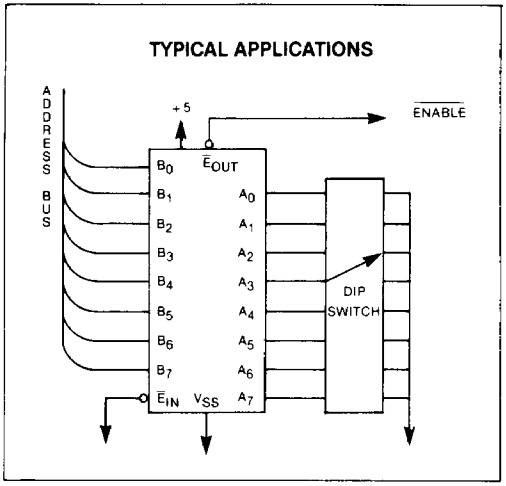

FIGURE 4
8 BIT PROGRAMMABLE ADDRESS BUS COMPARATOR

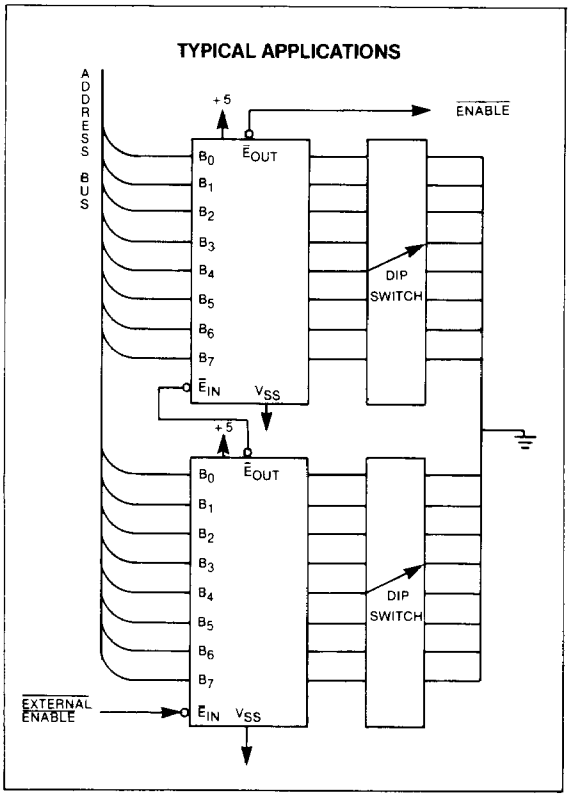

FIGURE 5
16 BIT PROGRAMMABLE ADDRESS BUS COMPARATOR

See page 725 for ordering information.