

WD1802 Octal Comparator

FEATURES

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

APPLICATIONS

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

GENERAL DESCRIPTION

The WD1802 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 expandable using the external enable input \bar{E}_{IN} .

The WD1802 is implemented with exclusive - OR (XOR) gates. It equates when the A inputs are complementary to the B inputs. The combination of complementary 8 bit inputs plus a logic low on \bar{E}_{IN} produces an active low on the output \bar{E}_{OUT} .

The A bank inputs are implemented with internal pull-up resistors. The pull-up resistors plus the complementary logic make this device extremely easy to use with inactive devices such as DIP switches.

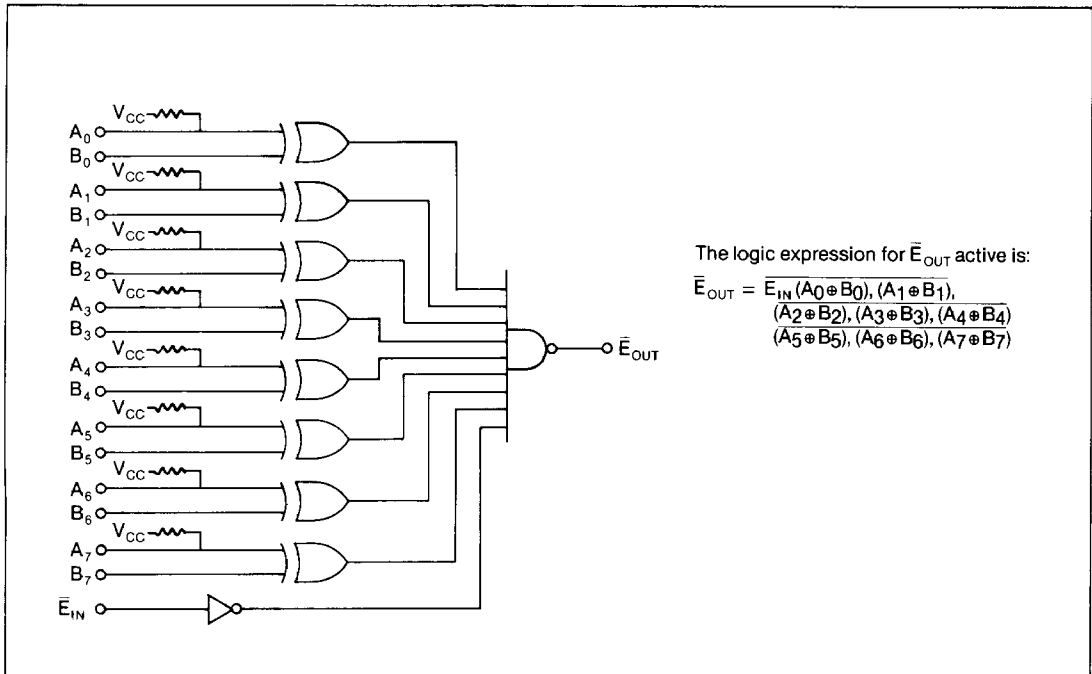


FIGURE 1.
LOGIC DIAGRAM

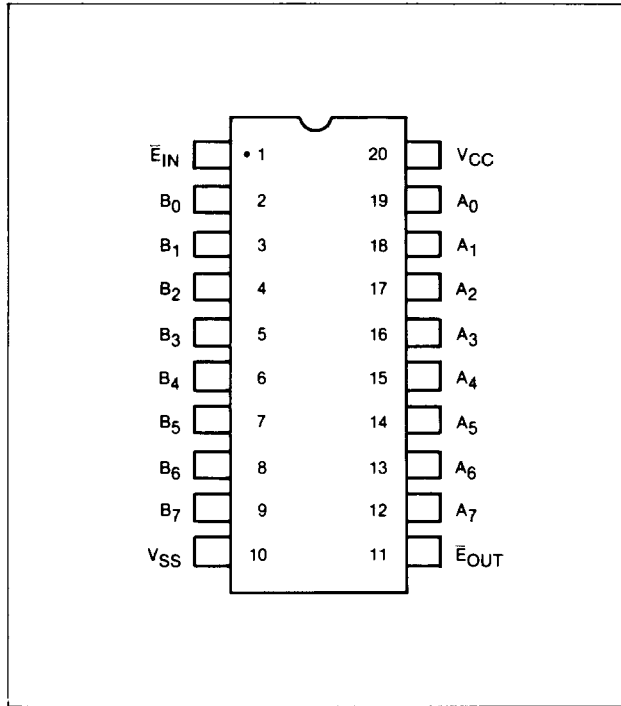


FIGURE 2
PIN CONNECTIONS

PIN DEFINITIONS TABLE I

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

SPECIFICATIONS

WD1802

ABSOLUTE MAXIMUM RATINGS

Ambient Temperature under Bias -40°C to 70°C
 Voltage on any pin with respect to Ground (vss) -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

$T_A = 0^\circ \text{ to } 70^\circ \text{C}; V_{CC} = 5.0\text{V} \pm 10\%; V_{SS} = 0\text{V}$

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	$I_{OL} = 3.2\text{MA}$
V_{OH}	High Level Output Voltage	2.4			V	$I_{OH} = -200\mu\text{a}$
V_{CC}	Supply Voltage	4.5	5.0	5.5	V	
I_{CC}	Supply Current		40	100	MA	All outputs open

TABLE 3
AC ELECTRICAL CHARACTERISTICS

$T_A = 0^\circ \text{ to } 70^\circ \text{C}; V_{CC} = 5\text{V} \pm 10\%; V_{SS} = 0\text{V}; C_L = 50 \text{ pF}$

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

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

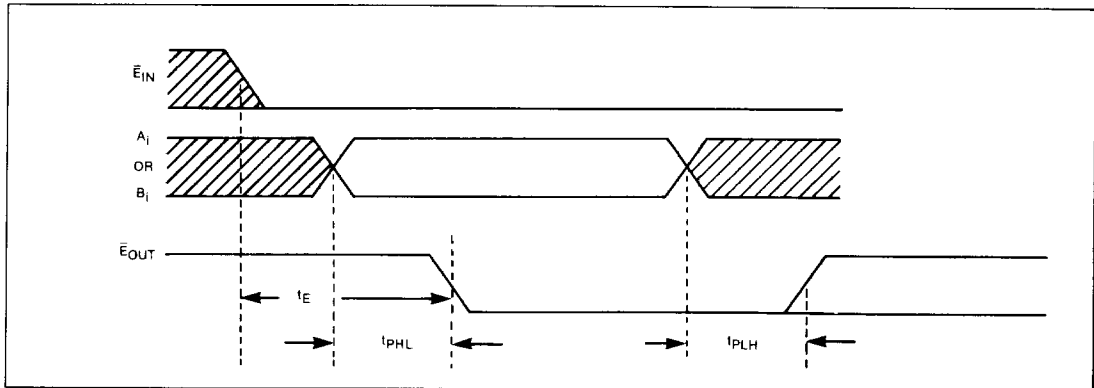


FIGURE 3
TIMING DIAGRAM

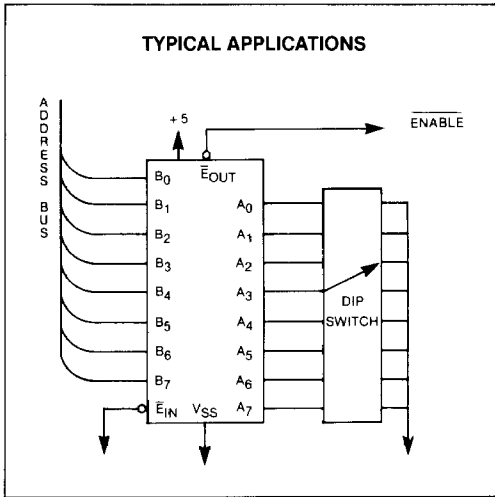


FIGURE 4
8 BIT PROGRAMMABLE ADDRESS
BUS COMPARATOR

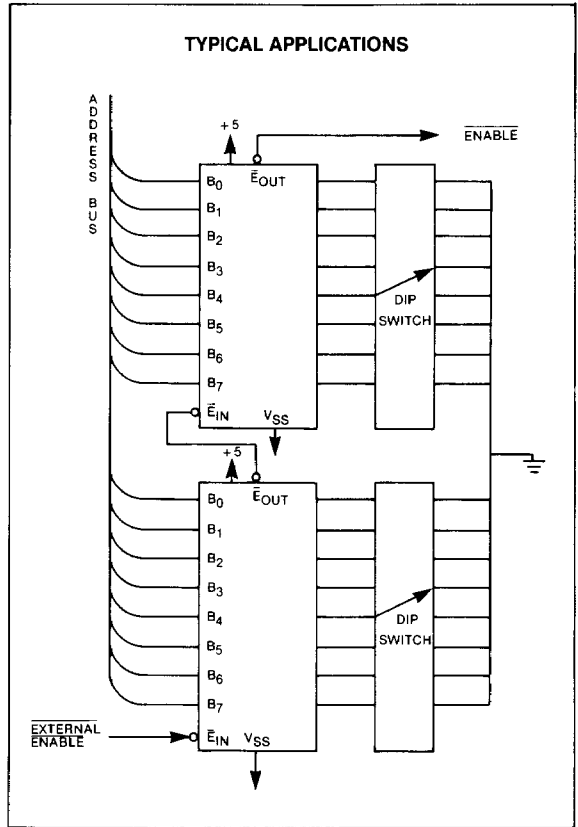


FIGURE 5
16 BIT PROGRAMMABLE COMPARATOR

See page 725 for ordering information.

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