Line Drivers/Receivers

DM7837/DM8837 hex unified bus receiver

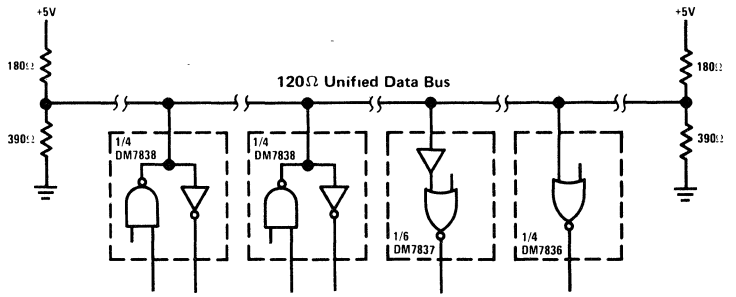
general description

The DM7837/DM8837 are high speed receivers designed for use in bus organized data transmission systems interconnected by terminated 120Ω impedance lines. The external termination is intended to be 180Ω resistor from the bus to the +5V logic supply together with a 390Ω resistor from the bus to ground. The receiver design employs a built-in input hysteresis providing substantial noise immunity. Low input current allows up to 27 driver/receiver pairs to utilize a common bus. Disable inputs provide time discrimination. Disable inputs and receiver outputs are DTL/TTL compatible. Performance is optimized for systems with bus rise and fall times $\leq 10\mu s$.

features

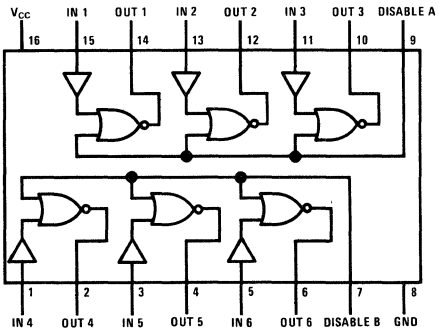
- Low receiver input current for normal V_{CC} or V_{CC} = 0V (15 μA typ)
- Six separate receivers per package
- Built-in receiver input hysteresis (1V typ)
- High receiver noise immunity (2V typ)
- Temperature insensitive receiver input thresholds track bus logic levels
- DTL/TTL compatible disable and output
- Molded or cavity dual-in-line or flat package
- High speed

typical application



connection diagram

Dual-In-Line and Flat Package



TOP VIEW

Order Number DM7837J or DM8837J
See Package 17

Order Number DM8837N
See Package 23

Order Number DM7837W or DM8837W
See Package 28

absolute maximum ratings (Note 1)

Supply Voltage	7V
Input Voltage	5.5V
Power Dissipation	600 mW
Operating Temperature Range	
DM7837	−55°C to +125°C
DM8837	0°C to +70°C
Storage Temperature Range	−65°C to +150°C
Lead Temperature (Soldering, 10 sec)	300°C

electrical characteristics

The following apply for $V_L \leq V_{CC} \leq V_H$, $T_L \leq T_A \leq T_H$, unless otherwise specified (Note 2)

PARAMETER	RECEIVER INPUT	DISABLE INPUT	OUTPUT	COMMENTS	MIN	TYP	MAX	UNIT
High Level Receiver Threshold DM7837	V_{TH}	0 8V	16 mA	Output < 0 4V	1 65	2 25	2 65	V
High Level Receiver Threshold DM8837	V_{TH}	0 8V	16 mA	Output < 0 4V	1 80	2 25	2 50	V
Low Level Receiver Threshold DM7837	V_{TH}	0 8V	−400 mA	Output > 2 4V	0.97	1 30	1 63	V
Low Level Receiver Threshold DM8837	V_{TH}	0 8V	−400 mA	Output > 2 4V	1.05	1 30	1 55	V
Maximum Receiver Input Current	4V			V_{CC} = V_H		15 0	50 0	μA
Maximum Receiver Input Current	4V			V_{CC} 0V		1 0	50 0	μA
Logic "1" Input Voltage Disable	0 5V	V_{IN}	16 mA	Output < 0 4V	2 0			V
Logic "0" Input Voltage Disable	0 5V	V_{IN}	−400 μA	Output > 2 4V			0 8	V
Logic "1" Output Voltage	0 5V	0 8V	−400 μA		2 4			V
Logic "0" Output Voltage	4V	0 8V	16 mA			0 25	0 4	V
Logic "1" Input Current Disable		2 4V					80 0	μA
Logic "1" Input Current Disable		5 5V					2 0	mA
Logic "0" Input Current Disable	4V	0 4V					−3 2	mA
Output Short Circuit Current	0 5V	0V	0V	V_{CC} = V_H	−18 0		−55 0	mA
Power Supply Current	4V	0V		Per Package		45.0	60 0	mA
Input Clamp Diode	−12 mA	−12 mA		T_A = 25°C		−1 0	−1 5	V
The following apply for V_{CC} = 5V, T_A = 25°C unless otherwise specified								
Propagation Delays								
Receiver Input to Logic "1" Output		0V		Note 3		20	30	ns
Receiver Input to Logic "0" Output		0V		Note 4		18	30	ns
Disable Input to Logic "1" Output	0V			Note 5		9	15	ns
Disable Input to Logic "0" Output	0V			Note 5		4	10	ns

Note 1: Voltage values are with respect to network ground terminal. Positive current is defined as current into the referenced pin.
Note 2: For DM7837: V_L = 4.5V, V_H = 5.5V, T_L = −55°C, T_H = +125°C
For DM8837: V_L = 4.75V, V_H = 5.25V, T_L = 0°C, T_H = +70°C
Note 3: Fan-out of 10 load, C_{LOAD} = 15 pF total. Measured from V_{IN} = 1.3V to V_{OUT} = 1.5V, V_{IN} = 0V to 3V pulse.
Note 4: Fan-out of 10 load, C_{LOAD} = 15 pF total. Measured from V_{IN} = 2.3V to V_{OUT} = 1.5V, V_{IN} = 0V to 3V pulse.
Note 5: Fan-out of 10 load, C_{LOAD} = 15 pF total. Measured from V_{IN} = 1.5V to V_{OUT} = 1.5V, V_{IN} = 0V to 3V pulse.