# 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  $120\Omega$  impedance lines. The external termination is intended to be  $180\Omega$  resistor from the bus to the +5V logic supply together with a  $390\Omega$  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  $< 10\mu s$ .

### features

- Low receiver input current for normal  $V_{CC}$  or  $V_{CC} = 0V (15 \,\mu A \, typ)$
- 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



#### Dual-In-Line and Flat Package



# 4

### 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 -65°C to +150°C..... Storage Temperature Range 300°C<sub>13.3</sub> Lead Temperature (Soldering, 10 sec) term' - 30 - 1 <sup>- 1</sup>

## electrical characteristics

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

PARAMETER	RECEIVER INPUT	DISABLE INPUT	OUTPUT	COMMENTS	MIN	ТҮР	МАХ	UNIT
High Level Receiver Threshold DM7837	V <sub>TH</sub>	0 8V	16 mA	Output < 0 4V	1 65	2 25	2 65	v
High Level Receiver Threshold DM8837	V <sub>TH</sub>	0.8V	16 mA	Output < 0 4V	1 80	2 25	2 50	v
Low Level Receiver Threshold DM7837	VTH	0 8V	-400 mA	Output > 2 4V	0.97	1 30	1 63	v
Low Level Receiver Threshold DM8837	V <sub>TH</sub>	08V	-400 mA	Output > 2 4V	1.05	1 30	1 55	v
Maximum Receiver Input Current	4V `			V <sub>CC</sub> · V <sub>H</sub>		15 0	50 0	μΑ
Maximum Receiver Input Current	4V			V <sub>cc</sub> OV		10	50 0	μA
Logic "1" Input Voltage Disable	05V	VIN	16 mA	Output < 0 4V	20			v
Logic "0" Input Voltage Disable	05V	VIN	-400 µA	Output > 2 4V			08	v
Logic "1" Output Voltage	05V	0.8V	-400 µ A		24			v
Logic "0" Output Voltage	4∨	087	16 mA			0 25	04	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	4∨	04V	<i>,</i>				-3 2	mA
Output Short Circuit Current	05V	0V	ov	V <sub>cc</sub> = V <sub>H</sub>	-18 0		-55 0	mA
Power Supply Current	4∨	0V		Per Package		45.0	60 0	mA
Input Clamp Diode	-12 mA	-12 mA		T <sub>A</sub> = 25°C		-10	-15	v
The following apply for $V_{CC}$ = 5V, $T_A$ = 25°C unless otherwise specified								
Propagation Delays Receiver Input to Logic "1" Output		ov		Note 3		20	30	ns
Receiver Input to Logic "0" Output		0V		Note 4		18	30	ns
Disable Input to Logic "1" Output	ov			Note 5		9	15	ns
Disable Input to Logic "0" Output	0V			Note 5		4	10	ns

 $\sim m$ 

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:  $V_L = 4.5V$ ,  $V_H = 5.5V$ ,  $T_L = -55^{\circ}$ C,  $T_H = +125^{\circ}$ C For DM8837:  $V_L = 4.5V$ ,  $V_H = 5.25V$ ,  $T_L = 0^{\circ}$ C,  $T_H = +70^{\circ}$ 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. 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.