National Semiconductor

DS7836/DS8836 Quad NOR Unified Bus Receiver

General Description

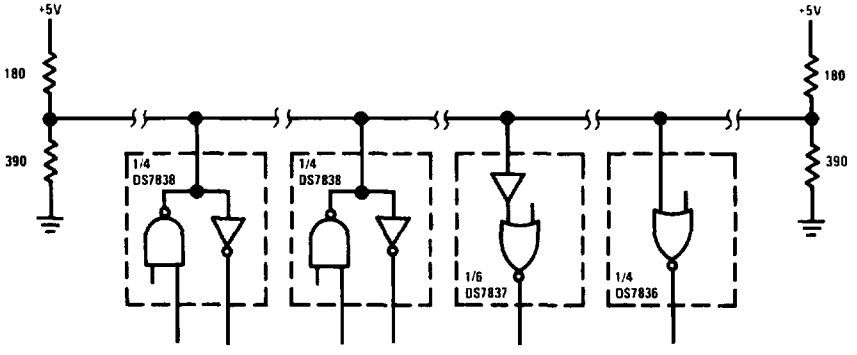
The DS7836/DS8836 are quad 2-input receivers designed for use in bus organized data transmission systems interconnected by terminated 120Ω impedance lines. The external termination is intended to be 180Ω resistor from the bus to the +5V logic supply together with a 390Ω resistor from the bus to ground. The 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. Performance is optimized for systems with bus rise and fall times ≤ 1.0 μs/V.

Features

- Low input current with normal V_{CC} or V_{CC} = 0V (15 μA typ)
- Built-in input hysteresis (1V typ)
- High noise immunity (2V typ)
- Temperature-insensitive input thresholds track bus logic levels
- TTL compatible output
- Matched, optimized noise immunity for "1" and "0" levels
- High speed (18 ns typ)

Typical Application

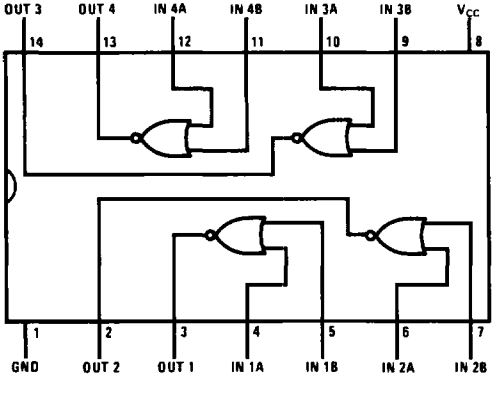
120Ω Unified Data Bus



TL/F/5810–1

Connection Diagram

Dual-In-Line Package



TL/F/5810–2

Top View

Order Number DS7836J or DS8836N
See NS Package Number J14A or N14A

Absolute Maximum Ratings

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Supply Voltage	7.0V
Current Voltage	5.5V
Storage Temperature Range	−65°C to +150°C
Maximum Power Dissipation* at 25°C	
Cavity Package	1308 mW
Molded Package	1207 mW
Lead Temperature (Soldering, 4 seconds)	260 °C

*Derate cavity package 8.7 mW/°C above 25°C; derate molded package 9.7 mW/°C above 25°C.

Operating Conditions

	Min	Max	Units
Supply Voltage (V_{CC})			
DS7836	4.5	5.5	V
DS8836	4.75	5.25	V
Temperature (T_A)			
DS7836	−55	+125	°C
DS8836	0	+70	°C

Electrical Characteristics

The following apply for $V_{MIN} \le V_{CC} \le V_{MAX}$, $T_{MIN} \le T_A \le T_{MAX}$, unless otherwise specified (Notes 2 and 3)

Symbol	Parameter	Conditions			Min	Typ	Max	Units
V_{TH}	High Level Input Threshold	V_{CC} = Max		DS7836	1.65	2.25	2.65	V
				DS8836	1.80	2.25	2.50	V
V_{IL}	Low Level Input Threshold	V_{CC} = Min		DS7836	0.97	1.30	1.63	V
				DS8836	1.05	1.30	1.55	V
I_{IN}	Maximum Input Current	V_{IN} = 4V	V_{CC} = Max			15	50	μA
			V_{CC} = 0V			1	50	μA
V_{OH}	Logical "1" Output Voltage	V_{IN} = 0.5V, I_{OUT} = −400 μA			2.4			V
V_{OL}	Logical "0" Output Voltage	V_{IN} = 4V, I_{OUT} = 16 mA				0.25	0.4	V
I_{SC}	Output Short Circuit Current	V_{IN} = 0.5V, V_{OUT} = 0V, V_{CC} = Max, (Note 4)			−18		−55	mA
I_{CC}	Power Supply Current	V_{IN} = 4V, (Per Package)				25	40	mA
V_{CL}	Input Clamp Diode Voltage	I_{IN} = −12 mA, T_A = 25°C				−1	−1.5	V

Switching Characteristics V_{CC} = 5V, T_A = 25°C unless otherwise specified

Symbol	Parameter	Conditions		Min	Typ	Max	Units
t_{pd}	Propagation Delays	(Notes 4 and 5)	Input to Logical "1" Output		20	30	ns
			Input to Logical "0" Output		18	30	ns

Note 1: "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. Except for "Operating Temperature Range" they are not meant to imply that the devices should be operated at these limits. The table of "Electrical Characteristics" provides conditions for actual device operation.

Note 2: Unless otherwise specified min/max limits apply across the −55°C to +125°C temperature range for the DS7836 and across the 0°C to +70°C range for the DS8836. All typical values are for T_A = 25°C and V_{CC} = 5V.

Note 3: All currents into device pins shown as positive, out of device pins as negative, all voltages referenced to ground unless otherwise noted. All values shown as max or min on absolute value basis.

Note 4: 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 5: 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.