National Semiconductor

DS96177/μA96177
Differential Bus Repeater

General Description

The DS96177/μA96177 Differential Bus Repeater is a monolithic integrated device is designed for one-way data communication on multipoint bus transmission lines. This device is designed for balanced transmission bus line applications and meets EIA Standard RS-485 and RS-422A. The device is designed to improve the performance of the data communication over long bus lines. The DS96177/μA96177 is an active high Enable.

The DS96177/μA96177 features positive and negative current limiting and TRI-STATE® outputs for the receiver and driver. The receiver features high input impedance, input hysteresis for increased noise immunity, and input sensitivity of 200 mV over a common mode input voltage range of −12V to +12V. The driver features thermal shutdown for protection from line fault conditions. Thermal shutdown is designed to occur at a junction temperature of approximately 160°C. The driver is designed to drive current loads up to 60 mA maximum.

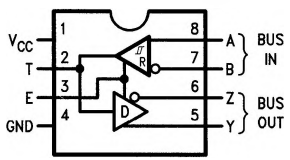
The DS96177/μA96177 is designed for optimum performance when used on transmission buses employing the DS96172/μA96172 and DS96174/μA96174 differential line drivers, DS96173/μA96173 and DS96175/μA96175 differential line receivers, or DS96176/μA96176 differential bus transceivers.

Features

- Meets EIA Standard RS-422A and RS-485
- Designed for multipoint transmission on long bus lines in noisy environments
- TRI-STATE outputs
- Bus voltage range −7.0V to +12V
- Positive and negative current limiting
- Driver output capability ±60 mA max
- Driver thermal shutdown protection
- Receiver input high impedance
- Receiver input sensitivity of ±200 mV
- Receiver input hysteresis of 50 mV typical
- Operates from single 5.0V supply
- Low power requirements

Connection Diagram

8-Lead Dual-In-Line Package



TL/F/9644–1

Top View

Order Number DS96177RC/μA96177RC
See NS Package Number J08A
Order Number DS96177TC/μA96177TC
See NS Package Number N08E

Function Table

Differential Inputs	Enable	Outputs		
A–B	E	T	Y	Z
$V_{ID} \geq 0.2V$	H	H	H	L
$V_{ID} \leq -0.2V$	H	L	L	H
X	L	Z	Z	Z

H = High Level
L = Low Level
X = Immaterial
Z = High Impedance (off)