



## DS16F95/DS36F95 RS-485/RS-422 Differential Bus Transceiver

### General Description

The DS16F95/DS36F95 Differential Bus Transceiver is a monolithic integrated circuit designed for bidirectional data communication on balanced multipoint bus transmission lines. The transceiver meets EIA Standard RS-485 as well as RS-422A.

The DS16F95/DS36F95 offers improved performance due to the use of state-of-the-art L-FAST bipolar technology. The L-FAST technology allows for higher speeds and lower currents by utilizing extremely short gate delay times. Thus, the DS16F95/DS36F95 features lower power, extended temperature range, and improved specifications.

The DS16F95/DS36F95 combines a TRI-STATE® differential line driver and a differential input line receiver, both of which operate from a single 5.0V power supply. The driver and receiver have an active Enable that can be externally connected to function as a direction control. The driver differential outputs and the receiver differential inputs are internally connected to form differential input/output (I/O) bus ports that are designed to offer minimum loading to the bus whenever the driver is disabled or when  $V_{CC} = 0V$ . These ports feature wide positive and negative common mode voltage ranges, making the device suitable for multipoint applications in noisy environments.

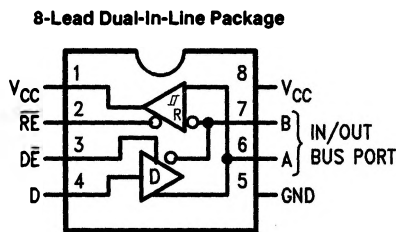
The driver is designed to handle loads up to 60 mA of sink or source current. The driver features positive and negative current-limiting and thermal shutdown for protection from line fault conditions.

The DS16F95/DS36F95 can be used in transmission line applications employing the DS96F172 and the DS96F174 quad differential line drivers and the DS96F173 and DS96F175 quad differential line receivers.

### Features

- Military temperature range
- Bidirectional transceiver
- Meets EIA Standard RS-422A and RS-485
- Meets SCSI specifications
- Designed for multipoint transmission
- TRI-STATE driver and receiver enables
- Individual driver and receiver enables
- Wide positive and negative input/output bus voltage ranges
- Driver output capability +60 mA maximum
- Thermal shutdown protection
- Driver positive and negative current-limiting
- High impedance receiver input
- Receiver input sensitivity of  $\pm 200$  mV
- Receiver input hysteresis of 50 mV typical
- Operates from single 5.0V supply
- Low power version
- Pin compatible with DS3695 and SN75176A

### Connection Diagram



Top View

Order Number DS16F95J, DS36F95J  
See NS Package Number J08A

TL/F/9629-1

### Function Tables

Driver

Differential Inputs	Enable	Outputs	
D	DE	A	B
H	H	H	L
L	H	L	H
X	L	Z	Z

Receiver

Differential Inputs	Enable	Output
A-B	RE	R
$V_{ID} \geq 0.2V$	L	H
$V_{ID} \leq -0.2V$	L	L
X	H	Z

H = High Level  
L = Low Level  
X = Immaterial  
Z = High impedance (Off)