National Semiconductor

DS96F172/DS96F174
RS-485/RS-422 Quad Differential Drivers

General Description

The DS96F172 and the DS96F174 are high speed quad differential line drivers designed to meet EIA Standard RS-485. The DS96F172 and the DS96F174 offer improved performance due to the use of new, 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 DS96F172 and the DS96F174 feature lower power, extended temperature range, improved RS-485 specifications, and meet SCSI specifications.

The DS96F172 and the DS96F174 have TRI-STATE® outputs and are optimized for balanced multipoint data bus transmission at rates up to 15 Mbps. The drivers have wide positive and negative common mode range for multipoint applications in noisy environments. Positive and negative current-limiting is provided which protects the drivers from line fault conditions over a +12V to −7.0V common mode range. A thermal shutdown feature is also provided. The DS96F172 features an active high and active low Enable, common to all four drivers. The DS96F174 features separate active high Enables for each driver pair.

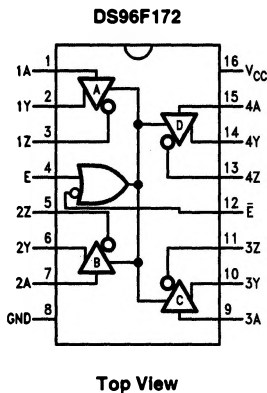Compatible RS-485 receivers, transceivers, and repeaters are also offered to provide optimum bus performance. The respective device types are DS96F173, DS96F175 and DS36F95.

Features

- Military temperature range available
- Meets EIA Standard RS-485 and RS-422A
- Meets SCSI specifications
- Monotonic differential output switching
- Transmission rate to 10 Mbps
- TRI-STATE outputs
- Designed for multipoint bus transmission
- Common mode output voltage range: −7.0V to +12V
- Operates from single +5.0V supply
- Lower power version
- Thermal shutdown protection
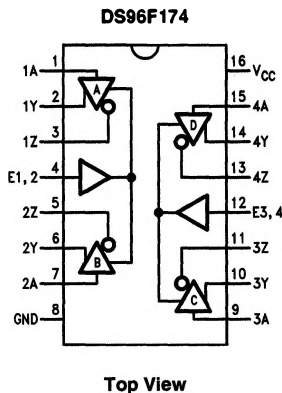- DS96F172 and DS96F174 are lead and function compatible with the SN75172/174 or the AM26LS31/MC3487

Connection Diagrams

Dual-In-Line Package

DS96F172

TL/F/9625–1

Top View

DS96F174

TL/F/9625–2

Top View

Order Number DS96F172CJ, DS96F172MJ, DS96F174CJ or DS96F174MJ
See NS Package Number J16A