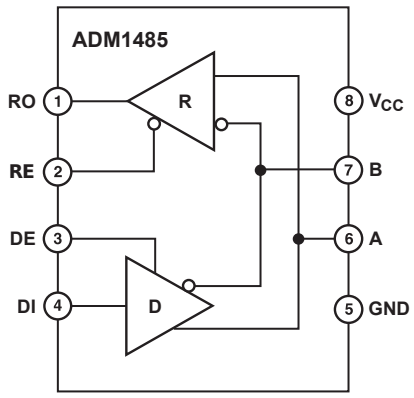
5 V Low Power EIA RS-485 Transceiver

ADM1485

FEATURES
Meets EIA RS-485 Standard
30 Mbps Data Rate
Single 5 V Supply
–7 V to +12 V Bus Common-Mode Range
High Speed, Low Power BiCMOS
Thermal Shutdown Protection
Short-Circuit Protection
Driver Propagation Delay: 10 ns
Receiver Propagation Delay: 15 ns
High-Z Outputs with Power Off
Superior Upgrade for LTC1485

APPLICATIONS
Low Power RS-485 Systems
DTE-DCE Interface
Packet Switching
Local Area Networks
Data Concentration
Data Multiplexers
Integrated Services Digital Network (ISDN)

FUNCTIONAL BLOCK DIAGRAM
8-Lead



GENERAL DESCRIPTION

The ADM1485 is a differential line transceiver suitable for high speed bidirectional data communication on multipoint bus transmission lines. It is designed for balanced data transmission and complies with both RS-485 and RS-422 EIA Standards. The part contains a differential line driver and a differential line receiver. Both the driver and the receiver may be enabled independently. When disabled, the outputs are three-stated.

The ADM1485 operates from a single 5 V power supply. Excessive power dissipation caused by bus contention or by output shorting is prevented by a thermal shutdown circuit. This feature forces the driver output into a high impedance state if, during fault conditions, a significant temperature increase is detected in the internal driver circuitry.

Up to 32 transceivers may be connected simultaneously on a bus, but only one driver should be enabled at any time. It is important, therefore, that the remaining disabled drivers do not load the bus. To ensure this, the ADM1485 driver features high output impedance when disabled and also when powered down. This minimizes the loading effect when the transceiver is not being used. The high impedance driver output is maintained over the entire common-mode voltage range from –7 V to +12 V.

The receiver contains a fail-safe feature that results in a logic high output state if the inputs are unconnected (floating).

The ADM1485 is fabricated on BiCMOS, an advanced mixed technology process combining low power CMOS with fast switching bipolar technology. All inputs and outputs contain protection against ESD; all driver outputs feature high source and sink current capability. An epitaxial layer is used to guard against latch-up.

The ADM1485 features extremely fast switching speeds. Minimal driver propagation delays permit transmission at typical data rates of 30 Mbps while low skew minimizes EMI interference.

The part is fully specified over the commercial and industrial temperature range and is available in PDIP, SOIC, and small MSOP packages.