



# DS3695/DS3695T/DS3696/DS3696T/DS3697/DS3698 Multipoint RS485/RS422 Transceivers/Repeaters

## General Description

The DS3695, DS3696, DS3697 and DS3698 are high speed differential TRI-STATE® bus/line transceivers/repeaters designed to meet the requirements of EIA standard RS485 with extended common mode range (+12V to -7V), for multipoint data transmission. In addition they meet the requirements of RS422.

The driver and receiver outputs feature TRI-STATE capability. The driver outputs remain in TRI-STATE over the entire common mode range of +12V to -7V. Bus faults that cause excessive power dissipation within the device trigger a thermal shutdown circuit, which forces the driver outputs into the high impedance state. The DS3696 and DS3698 provide an output pin which reports the occurrence of a line fault causing thermal shutdown of the device. This is an "open collector" pin with an internal 10 kΩ pull-up resistor. This allows the line fault outputs of several devices to be wire OR-ed.

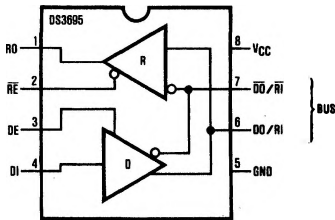
The receiver incorporates a fail safe feature which guarantees a high output state when the inputs are left open.

Both AC and DC specifications are guaranteed over the 0 to 70°C temperature and 4.75V to 5.25V supply voltage range.

## Features

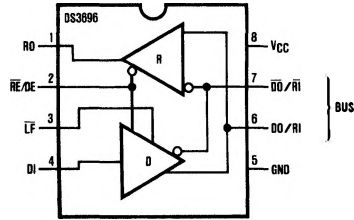
- Meets EIA standard RS485 for multipoint bus transmission and RS422
- 15 ns driver propagation delays with 2 ns skew (typical)
- Single +5V supply
- -7V to +12V bus common mode range permits ±7V ground difference between devices on the bus
- Thermal shutdown protection
- Power-up/down glitch-free driver outputs permit live insertion or removal of transceivers
- High impedance to bus with driver in TRI-STATE or with power off, over the entire common mode range allows the unused devices on the bus to be powered down
- Combined impedance of a driver output and receiver input is less than one RS485 unit load, allowing up to 32 transceivers on the bus
- 70 mV typical receiver hysteresis

## Connection and Logic Diagrams



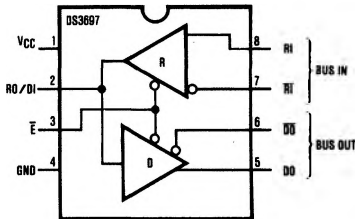
Top View

TL/F/5272-1



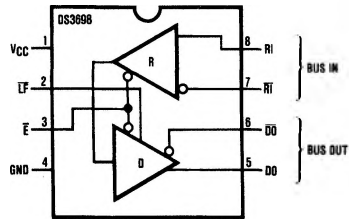
Top View

TL/F/5272-2



Top View

TL/F/5272-3



Top View

TL/F/5272-4

### Molded Dual-In-Line Package (N)

Order Number DS3695J, DS3696J, DS3697J, DS3698J, DS3695M, DS3696M, DS3695N, DS3696N, DS3697N, DS3698N, DS3695TN, DS3696TN, DS3695TJ or DS3696TJ

See NS Package Number J08A, M08A or N08E