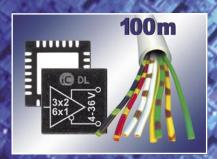
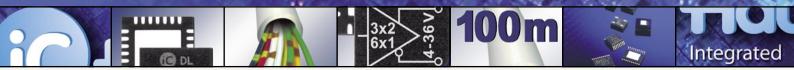
iC-DL 3-CHANNEL DIFFERENTIAL LINE DRIVER





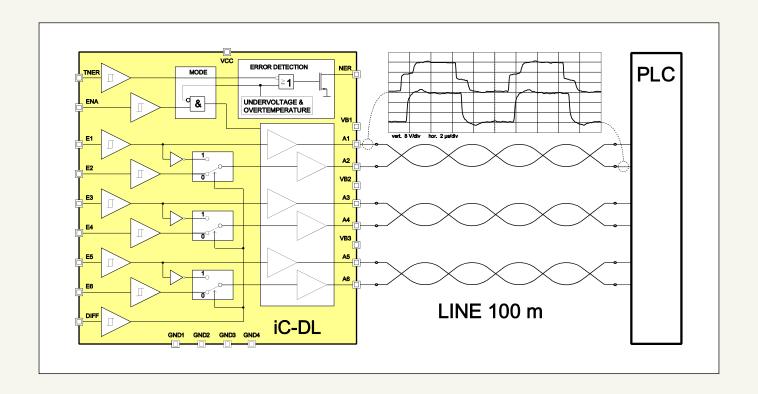
iC-DL is a fast line driver with six independent channels and impedance adaptation for 75 Ω lines. Channels can be paired for differential 3-channel operation. The push-pull output stages have been designed to cope with a high driver power of typically 300 mA from 24 V; they are current-limited and short-circuit-proof, shutting down with excessive temperature.

Applications

- 24 V control engineering
- Line driver in a PLC environment
- Linear and rotary encoders
- MR sensor systems

Features

- -6 current-limited push-pull drivers
- Differential 3-channel operation
- Power supply range from 4 to 36 V
- Integrated 75 Ω line adaptation
- Low output saturation voltage
- Compatible with TIA/EIA standard RS-422
- Tristate switching enables use in buses
- Short switching times and high slew rates
- Schmitt trigger inputs compatible with TTL and CMOS levels, voltage-proof up to 36 V
- Thermal shutdown with hysteresis
- open-collector error output with thermal shutdown or undervoltage







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All inputs are CMOS- and TTL-compatible and protected against ESD. A high signal at input DIFF switches the three pairs of channels to differential mode, deactivating inputs E2, E4 and E6.

For bus applications the output stages can be switched to high impedance using the ENA input.

iC-DL monitors both supply voltages VB and VCC and the chip temperature, switching all output stages to high impedance in the event of error. Open collector output NER reports the above errors on the connected line. The error input TNER can be linked to the message outputs of other ICs to report a system error message.

Pin Functions

| No. Name Pin Function 1 E1 Input Channel 1 2 E2 Input Channel 2 3 E3 Input Channel 3 4 n.c. Input Channel 4 6 E5 Input Channel 5 7 E6 Input Channel 6 8 VCC +4 to +5.5 V 9 n.c. 10 TNER Error Input | |
|---|-----------|
| 2 E2 Input Channel 2 3 E3 Input Channel 3 4 n.c. 5 E4 Input Channel 4 6 E5 Input Channel 5 7 E6 Input Channel 6 8 VCC +4 to +5.5 V 9 n.c. | |
| 3 E3 Input Channel 3 4 n.c. 5 E4 Input Channel 4 6 E5 Input Channel 5 7 E6 Input Channel 6 8 VCC +4 to +5.5 V 9 n.c. | |
| 4 n.c. 5 E4 Input Channel 4 6 E5 Input Channel 5 7 E6 Input Channel 6 8 VCC +4 to +5.5 V 9 n.c. | |
| 5 E4 Input Channel 4 6 E5 Input Channel 5 7 E6 Input Channel 6 8 VCC +4 to +5.5 V 9 n.c. | |
| 6 E5 Input Channel 5 7 E6 Input Channel 6 8 VCC +4 to +5.5 V 9 n.c. | |
| 7 E6 Input Channel 6 8 VCC +4 to +5.5 V 9 n.c. | |
| 8 VCC +4 to +5.5 V 9 n.c. | |
| 9 n.c. | |
| | |
| 10 TNFR Frror Input | |
| 10 INCH | |
| 11 NER Error Output | |
| 12 A6 Output Channel 6 | |
| 13 GND4 Ground | |
| 14 VB3 +4 to +36 V Power Su | pply |
| 15 A5 Output Channel 5 | |
| 16 GND3 Ground | |
| 17 A4 Output Channel 4 | |
| 18 VB2 +4 to +36 V Power Su | pply |
| 19 A3 Output Channel 3 | |
| 20 GND2 Ground | |
| 21 A2 Output Channel 2 | |
| 22 VB1 +4 to +36 V Power Su | pply |
| 23 GND1 Ground | |
| 24 A1 Output Channel 1 | |
| 25 n.c. | |
| 26 ENA Enable Input | |
| 27 n.c. | |
| 28 DIFF Differential Mode Sel | ect Input |

Key Specifications

| General | |
|-------------------------------|-------------------------|
| Driver Supply Voltage | +4 to +36 V |
| Input Supply Voltage | +4 to +5.5 V |
| Output Current | +/-800 mApk, +/-30 mAdc |
| Output Short-Circuit Duration | Indefinite |
| Operational Temperature Range | -40 °C to +125 °C |

| Driver Outputs A16 | |
|-----------------------------|---|
| Saturation Voltage high/low | max. 0.2 V @ IL = 10 mA max. 0.4 V @ IL = 30 mA typ. 0.5 V @ IL = 50 mA |
| Short Circuit Current | max. 800 mA |
| Output Impedance | typ. 75 Ohm @ 24 V |
| Slew Rate high | typ. 200 V/µs @ 100 pF |
| Slew Rate low | typ. 200 V/µs @ 100 pF |
| Propagation Delay | max. 400 ns |
| Delay Skew | max. 100 ns |

| Error Output | | |
|----------------------------------|-------------------|--|
| Undervoltage Detection Threshold | min. 3 V @ VB/VCC | |
| Thermal Shutdown Threshold | min. 145 °C | |
| Saturation Voltage low | 0.4 V @ 5 mA | |
| Short-Circuit Current | max. 20 mA | |

Pin Configuration QFN28 5 x 5 mm²

