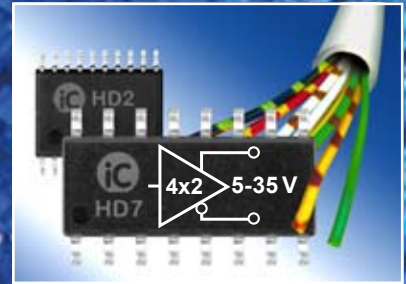


iC-HD2 / iC-HD7

QUAD DIFFERENTIAL LINE DRIVER



iC-HD2 / iC-HD7 are robust line drivers for industrial 5 V and 24 V applications with four complementary output channels. The iC-HD7 comes in a S016N package and is pin-compatible to xx7272 devices, whereas the iC-HD2 is housed in a TSSOP20 package to replace xx2068 devices.

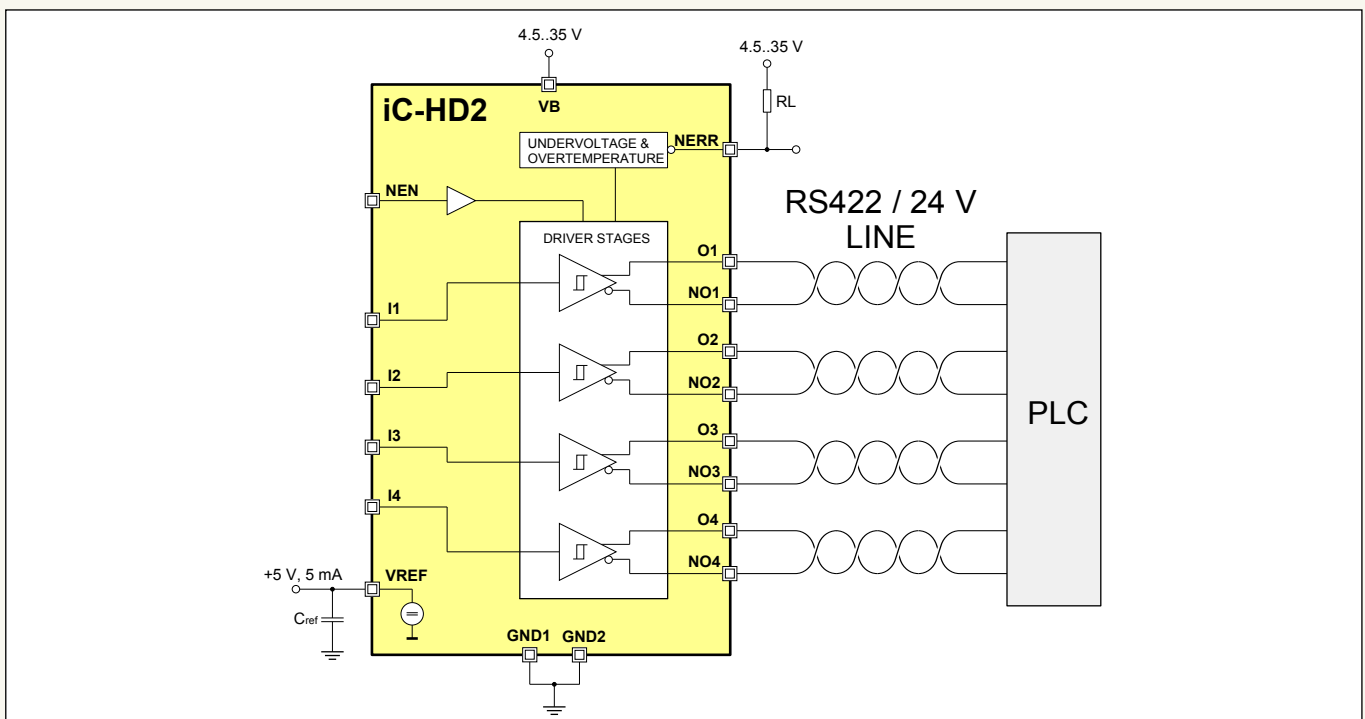
At a supply of 24 V the push-pull driver stages typically provide 200 mA to discharge the line and also have a low-side saturation voltage (typically 200 mV at 40 mA load). The outputs are current limited and short-circuit-proof, shutting down at excessive temperature.

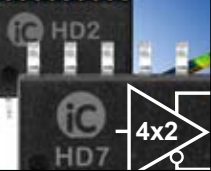
Applications

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

Features

- Complementary short-circuit-proof push-pull driver stages for RS422 and 24 V applications of up to 2 MHz
- Integrated line adaptation for high signal quality at 24 V
- Controlled slew rate reduces EMI
- High driving capability of typically 200 mA at 24 V
- Output low-side saturation of just 0.2 V at 40 mAdc
- Excessive temperature protection by tristate function
- Error messaging with excessive temperature and undervoltage (iC-HD2 only)
- TTL-/CMOS-compatible Schmitt trigger inputs, voltage proof up to 40 V
- Tristate function for bus applications
- Integrated 5 V voltage regulator for 5 mA (iC-HD2 only)
- 4.5 V to 35 V single supply operation with low static power dissipation
- Operating temperature range from -25 to 125 °C (-40 °C is optional)





iC-HD2 / iC-HD7

QUAD DIFFERENTIAL LINE DRIVER

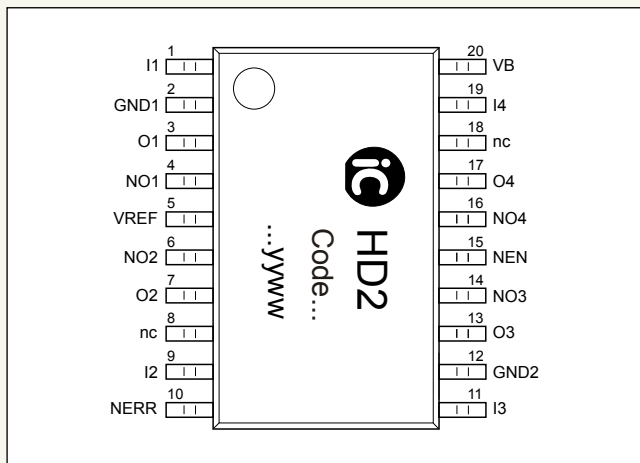
For signal lines with a characteristic impedance of 30 Ω to 140 Ω the integrated line adapter, optimized to 75 Ω, minimizes ringing effects which arise when there is no line termination.

For bus applications the driver stages can be switched to high impedance by a high at input NEN.

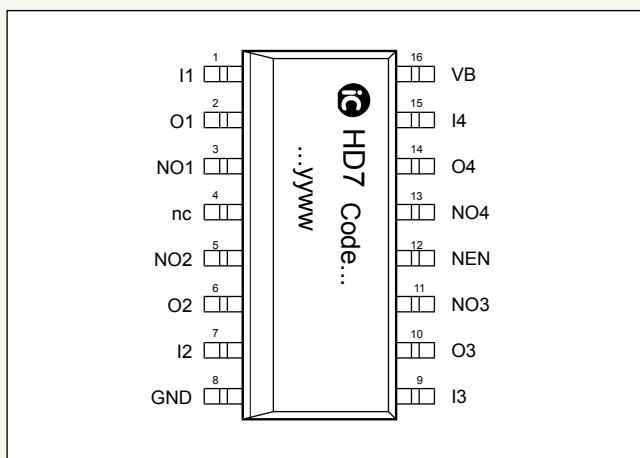
The driver stage inputs are voltage proof (up to 40 V) and have a Schmitt trigger characteristic compatible with CMOS and TTL levels.

Additionally, the iC-HD2 provides a 5 Volt output at pin VREF which can supply up to 5 mA. Also, a separate pin NERR is activated in case of excessive temperature or undervoltage. For test purposes temperature monitoring can be deactivated by applying a voltage of greater than 12 V to input NEN.

Pin Configuration TSSOP20



Pin Configuration S016N



Key Specifications

| General | |
|-------------------------------|--------------------|
| Supply Voltage | 4.5 V to 35 V |
| Supply Current | typ. 3.8 mA |
| Output Short-Circuit Duration | Indefinite |
| Operational Temperature Range | -25 °C to + 125 °C |

| Driver Outputs | |
|--|-------------------------|
| Saturation Voltage low (@ 40 mA) | typ. 0.2 V, 0.6 V max. |
| Saturation Voltage high (@ 40 mA) | typ. 0.3 V, 0.7 V max. |
| Short Circuit Current high/low (VB = 30 V) | 500 mA |
| Output Impedance @ VB = 24 V | typ. 75 Ω |
| Slew Rate low/high CL = 100 pF | 400 V/μs |
| Propagation Delay | typ. 75 ns, 200 ns max. |

| Error Detection | |
|----------------------------------|-------------|
| Undervoltage Detection Threshold | typ. 3.5 V |
| Excessive Temperature Shutdown | typ. 150 °C |

| VREF and NERR Output (iC-HD2 only) | |
|---|------------------------|
| NERR Output Saturation Voltage low (@ 1.5 mA) | typ. 0.3 V, 0.6 V max. |
| NERR Short-Circuit Current low | typ. 6 mA, 12 mA max. |
| VREF Short-Circuit Current low | typ. 16 mA, 40 mA max. |

Pin Functions

| iC-HD2 No. | iC-HD7 No. | Name | Function |
|------------|------------|------------|--------------------------------------|
| 1 | 1 | I1 | Input 1 |
| 2 | - | GND1 | Ground |
| 3 | 2 | O1 | Driver Output 1 |
| 4 | 3 | NO1 | Inverted Driver Output 1 |
| 5 | - | VREF | Voltage Regulator Output +5 V (5 mA) |
| 6 | 5 | NO2 | Inverted Driver Output 2 |
| 7 | 6 | O2 | Driver Output 2 |
| 8 | 4 | n.c. | - |
| 9 | 7 | I2 | Input 2 |
| 10 | - | NERR | Error Message Output (low active) |
| 11 | 9 | I3 | Input 3 |
| 12 | 8 | GND2 / GND | Ground |
| 13 | 10 | O3 | Driver Output 3 |
| 14 | 11 | NO3 | Inverted Driver Output 3 |
| 15 | 12 | NEN | Inverted Enable Input |
| 16 | 13 | NO4 | Inverted Driver Output 4 |
| 17 | 14 | O4 | Driver Output 4 |
| 18 | - | n.c. | - |
| 19 | 15 | I4 | Input 4 |
| 20 | 16 | VB | +4.5 V to +35 V Supply Voltage |

This tentative information shall not be considered as a guarantee of characteristics. Rights to technical changes reserved.