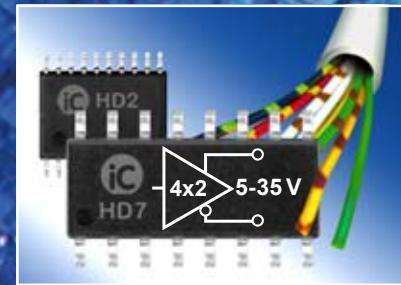


iC-HD2 / iC-HD7

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 SO16N package and is pin-compatible to xx7272 devices, whereas the iC-HD2 is housed in a TSSOP20 package to replace xx2068 devices.

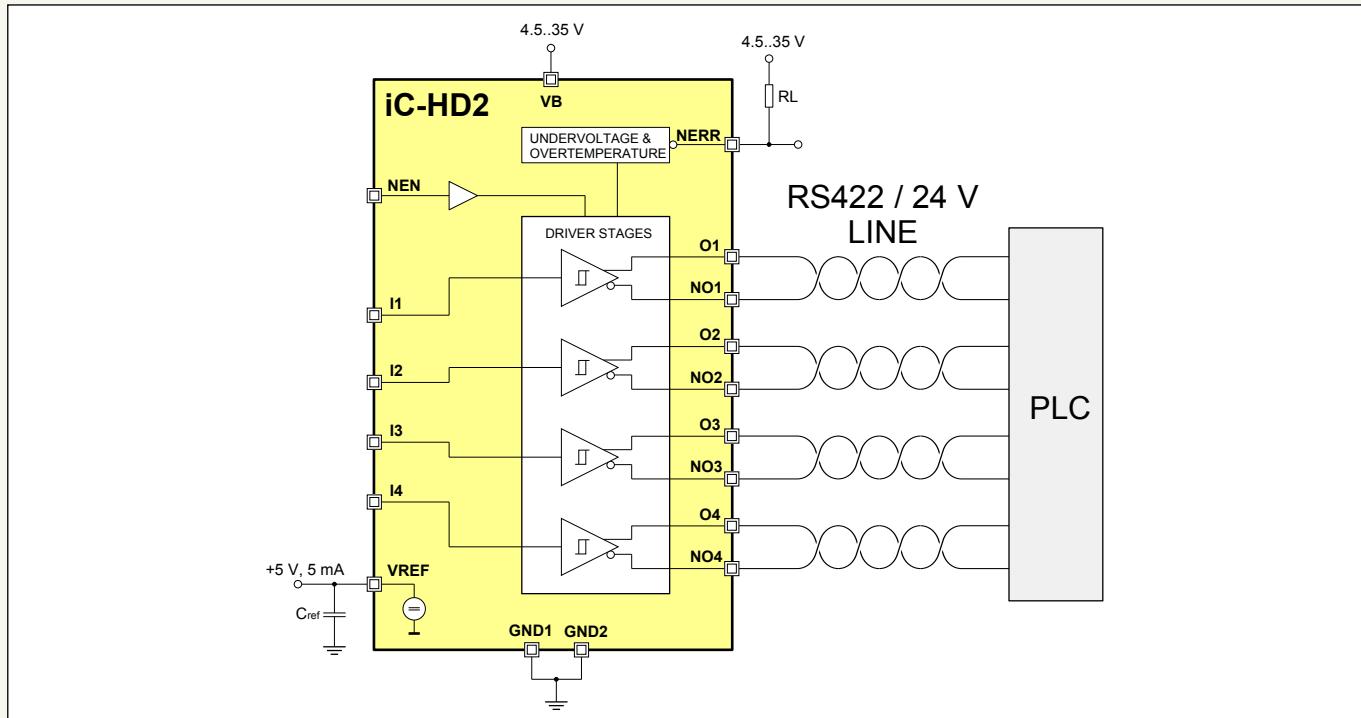
At a supply of 24 V the push-pull driver stages typically provide 200 mA to discharge the line and also have a low-side saturation voltage (typically 200 mV at 40 mA load). The outputs are current limited and short-circuit-proof, shutting down at excessive temperature.

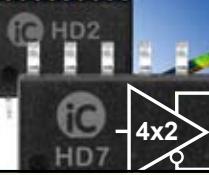
Applications

- 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 mA
- 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

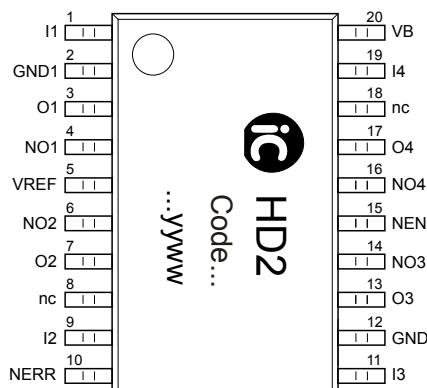
For signal lines with a characteristic impedance of $30\ \Omega$ to $140\ \Omega$ the integrated line adapter, optimized to $75\ \Omega$, minimizes ringing effects which arise when there is no line termination.

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

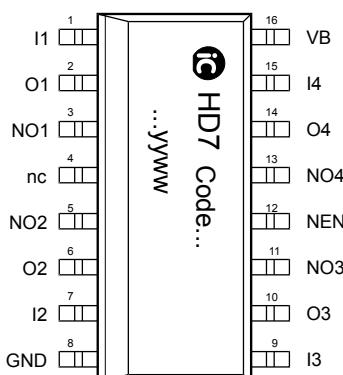
The driver stage inputs are voltage proof (up to 40 V) and have a Schmitt trigger characteristic compatible with CMOS and TTL levels.

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 SO16N



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