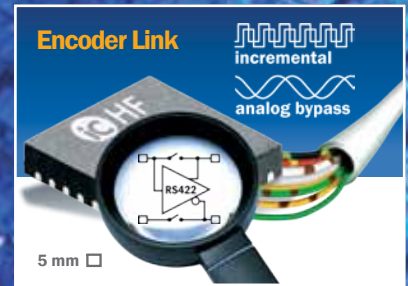


iC-HF

6-CHANNEL RS422 ENCODER LINK, LINE DRIVER / RECEIVER



iC-HF is a robust line driver/receiver for industrial control applications using RS422 transmission. 6 TTL-compatible hysteresis inputs control 12 differential outputs, consisting of current-limited, short-circuit-proof push-pull drivers allowing high speed at low EMI. Operation at 3 V to 5 V is supported including reverse polarity protection of the IC and its peripheral circuitry.

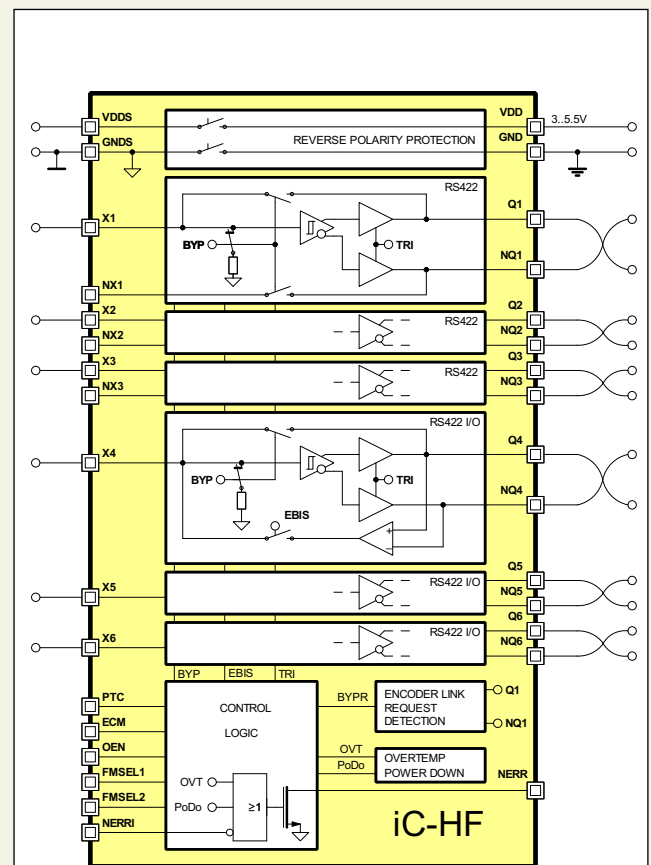
The IC's unique features are analog switches bypassing the driver stages, and thus connecting outside lines to a device's internal components, for instance if calibration and programming is required. This Encoder Link function, if enabled by pin, is triggered by a fail-safe short-circuit scheme easily introduced to outputs Q1 and NQ1.

Features

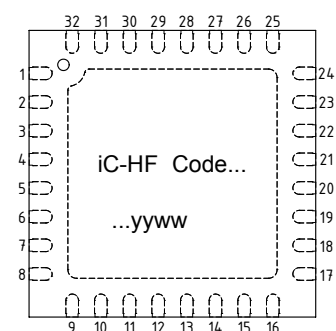
- Versatile 3+3 channel RS422 line driver/receiver
- Pin-configured as driver (6x) or driver/receiver (3x/3x or 4x/2x)
- Supports BiSS bus structure and BiSS bus loopback
- Unique Encoder Link mode: analog switches to bridge 9 lines
- Differential short-circuit-proof push-pull outputs
- Source/sink driving capability of 20/30 mA typ. at 3 V
- Reduced EMI due to output current limitation
- Output shutdown with undervoltage and overtemperature
- Suits various line impedances, allows 100 Ω termination
- TTL-compatible hysteresis inputs
- Up to 10 MHz input/output frequency
- Open-drain error message output (NERR)
- Reverse-polarity-proof operation from 3.0 V to 5.5 V
- Reverse-polarity protection by supply-switch (60 mA)
- Operating temperature range of -40 °C to +125 °C
- Space-saving 32-pin QFN package of 5 mm x 5 mm

Applications

- Differential cable driver
- Motion control encoders
- Control engineering
- Microcontroller periphery
- BiSS Interface bus structures



32-pin QFN package
5 mm x 5 mm





iC-HF 6-CHANNEL RS422 ENCODER LINK

Key Specifications

General	
Supply Voltage	single 3 V to 5.5 V
Operating Temperature Range	-40 °C to +125 °C
Switch Load VDDS, GNDS	max. 60 mA

Operating Modes	
A/B/Z & U/V/W	6 Ch. RS422 Driver + NERR
A/B/Z & BiSS	3 Ch. RS422 Driver + BiSS + NERR
BiSS Bus Structure/Loopback	BiSS bus structure transceiver

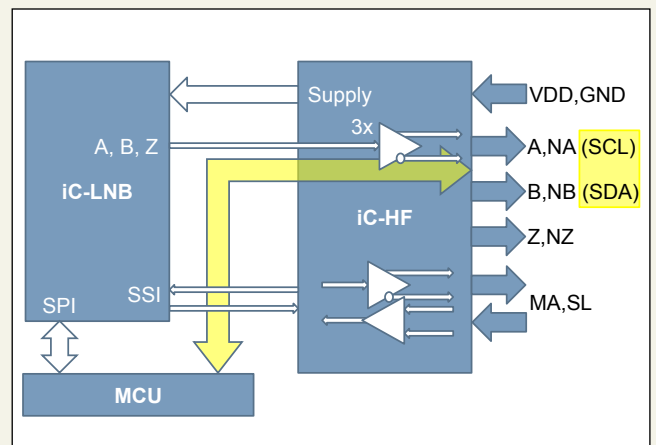
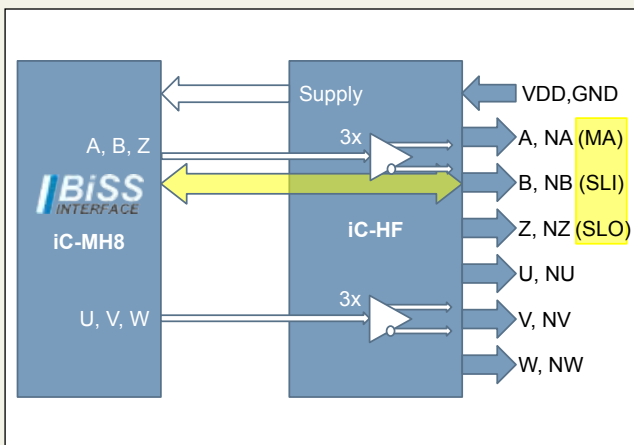
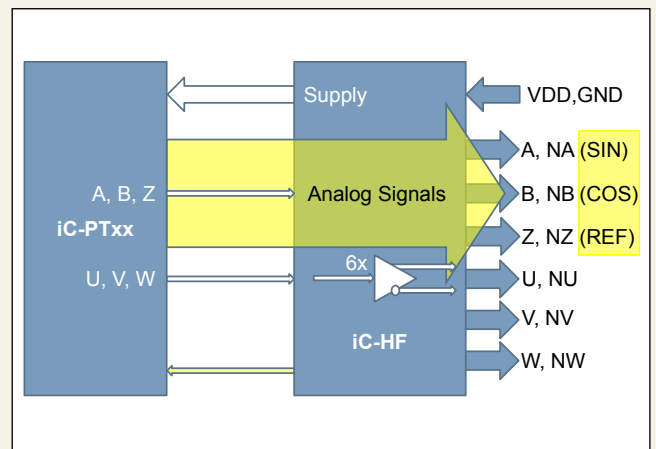
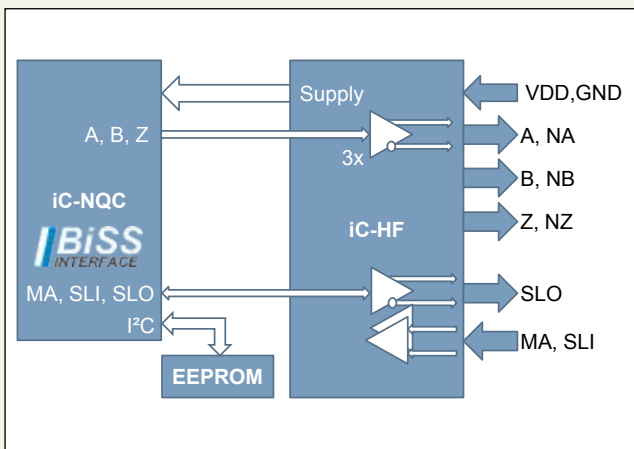
Driver Outputs	
Max. Output Frequency	>10 MHz (100 Ω load)
Diff. RS422 Output	+30 mA sink, -20 mA source
Sat. Voltage lo/hi	0.8 V max., @ -20 / 30 mA
Short-Circuit Current	lo: +65 mA, hi: -45 mA

Analog Input/Output Channel In Encoder Link State	
Ron ON at X1...X6, NX1...NX3	maximum 400 Ω
Maximum Direct Current	1 mA per channel

Pin Functions

No.	Name	Function
1, 2, 3, 6, 8	X5...X1	Channel 5...1 Positive Input
4, 7, 9	NX3...NX1	Channel 3...1 Negative Input
5	OEN	Output Enable Input
10, 12, 14	Q1...Q3	Channel 1...3 Positive Output
11, 13, 15	NQ1...NQ3	Channel 1...3 Negative Output
16	NERRI	Error Input (low active)
17	ECM	Enable Encoder Link State Input
18	VDD	Power Supply Voltage
19	VDDS	Switched Power Supply Output
20	GND	Ground
21	GNDS	Switched Ground Output
22, 23	FMSEL2/1	Function Mode Select 2/1 Input
24	PTC	PT Configuration Output
25	NERR	Error Output (low active)
26, 28, 30	NQ6...NQ4	Channel 6...4 Negative Output
27, 29, 31	Q6...Q4	Channel 6...4 Positive Output
32	X6	Channel 6 Positive Input
TP		Thermal Pad (GNDS)

Application Examples



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