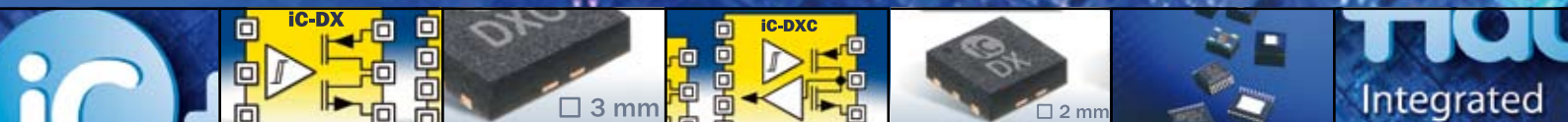
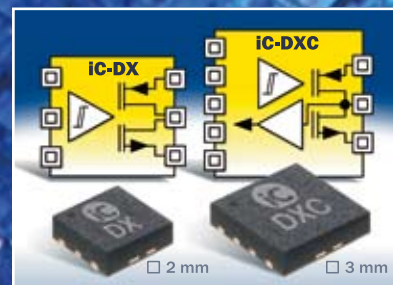


iC-DX / iC-DXC

Digital Sensor Output Drivers



The iC-DX / iC-DXC are monolithic switches for ohmic, inductive and capacitive loads. The supply voltage V_B of the devices can range from 8 to 30 V and has integrated reverse polarity protection.

The operational output source/sink-current is up to 150 mA for the iC-DX and up to 200 mA for the iC-DXC with maximum saturation voltages of 2 V. Their short circuit currents are limited to 450 mA. With input OE on high level state, the output works as a push-pull driver controlled by input IN. If IN is set either to high or low level, the output acts as a high-side (PNP) or low-side (NPN) driver which is activated by a high logic level on input OE. Output transitions are slew-rate limited to minimize interference (on lines). The devices are short circuit protected by shutting down with excessive temperature. A regulated 5 V power supply is available at pin VOUT to supply external circuitry with up to 10 mA.

The iC-DXC additional features a feedback path of the state of output pin OUT. Forcing OUT externally from its current state is signalled at pin MON. This can be used to implement an IO-Link Wake-Up detection.



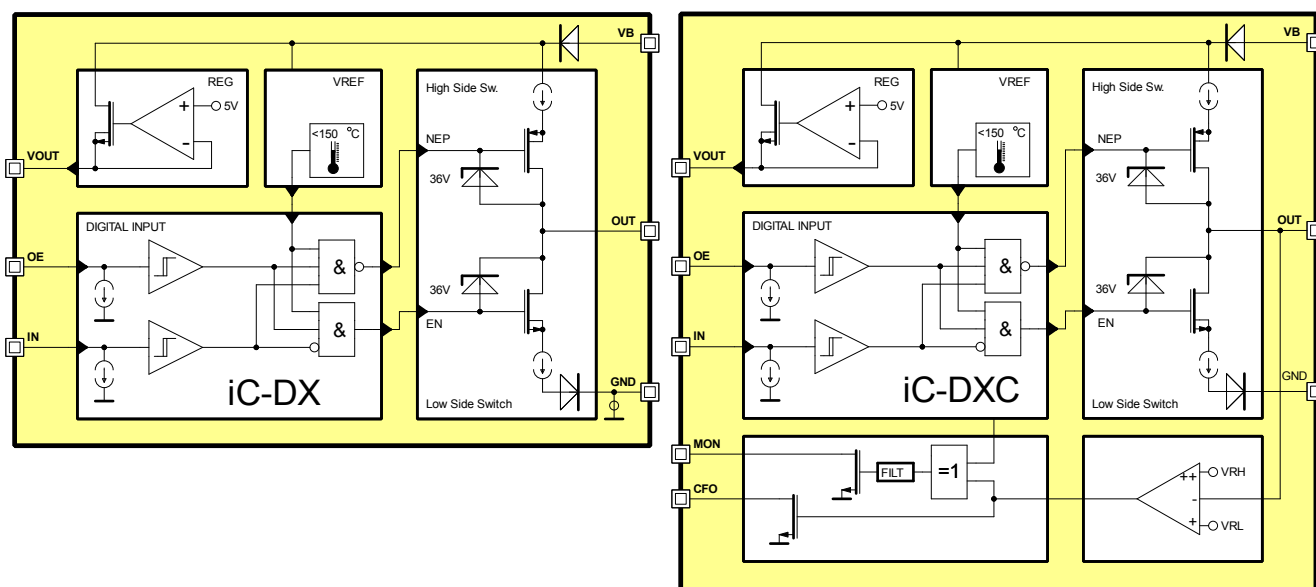
Features

- Configurable high-side, low-side and push-pull operation
- 150 mA (iC-DX) and 200 mA (iC-DXC) output current
- IO-Link compliant (iC-DXC)
- Reverse polarity protection
- 5 μ s input filter for spike suppression
- Current limited output (< 450 mA)
- Wide supply voltage range from 8 to 30 V
- Driver shutdown with overtemperature
- Integrated free-wheeling diode for inductive loads
- Sensor supply voltage output of 5 V (10 mA)



Applications

- Digital sensors
- Light barriers
- Proximity switches





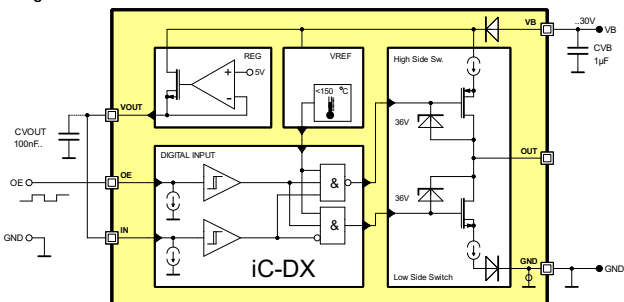
iC-DX / iC-DXC

Digital Sensor Output Drivers

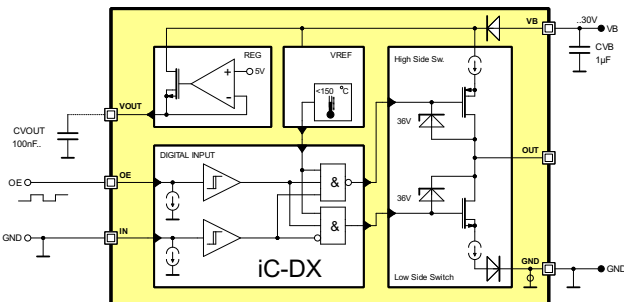
□ 2 mm

Applications Examples

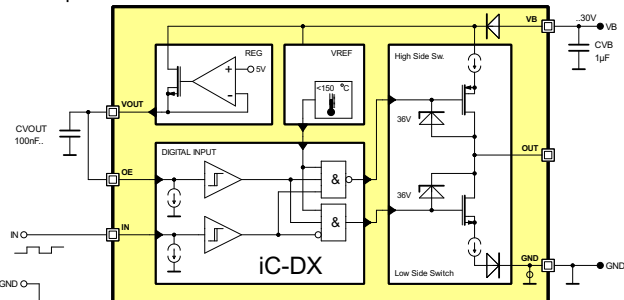
Highside switch



Lowside switch



Push-pull



Key Specifications

General	iC-DX	iC-DXC
Supply Voltage	8 to 30 V	
Supply Current (max.)	1.5 mA	1.6 mA
Output Short-Circuit Duration	Indefinite	
Operating Temperature Range	-40 °C to +150 °C	

Driver Output OUT	iC-DX	iC-DXC
Saturation Voltage low/high (@ 100 mA)	1.5 V max.	-
Saturation Voltage low/high (@ 150 mA)	2.0 V max.	1.5 V max.
Saturation Voltage low/high (@ 200 mA)	-	2.0 V max.
Short-Circuit Current low/high	450 mA max.	
Slew Rate VB = 30 V, CL = 2.2 nF	40 V/μs max.	

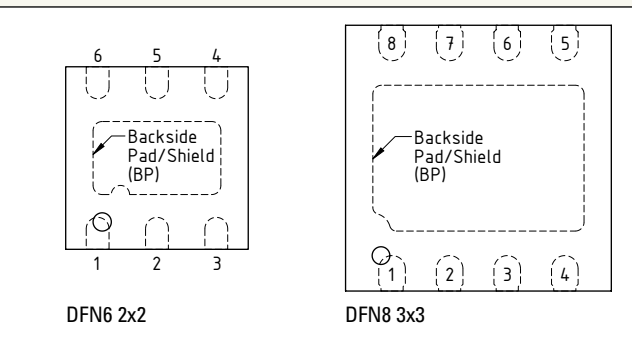
Thermal Shutdown	iC-DX	iC-DXC
Power-On Threshold	8 V max.	
Thermal Shutdown Temperature	150 °C min., 180 °C max.	

Regulator Output VOUT	iC-DX	iC-DXC
Output Voltage, VB = 9..30 V, I(VOUT) = 0..10 mA	4.7 V min., 5.3 V max.	
Short-Circuit Current, VOUT to GND	125 mA max.	

Inputs OE, IN	iC-DX	iC-DXC
Propagation Delay, IN to OUT, OE to OUT	5.2 μs max.	6.5 μs max.
Required Pulse Width at IN, OE for switching	4 μs min.	
Spurious Pulse Width at IN, OE for non-switching	1.6 μs max.	

Feedback Channel	iC-DXC	
Propagation Delay OUT to CF0	1 μs min., 5 μs max.	
Propagation Delay OUT to MON, short circuit detection	5.5 μs min., 14 μs max.	
Input Threshold high at OUT (VB > 18 V)	10 V min., 12.5 V max.	
Input Threshold low at OUT, (VB > 18 V)	8.3 V min., 10.5 V max.	

Pin Configuration



Pin Functions

iC-DX	iC-DXC	Name	Function
1	1	VOUT	Regulated +5 V Voltage
-	2	MON	Monitor Output
2	3	GND	Ground
3	4	IN	Input
4	5	OE	Output Enable
-	6	CF0	Feedback Channel Output
5	7	OUT	Driver Output
6	8	VB	+8 V to +30 V Supply Voltage

This preliminary information is not tantamount to a guarantee of device characteristics. All rights to technical changes reserved.