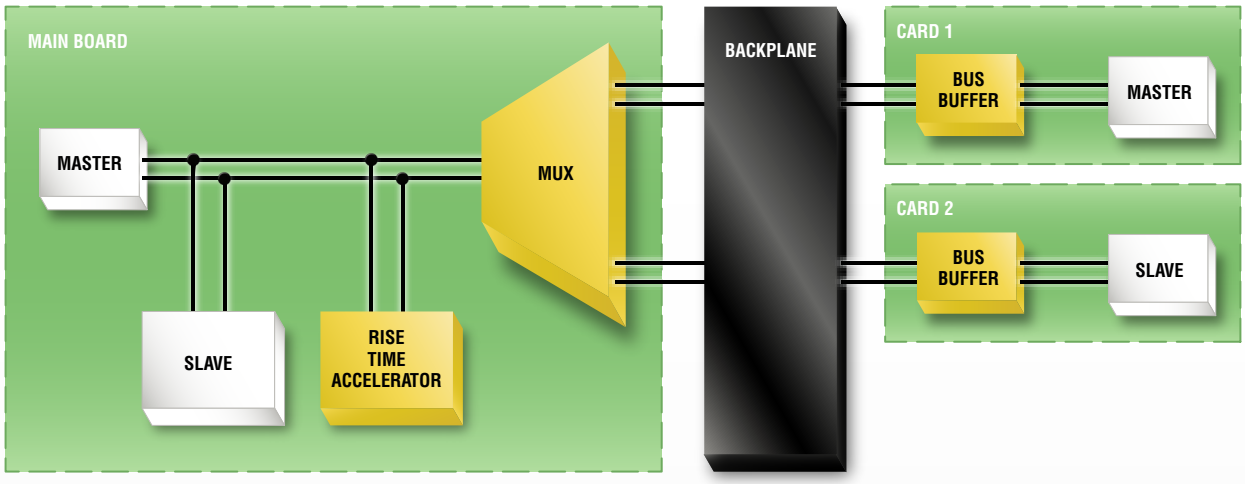
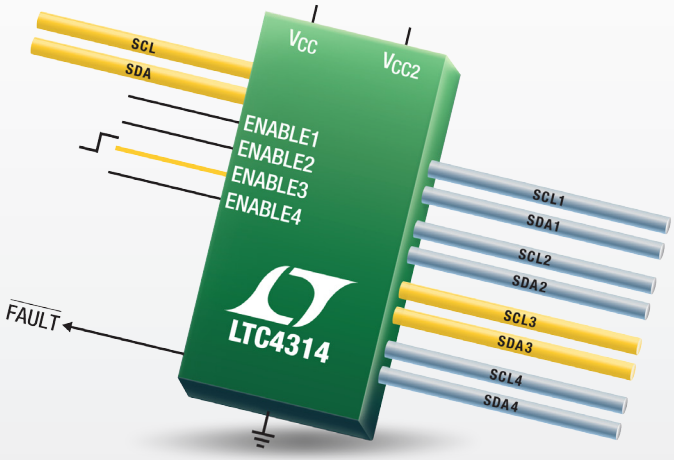
I²C Muxes, Buffers & Accelerators



LTC4314: Pin-Selectable 1:4 I²C Multiplexer with Bus Buffer

Features

- Bidirectional Buffer for SDA and SCL Lines
- High Noise Margin with V_{IL} = 0.3 • V_{CC}
- Enable Pins Connect SDA and SCL Lines
- Selectable Rise Time Accelerator Current and Activation Voltage
- Level Shift 1.5V, 1.8V, 2.5V, 3.3V and 5V Busses
- Compatible with Non-Compliant V_{OL} I²C Devices



I²C Multiplexers

Part Number	# of Channels	Supply Voltage	V_{BUS}	Channel Select	Bus Buffer	Rise Time Acc. Options	Stuck Bus Circuitry	HBM ESD	Packages
LTC4305	1:2	2.7V to 5.5V	2.2V to 5.5V	I²C Bus	•	Strong/Off	Disconnect	±10kV	4mm × 5mm DFN-16
LTC4306	1:4	2.7V to 5.5V	2.2V to 5.5V	I²C Bus	•	Strong/Off	Disconnect	±10kV	4mm × 5mm QFN-24
LTC4312	1:2	2.9V to 5.5V	1.5V to 5.5V	ENABLE Pins	•	Strong/2mA/Off	Disconnect and Recovery	±4kV	4mm × 3mm DFN-14, MSOP-16
LTC4314	1:4	2.9V to 5.5V	1.5V to 5.5V	ENABLE Pins	•	Strong/2mA/Off	Disconnect and Recovery	±4kV	4mm × 3mm DFN-20, SSOP-20

LINEAR TECHNOLOGY

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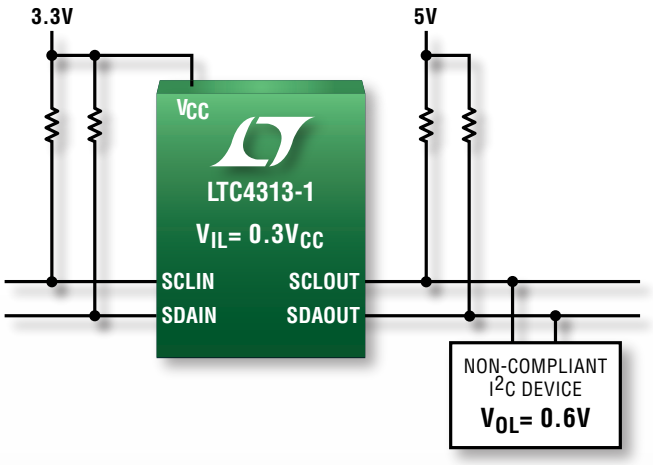
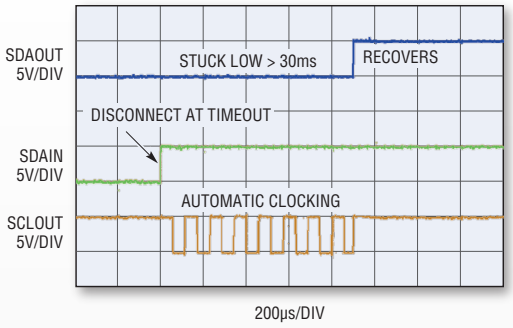
LTC4313/LTC4315: I²C Bus Buffers with High Noise Margin and Stuck Bus Recovery

Features

- Prevents SDA and SCL Corruption During Live Board Insertion and Removal
- High Noise Margin with V_{IL} = 0.3 • V_{CC}
- Compatible with Non-Compliant I²C Devices That Drive a High V_{OL}
- Fixed (LTC4313) or Adjustable (LTC4315) Rise Time Accelerator Current
- Level Shift 1.5V, 1.8V, 2.5V, 3.3V and 5V Busses



Stuck Bus Resolved with Automatic Clocking



Only Linear Technology bus buffers with stuck bus recovery and disconnect allow users to attempt recovery from an I²C bus stuck low. If SDAOUT or SCLOUT is low for 30ms, the connection between SDAIN and SDAOUT, and SCLIN and SCLOUT is broken. After a delay, the bus buffer automatically generates up to 16 clock pulses on SCLOUT in an attempt to unstick the bus. When SDAOUT and SCLOUT go high, reconnection occurs when I²C transactions on both busses are complete.

I²C Buffers and Rise Time Accelerators

Part Number	Hot Swappable	Rise Time Acc.	Bidirectional Level Translation	Stuck Bus Disconnect/ Recovery	Enable	Ready	V_{CC2}	GPIO or Fault	HBM ESD	Comments	Package
LTC4300A-1	•	•	2.7V to 5.5V		•	•			±2kV		MSOP-8
LTC4300A-2	•	• (Note 1)	2.7V to 5V				•		±2kV	RTA Enable	MSOP-8
LTC4300A-3	•	•	2.7V to 5V		•		•		±2kV		MSOP-8, 3mm × 3mm DFN-8
LTC4301	•		2.7V to 5V		•	•			±10kV	Supply Independent	MSOP-8, 3mm × 3mm DFN-8
LTC4301L	•		1V to 2.7V/ 5.5V (Note 2)		•	•			±10kV	Supply Independent, Level Translates from 1V	MSOP-8, 3mm × 3mm DFN-8
LTC4302-1	•	•	2.7V to 5.5V		•			•	±2kV	Addressable, 2 GPIOs	MSOP-10
LTC4302-2	•	• (Note 1)	2.7V to 5V		•		•	•	±2kV	Addressable, 1 GPIO	MSOP-10
LTC4303	•	•	2.7V to 5.5V	•	•	•			±15kV		MSOP-8, 3mm × 3mm DFN-8
LTC4304	•	• (Note 1)	2.7V to 5.5V	•	•	•		•	±15kV	RTA Enable	MSOP-10, 3mm × 3mm DFN-10
LTC4307	•	•	2.3V to 5.5V	•	•	•			±5kV	60mV Offset Voltage	MSOP-8, 3mm × 3mm DFN-8
LTC4307-1	•		2.3V to 5.5V		•	•			±5kV	60mV Offset Voltage, HDMI Compliant	MSOP-8, 3mm × 3mm DFN-8
LTC4308	•	•	2.3V to 5.5V	•	•	•			±6kV	–200mV V_{OS} I-to-O, 300mV V_{OS} O-to-I	MSOP-8, 3mm × 3mm DFN-8
LTC4309	•	• (Note 1)	1V to 2.3V/ 5.5V (Note 3)	•	•	•	•	•	±6kV	60mV Offset Voltage, RTA Enable, Stuck Bus Disable	SSOP-16, 4mm × 3mm DFN-12
LTC4310	•	•	3V to 5.5V	•	•	•			±5kV	Full I²C Isolation	3mm × 3mm DFN-10, MSOP-10
LTC4311		•			•				±8kV	Rise Time Accelerator Only	2mm × 2mm DFN-6, 6-ld SC70
LTC4313	•	•	1.5V to 5.5V	•	•	•			±4kV	V_{IL} = 0.3V_{CC}, Adjustable RTA	SSOP-8, 3mm × 3mm DFN-8
LTC4315	•	• (Note 1)	1.5V to 5.5V	•	•	•	•	•	±4kV	V_{IL} = 0.3V_{CC}, Adjustable RTA, Stuck Bus Disable	MSOP-12, 4mm × 3mm DFN-12

Note 1: Rise time accelerator circuitry can be disabled.
Note 2: SCLIN and SDAIN down to 1V, SDAOUT and SCLOUT from 2.7V to 5.5V.
Note 3: SCLIN and SDAIN down to 1V, SDAOUT and SCLOUT from 2.3V to 5.5V.