

SENSYLINK Microelectronics

(CA9546)

Low Voltage 4-Channel I²C/SMBus Switch with Reset

CA9546 is a 4-channel bidirectional translating Switch with reset input controlled by I²C/SMBus. It supports one master can access one pair or any combinations of 4 pairs of slave devices via the I²C or SMBus interface.

It is ideally used in Server and Telecom equipment.

Low Voltage 4-Channel I²C/SMBus Switch with Reset

Description

The chip is a 4-channel bidirectional translating switch with reset input controlled by I²C/SMBus. The upstream pair (SCL/SDA from the master) fans out to 4 downstream pairs (SCL0-3/SDA0-3 from the slaves). The CA9546 has 8-bit control register, which allows selecting any channel or any combinations of channel0-3.

The reset input pin with active low allows the chip to recover from stuck situation from any downstream pair. It can reset the I²C bus state machine, and all channels will be deselected once forcing low voltage at $\overline{\text{RESET}}$ pin.

The chip allows using different bus voltage on each pair, like 1.8V, 2.5V or 3.3V, which can communicate with 5.0V parts by connecting external pull-up resistors to desired voltage.

Available Package: SOP-16, TSSOP-16, QFN4x4-16 package.

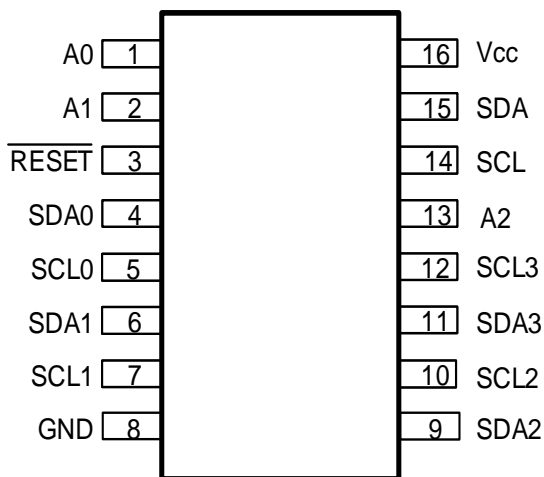
Features

- Operation Voltage: 1.65V to 5.5V
- Standby Current: 1.5uA (Max.)
- 1-of-4 bidirectional translating switches between 1.8V, 2.5V, 3.3V and 5.0V
- Compatible with SMBus and I²C interface
- I²C Speed up to 1.0MHz (Fast mode+)
- Up to 8 slave addresses
- $\overline{\text{RESET}}$ input with active low
- 5.5V tolerant inputs
- Channel0-3 or any combination selection by Control Register
- Support hot insertion
- No Glitch during Power-up
- Noise Filter on SCL/SDA inputs
- Temperature Range: -40°C to 85°C

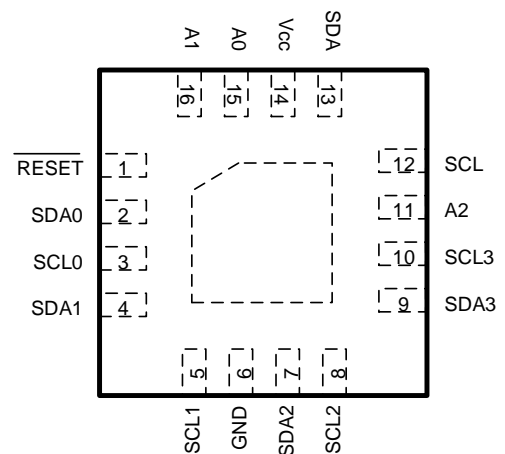
Applications

- Server, Notebook PC
- Telecom equipment

PIN Configurations (Top View)



SOP-16/TSSOP-16(Package code M/MT)



QFN4x4-16(Package code QN)

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Typical Application

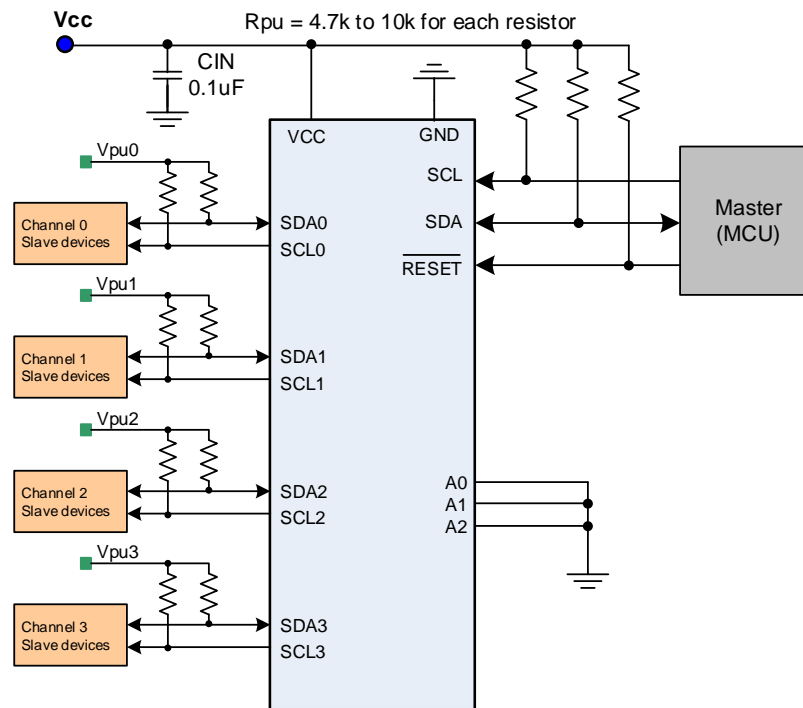


Figure 1. Typical application of CA9546

Low Voltage 4-Channel I²C/SMBus Switch with Reset

Pin Description

PIN Name	PIN No.		Description
	SOP-16 TSSOP-16	QFN4x4-16	
A0	1	15	Slave addresses setup pin input 0 , Connect directly to Vcc or ground
A1	2	16	Slave addresses setup pin input 1 , Connect directly to Vcc or ground
$\overline{\text{RESET}}$	3	1	Reset input with active low.
SDA0	4	2	Serial data of channel 0, connect to Vpu0 ⁽¹⁾ via a pull-up resistor.
SCL0	5	3	Serial clock of channel 0, connect to Vpu0 ⁽¹⁾ via a pull-up resistor.
SDA1	6	4	Serial data of channel 1, connect to Vpu1 ⁽¹⁾ via a pull-up resistor.
SCL1	7	5	Serial clock of channel 1, connect to Vpu1 ⁽¹⁾ via a pull-up resistor.
GND	8	6	Ground pin.
SDA2	9	7	Serial data of channel 2, connect to Vpu2 ⁽¹⁾ via a pull-up resistor.
SCL2	10	8	Serial clock of channel 2, connect to Vpu2 ⁽¹⁾ via a pull-up resistor.
SDA3	11	9	Serial data of channel 3, connect to Vpu3 ⁽¹⁾ via a pull-up resistor.
SCL3	12	10	Serial clock of channel 3, connect to Vpu3 ⁽¹⁾ via a pull-up resistor.
A2	13	11	Slave addresses setup pin input 2 , Connect directly to Vcc or ground
SCL	14	12	Digital interface clock input pin, need a pull-up resistor to Vcc.
SDA	15	13	Digital interface data input or output pin, need a pull-up resistor to Vcc.
Vcc	16	14	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground

[1] Vpu0-Vpu3 are the pull-up reference voltage for the associated data line.

Function Block

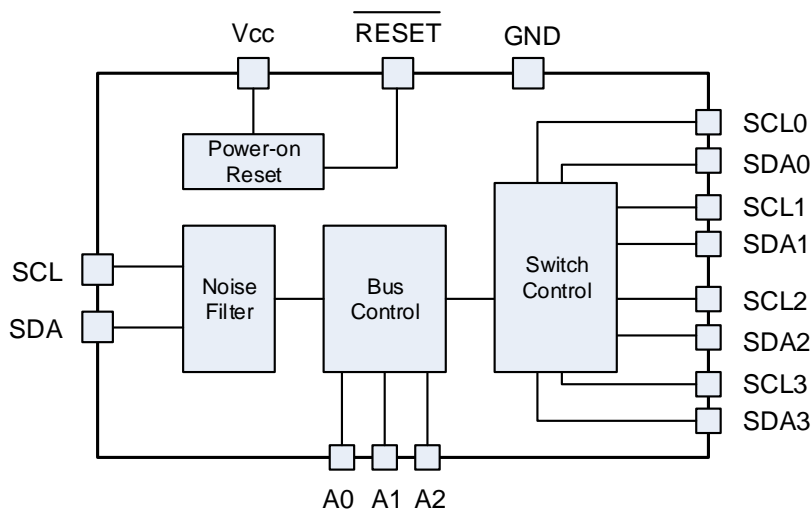
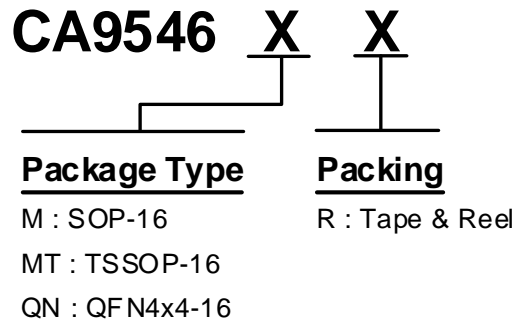


Figure 2. CA9546 function block

Low Voltage 4-Channel I²C/SMBus Switch with Reset
Ordering Information


Order PN	Green ¹	Package	Marking ID ²	Packing	MPQ	Operation Temperature
CA9546MR	Halogen free	SOP-16	9546 YWWAXX	Tape & Reel	4,000	-40°C ~ +85°C
CA9546MTR	Halogen free	TSSOP-16	9546 YWWAXX	Tape & Reel	4,000	-40°C ~ +85°C
CA9546QNR	Halogen free	QFN4x4-16	9546 YWWAXX	Tape & Reel	5,000	-40°C ~ +85°C

Notes

1. Based on ROHS Y2012 spec, Halogen free covers lead free. So most package types Sensylink offers only states halogen free, instead of lead free.

2. Marking ID includes 2 rows of characters. In general, the 1st row of characters are part number, and the 2nd row of characters are date code plus production information.