

# ***SENSYLINK Microelectronics***

## ***(CA9540)***

### ***2-Channel I<sup>2</sup>C-bus multiplexer***

***CA9540 is a 2-channel bidirectional translating multiplexer controlled by I<sup>2</sup>C-bus. It supports SCL/SDA upstream pair fans out to two SCx/SDx downstream pairs or channels via the I<sup>2</sup>C-bus interface.***

***It is ideally used in Server and Telecom equipment.***

## 1. Description

The chip is a 2-channel bidirectional translating multiplexer controlled by I<sup>2</sup>C-bus. The SCL/SDA upstream pair fans out to two SCLx/SDAx downstream pairs. The CA9540 has a control register, which allows selecting only one channel at a time.

Power-on reset will let the chip to recover from stuck situation from any downstream pair. It can reset the I<sup>2</sup>C bus state machine and all channels will be deselected.

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-8, MSOP-8 package.

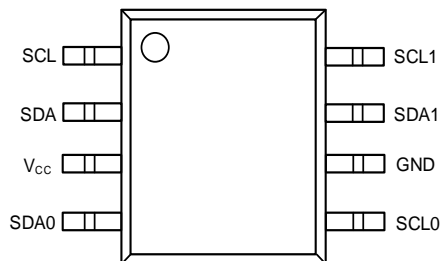
## 2. Features

- Operation Voltage: 1.65V to 5.5V
- Standby Current: 1μA (Max.)
- 1-of-2 bidirectional translating multiplexer between 1.8V, 2.5V, 3.3V and 5.0V
- Compatible with SMBus and I<sup>2</sup>C interface
- I<sup>2</sup>C Speed up to 1.0MHz (Fast mode+)
- 5.5V tolerant inputs
- Channel selection by Control Register
- No Glitch during Power-up
- Noise Filter on SCL/SDA inputs
- Temperature Range: -40°C to 85°C

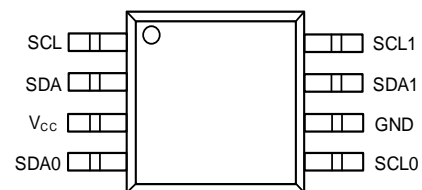
## 3. Applications

- Server, Notebook PC
- Telecom equipment

## 4. PIN Configurations (Top View)



SOP-8(Package code M)



MSOP-8(Package code MM)

## 5. Typical Application

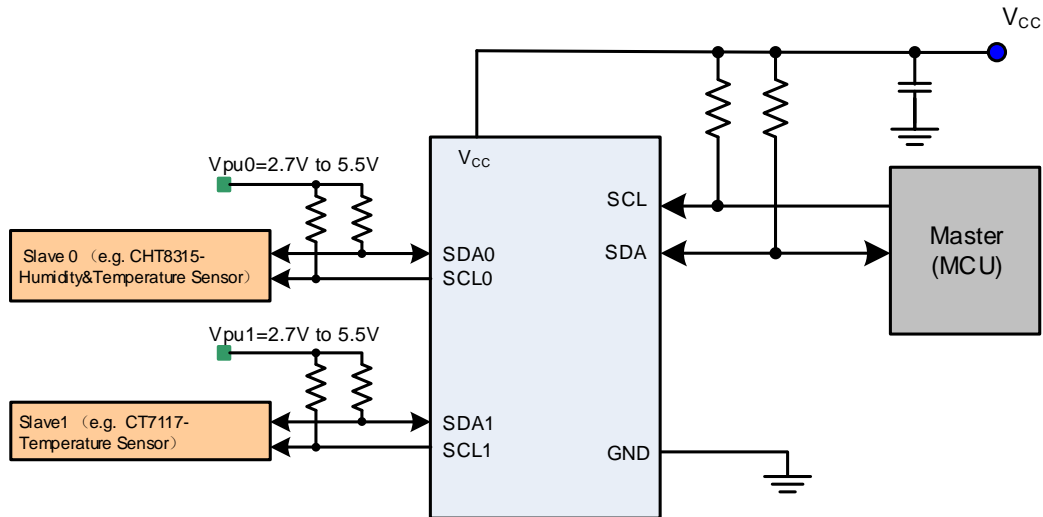


Figure 1 Typical application of CA9540

## 6. Pin Description

PIN Name	PIN No.	Description
SCL	1	Digital interface clock input pin, need a pull-up resistor to V <sub>cc</sub> .
SDA	2	Digital interface data input or output pin, need a pull-up resistor to V <sub>cc</sub> .
V <sub>cc</sub>	3	Power supply input pin, using 0.1μF low ESR ceramic capacitor to ground.
SDA0	4	Serial data of channel 0, connect to V <sub>pu0</sub> <sup>1</sup> via a pull-up resistor.
SCL0	5	Serial clock of channel 0, connect to V <sub>pu0</sub> <sup>1</sup> via a pull-up resistor.
GND	6	Ground pin.
SDA1	7	Serial data of channel 1, connect to V <sub>pu1</sub> <sup>1</sup> via a pull-up resistor.
SCL1	8	Serial clock of channel 1, connect to V <sub>pu1</sub> <sup>1</sup> via a pull-up resistor.

### Notes

1. V<sub>pu0</sub> and V<sub>pu1</sub> are the pull-up reference voltage for the associated data line.

## 7. Function Block

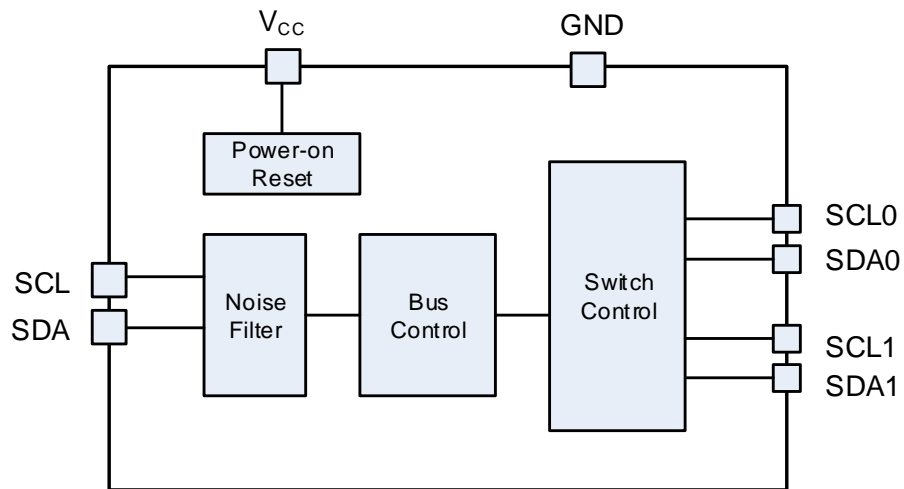
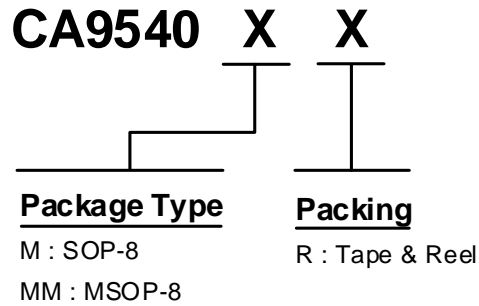


Figure 2 CA9540 Function Block

## 8. Ordering Information



Order PN	Green <sup>1</sup>	Package	Marking ID <sup>2</sup>	Packing	MPQ	Operation Temperature
CA9540MR	Halogen free	SOP-8	9540 YWWAXX	Tape & Reel	4,000	-40°C ~ +85°C
CA9540MMR	Halogen free	MSOP-8	9540 YWWAXX	Tape & Reel	3,000	-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.



## ***SENSYLINK Microelectronics Inc.***

*[www.sensylink.com](http://www.sensylink.com)*

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