Tel/Wechat: 133 6007 6532
Mail: sales@smartlinkiot.com
智联达物联网技术（深圳）有限公司

Low Voltage 2-Channel I²C/SMBus Multiplexer with Interrupt

Description

The chip is a 2-channel bidirectional translating multiplexer with interrupt input and output controlled by I²C/SMBus. The upstream pair (SCL/SDA from the master) fans out to 2 downstream pairs (SCL0-1/SDA0-1 from the slaves). The CA9542 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 I²C bus state machine, and all channels will be deselected.

Two interrupt inputs ($\overline{INT0}$ - $\overline{INT1}$), one for each of downstream pairs are provided. One interrupt output ($\overline{INT}$) acts as an AND of two interrupt inputs.

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-14, TSSOP-14 package.

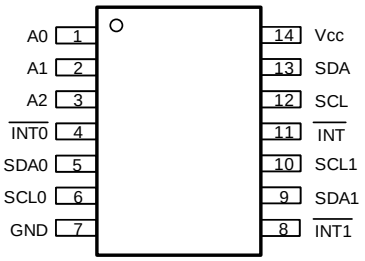
Features

- Operation Voltage: 1.65V to 5.5V
- Standby Current: 1.5uA (Max.)
- 1-of-2 bidirectional translating multiplexer between 1.8V, 2.5V, 3.3V and 5.0V
- Compatible with I²C/SMBus interface
- I²C Speed up to 1.0MHz (Fast mode+)
- 3 address pins allowing up to 8 devices on the I2C-bus
- One Interrupt output with active low for upstream channel
- Two Interrupt inputs with active low for each downstream channel
- 5.5V tolerant inputs
- Channel selection by Control Register
- Support hot insertion
- No Glitch during Power-up
- Noise Filter on SCL/SDA inputs
- Temperature Range: -40℃ to 85℃

Applications

- Server, Notebook PC
- Telecom equipment

PIN Configurations (Top View)



SOP-14/TSSOP-14(Package code M/MT)

Typical Application

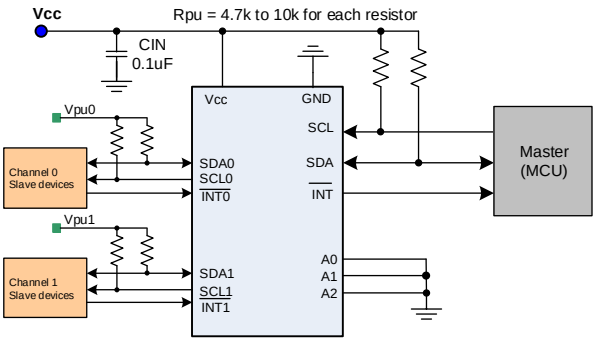


Figure 1. Typical application of CA9542

Pin Description

PIN Name	PIN No.	Description
A0	1	Slave addresses setup pins, which can generate 8 kinds of slave addresses by connecting these pins to GND or Vcc respectively.
A1	2	
A2	3	
$\overline{INT0}$	4	Interrupt input 0 with active low, connect to Vpu0(1) via a pull-up resistor.
SDA0	5	Serial data of channel 0, connect to Vpu0(1) via a pull-up resistor.
SCL0	6	Serial clock of channel 0, connect to Vpu0(1) via a pull-up resistor.
GND	7	Ground pin.
$\overline{INT1}$	8	Interrupt input 1 with active low, connect to Vpu1(1) via a pull-up resistor.
SDA1	9	Serial data of channel 1, connect to Vpu1(1) via a pull-up resistor.
SCL1	10	Serial clock of channel 1, connect to Vpu1(1) via a pull-up resistor.
$\overline{INT}$	11	Interrupt output with active low, connect to Vcc via a pull-up resistor.
SCL	12	Digital interface clock input pin, need a pull-up resistor to Vcc.
SDA	13	Digital interface data input or output pin, need a pull-up resistor to Vcc.
Vcc	14	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground

[1] Vpu0 and Vpu1 are the pull-up reference voltage for the associated data line.

Function Block

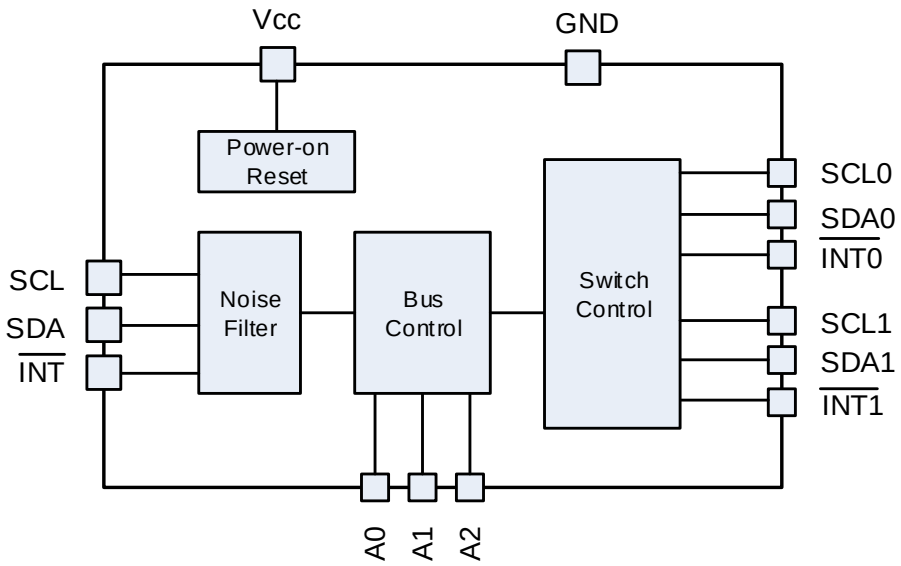
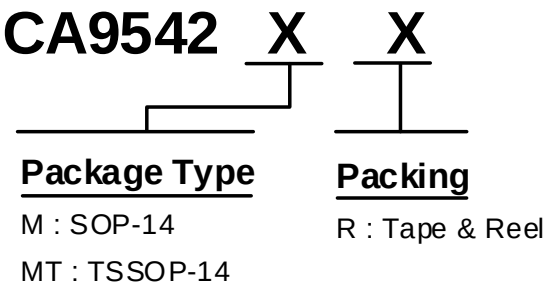


Figure 2. CA9542 function block

Ordering Information



Order PN	Green[1]	Package	Marking ID[2]	Packing	MPQ	Operation Temperature
CA9542MR	Halogen free	SOP-14	9542 YWWAXX	Tape & Reel	4,000	-40°C ~ +85°C
CA9542MTR	Halogen free	TSSOP-14	9542 YWWAXX	Tape & Reel	4,000	-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.