

SENSYLINK Microelectronics

(CA9536)

Low-Voltage 4-Bit GPIO Expander

CA9536 is a 4-Bit remote GPIO expander. It provides remote GPIO expansion for most MCU families via the I²C or SMBus interface.

It is ideally used in Server and Telecom equipment.

Low-Voltage 4-Bit I²C/SMBus I/O Expander with Configurations

Description

The chip is a 4-bit I/O expander. It provides remote GPIO expansion for most MCU families via the I²C or SMBus interface. The CA9536 has 4-bit Input Port register, Output Port register, Configuration register (setup as input or output), and Polarity Inversion register (active high or active low). After power on, the 4 I/O pins are configured as inputs with an internal weak pull-up to VCC. However, the master can enable the I/Os as either inputs or outputs individually by setup the configuration register bits. If no external signals are applied to the CA9536 I/O pins, the voltage level is 1 or high due to the internal pull-up resistors. The data for each input or output is stored in the corresponding input or output port register. The polarity of the Input Port register can be inverted with the Polarity Inversion register. All registers can be read by the master.

The master can reset the CA9536 in the event of a timeout or other improper operation by utilizing the power-on reset feature, which puts the registers in their default state and initializes the I²C/SMBus state machine. The chip has outputs latch feature, which can protect the chip when driving LEDs directly with high-current capability.

Available Package: SOP-8, MSOP-8 package.

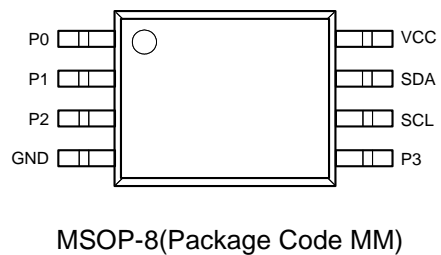
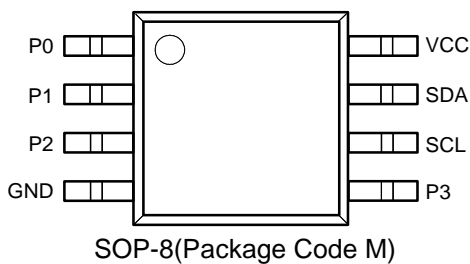
Features

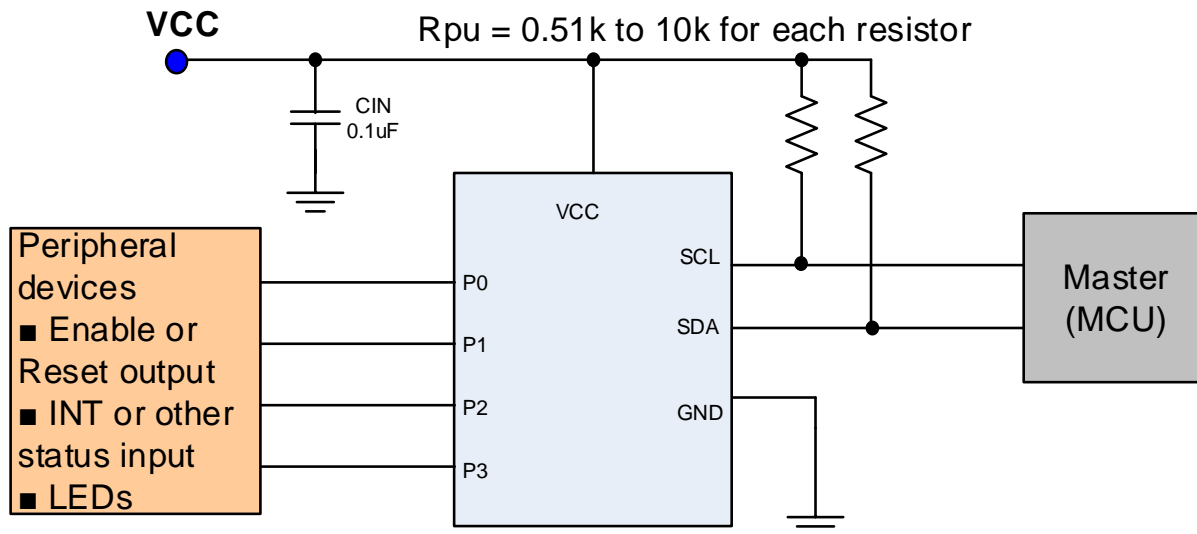
- Operation Voltage: 1.65V to 5.5V
- Low standby current
- 5.5V Tolerance I/O Port
- Remote 4-bit GPIO Expander
- Compatible with SMBus and I²C interface
- I²C Speed up to 1.0MHz (Fast Mode Plus)
- Input, Output and Configuration Register
- Polarity Inversion Register
- Built-in Power-on Reset
- No Glitch during Power-up
- Noise Filter on SCL/SDA inputs
- 4 I/O pins
 - As Input internal pull-up resistor (default)
 - As Output with push-pull
- Latch feature when driving LEDs directly with high current capability
- Temperature Range: -40°C to 85°C

Applications

- Server, Notebook PC
- Telecom equipment

PIN Configurations (Top View)



Low-Voltage 4-Bit I²C/SMBus I/O Expander with Configurations
Typical Application

Figure 1 Typical Application of CA9536
Pin Description

PIN No.	PIN Name	Description
1	P0	GPIO bit0, output: push-pull structure; input: internal pull-up weekly structure.
2	P1	GPIO bit1, output: push-pull structure; input: internal pull-up weekly structure.
3	P2	GPIO bit2, output: push-pull structure; input: internal pull-up weekly structure.
4	GND	Ground pin.
5	P3	GPIO bit3, output: push-pull structure; input: internal pull-up weekly structure.
6	SCL	Digital interface clock input pin, need a pull-up resistor to VCC.
7	SDA	Digital interface data input or output pin, need a pull-up resistor to VCC.
8	VCC	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground

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Function Block

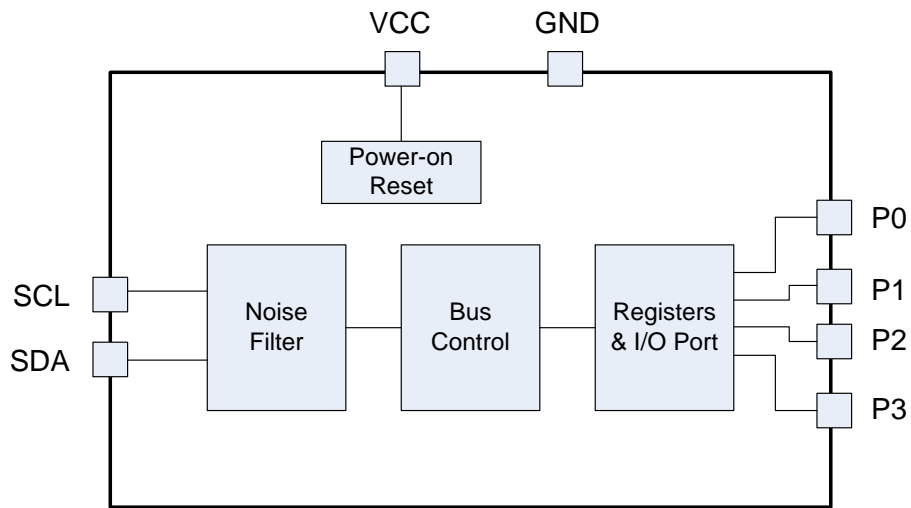
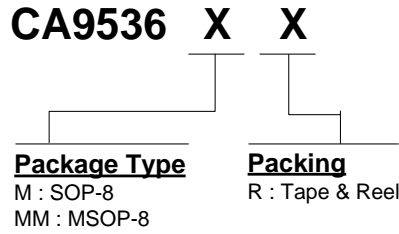


Figure 2 CA9536 function block

Low-Voltage 4-Bit I²C/SMBus I/O Expander with Configurations
Ordering Information


Order PN	Green ¹	Package	Marking ID ²	Packing	MPQ	Operation Temperature
CA9536MR	Halogen free	SOP-8	9536 YWWAXX	Tape & Reel	4,000	-40°C~+85°C
CA9536MMR	Halogen free	MSOP-8	9536 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.

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SENSYLINK Microelectronics Inc.

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