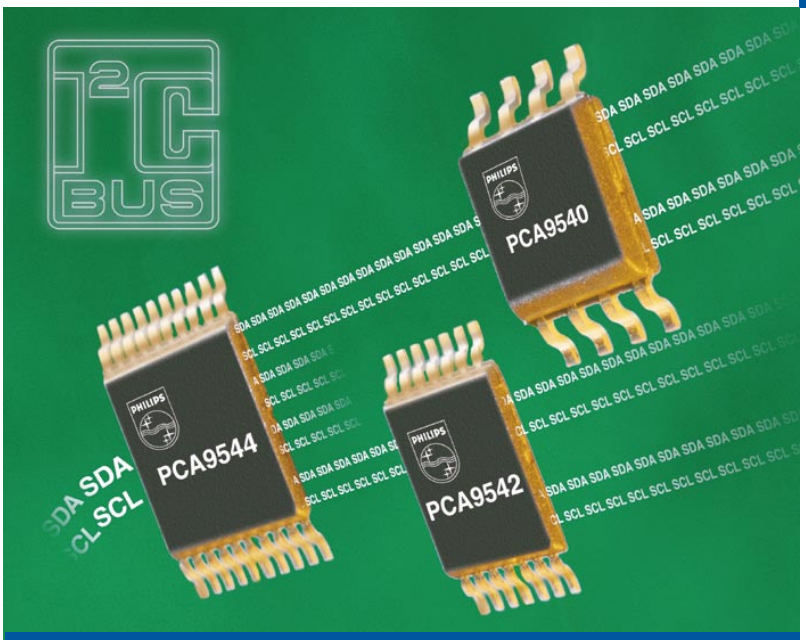
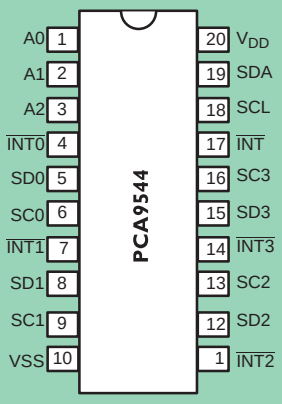
Philips Family of I²C Multiplexers

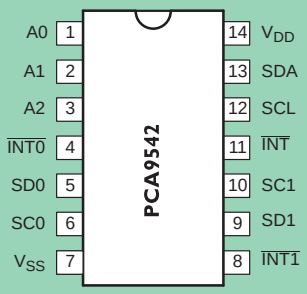
PCA9544
4-Channel I²C Multiplexer & Interrupt Controller
PCA9542
2-Channel I²C Multiplexer & Interrupt Controller
PCA9540
2-Channel I²C Multiplexer

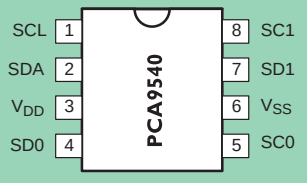


The 4-Channel PCA9544, 2-Channel PCA9542 and the low-cost 2-Channel PCA9540 complete the family of Philips Configuration I²C Multiplexers.

Pin Configurations







Description

The PCA9544, PCA9542, and PCA9540 are I²C multiplexers used to address multiple I²C/SMBus system management buses as well as multiple I²C devices with the same address, different voltage levels, or higher loads than what their I²C masters can handle. The PCA9540 is a low-cost 2-channel I²C multiplexer that switches between two I²C devices or buses without interrupts. For switching between more than two I²C devices or buses, the PCA9542 contains three address pins allowing up to eight PCA9542s to be used on the same bus. Eight PCA9542s can then switch up to sixteen I²C devices or buses. The PCA9542 also provides an interrupt controller in case the switched I²C devices or buses generate interrupts. A two-in-one PCA9542 called the PCA9544 is also available in case a single 4-channel I²C multiplexer is preferred over cascading two PCA9542s. The PCA9544 is also used for switching up to thirty-two I²C devices or buses.

Philips Configuration I²C Multiplexer Advantages

- Integrated logic eliminates glue logic and general purpose I/O that previously handled multiplexing and interrupt controlling
- Integrated bus switches allow for up to eight I²C loads per channel
- Integrated level shifter interfaces 5V I²C slaves to 3.3V SMBus
- Bus isolation prevents system hang-ups due to rogue I²C slaves

PCA9544 Advantages

- 4-channel bi-directional translating I²C multiplexer
- 4-channel interrupt controller with single interrupt output
- 3 address pins allows cascading of up to eight devices
- 3.3V operation
- 3.3V and 5V tolerant I²C channels
- 20-pin plastic TSSOP package

PCA9542 Advantages

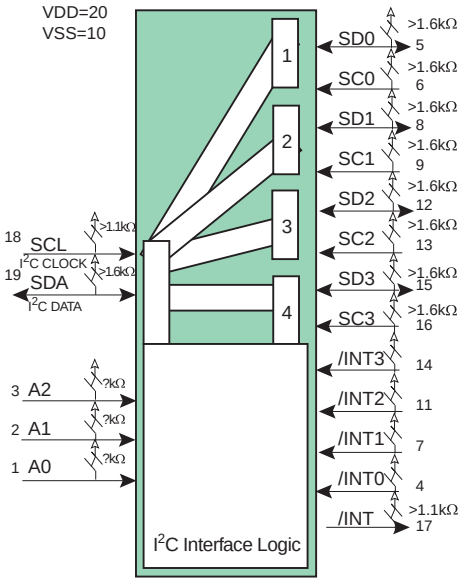
- 2-channel bi-directional translating I²C multiplexer
- 2-channel interrupt controller with single interrupt output.
- 3 address pins allows cascading of up to eight devices
- 3.3V operation
- 3.3V and 5V tolerant I²C channels
- 14-pin plastic TSSOP package

PCA9540 Advantages

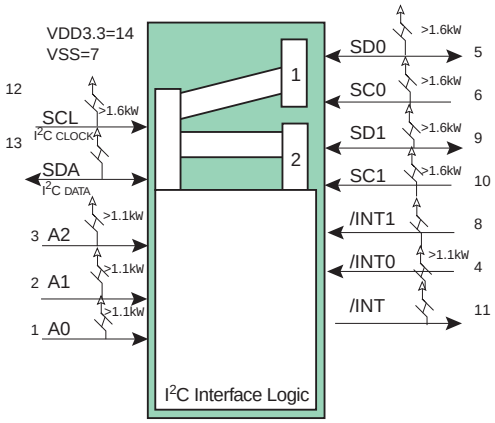
- 2-channel bi-directional translating I²C multiplexer
- 3.3V operation
- 3.3V and 5V tolerant I²C channels
- 8-pin plastic SO package

PCA9544 4-Channel I²C Multiplexer & Interrupt Controller
PCA9542 2-Channel I²C Multiplexer & Interrupt Controller
PCA9540 2-Channel I²C Multiplexer

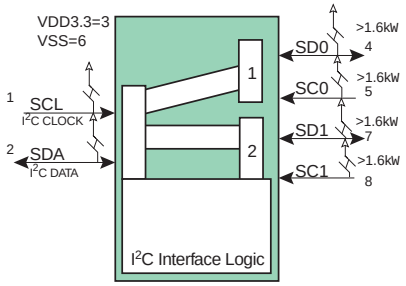
PCA9544, PCA9542 and PCA9540 Block Diagrams



PCA9544
4-Channel Multiplexer and Interrupt Controller



PCA9542
2-Channel Multiplexer and Interrupt Controller



PCA9540
2-Channel Multiplexer

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