

Multichannel I²C switch with low-voltage level translation



Bus switches expand the I²C bus, solve system-level problems when reusing follower addresses, isolate bus sections to reduce bus load, and aid in troubleshooting. This switch, with its ultralow-voltage operation and Fm+ speeds, connects directly to next-generation CPUs, SoCs, and ASICs, provides flexible voltage-level translation, and supports nearly any combination of peripherals.

Feature	Benefit
Select up to eight bus sections	Reuse follower address(es)
Disconnect I ² C downstream branches	Isolate bus selections to aid troubleshooting and testing
Dynamically change I ² C bus paths	Enables system flexibility in I ² C device access
Supports host-side interface voltages from 0.8 to 3.3 V	Connect directly to the latest CPU, SoC, or ASIC
Expanded device address (using HIGH, LOW, SCL, or SDA)	Use only two device pins to support up to sixteen different I ² C addresses while avoiding conflicts with downstream peripherals
High-speed I ² C signal and control path	Operates at Fm+ clock speed (as well as STD and Fast-mode)
HVQFN24 (4 x 4 x 0.89 mm, 0.5 mm pitch), TSSOP24 (4.4 x 4.4 x 1.1 mm, 0.65 mm pitch)	Small footprint
Two power supplies, one for the controller side and one for the follower side	Integrated ultra low voltage translation, enabling mix and match of many combination of peripherals

Target function

I²C bus systems

End applications

Computing, servers, storage, industrial control

Demo board

Not available

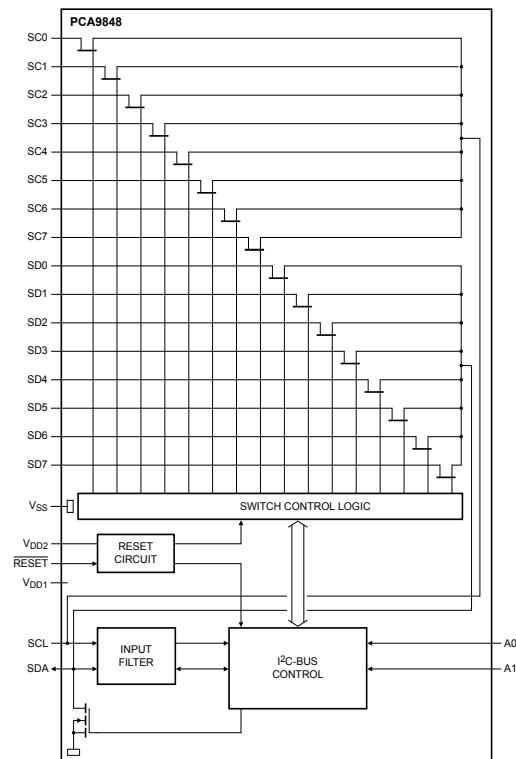
Documentation information

Item	Description
PCA9848	PCA9848 product datasheet

Ordering information

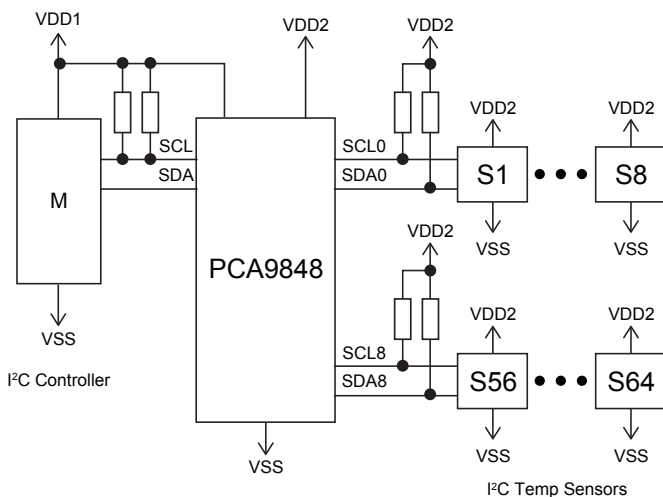
Type number	Orderable part number	Package method	Packing method	Minimum order quantity	Temperature
PCA9848BS	PCA9848BSMP	HVQFN24	Reel 13" Q1/T1 Standard mark SMD	6000	T _{amb} = -40 to +125 °C
PCA9848PW	PCA9848PWJ	TSSOP24	Reel 13" Q1/T1 Standard mark SMD	2500	T _{amb} = -40 to +85 °C

Functional block diagram



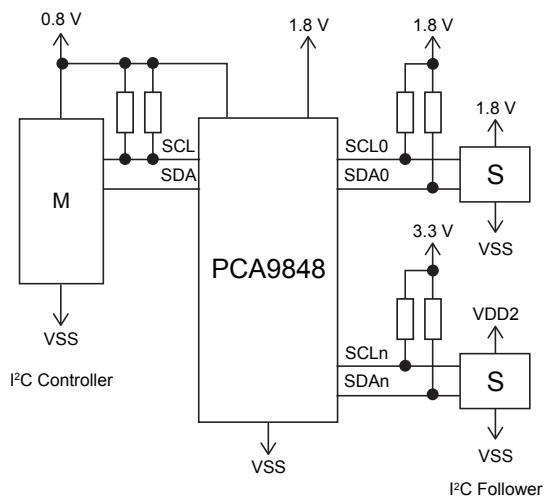
Followers with limited address range

Each of the 64 temp sensors has a limit of only eight 3-bit addresses. The PCA9848 groups the sensors into eight separate bus segments, enabling unique addresses for each sensor.



Multiple voltage domains

The bus leader and some of the follower devices use a different supply voltage. The PCA9848 selects each eight-bus segment and converts the bus signals to match the signal and supply-voltage requirements of each follower.



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