

Replacement of NXP PCA9518 with NXP PCA9518A

The PCA9518A is a drop-in replacement to the PCA9518. There are no software or hardware modifications required and offer same functionality.

1. Comparison

Parameters	PCA9518	PCA9518A
✓ Package and Pin-to-pin Drop in Replacement	YES	YES
✓ Functionally Identical (Configuration/etc) ¹	YES	YES
✓ No Software Change (Identical Register Definition)	YES	YES
✓ 5V tolerant on I ² C-Bus and enable pins	YES	YES
✓ Operating Voltage range 3.0 V to 3.6 V	YES	YES
✓ Operating Voltage range 2.3 V to 3.6 V	NO	YES

2. Noticeable Differences

The PCA9518 is manufactured on a BICMOS process (QUBICLP) while the PCA9518A is manufactured on a CMOS process (C100).

As designed, the PCA9518 outputs, which are high impedance when the VCC is at 0 V, can exhibit an apparent high capacitance effect during power-up when the VCC is between ~1 V and ~ 1.5 V resulting in a brief low output impedance when the outputs are being switched by an active bus.

The PCA9518A is a CMOS re-design of the PCA9518 that maintains the high impedance of the bus during partial power states that occur at power-up.

The outputs of the PCA9518 are immediately available as soon as there is a voltage present on the supply >~1V and behave as described above. The power-on reset of the PCA9518A keeps the outputs turned off during power-up and maintains the high impedance of the outputs throughout the power-up cycle. There is an additional built-in delay after power-up that allows the analog circuits to stabilize before the part is activated.

In addition, the PCA9518A has an expanded operating voltage range of 2.3 V to 3.6 V while maintaining 5V tolerance on the I²C-bus and enable pins.

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Parameters	PCA9518	PCA9518A
✓ Limiting Value supply	+7 V	+6 V
✓ Limiting Value I2C-bus voltage	+7 V	+6 V
✓ Operating supply	3.0 V – 3.6 V	2.3 V – 3.6 V
✓ VIL max on SCL,SDA	+0.3Vcc	+0.25Vdd
✓ IIL low-level input current SCL,SDA	5 uA	20 uA
✓ VIH min on expansion pins	0.55Vcc	0.6Vdd
✓ VIL min on expansion pins	0.45Vcc	0.4Vdd

3. Orderable Part Number Cross Reference

Package	PCA9518	PCA9518A
SO20	PCA9518	PCA9518AD
TSSOP20	PCA9518PW	PCA9518APW

For more information contact NXP Semiconductors via e-mail – i2c.support@nxp.com