

# PCA9481AUK

10 A 2:1/1:2/1:1 mode switched capacitor direct charger

Rev. 1.0 — 23 August 2022

Product short data sheet

## 1 General description

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The PCA9481AUK is a highly-integrated switched-capacitor converter with an embedded OVPFET and external FET control, targeted to provide two times the output current for fast charging applications with a 1-cell battery. The device works in 2:1 switching operation with very high efficiency (>97 %, at  $V_{VOUT} = 4\text{ V}$ ,  $I_{VOUT} = 8\text{ A}$ ), in 1:2 switching operation, or in 1:1 mode with forward and reverse direction.

As absolute maximum voltage for each VIN and VOUT, VIN input is designed to support up to 16.5 V with no pre-biased scheme and 20 V with the pre-bias enabled for USB VBUS; VOUT input is designed to support up to 7 V with the pre-bias enabled for a 1-cell battery application.

The device provides multiple safety schemes such as OV (Over-Voltage), UV (Under-Voltage), switching pin short, thermal shutdown and others.

The PCA9481AUK also has a leader/follower function built in that allows two devices to be used seamlessly in hand-held applications.

The device features all functions with I<sup>2</sup>C-bus interface, with up to 1 MHz speed.

## 2 Features and benefits

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- Integrated 2:1 or 1:2 unregulated switched capacitor and bidirectional bypass mode with switched-capacitor converter, >97 % efficiency at 8 A output current
- 20 V tolerant DC voltage on VIN and 7 V on VOUT
- OVP FET with IVIN Regulation and Battery voltage/current loop
- Dual-phase switched-capacitor to optimize efficiency and number of components
- Minimized power dissipation schemes embedded on an internal regulator
- Multiple Safety Schemes
  - Over-temperature protection (OTP)
  - Over-voltage protection (OVP)
  - Under-voltage protection (UVP)
  - Input/output or flying capacitor short detection
  - Watchdog timers
  - Safety switching threshold detection
- 1 Mbit/s I<sup>2</sup>C-bus target interface
- Available in WLCSP70 package

## 3 Applications

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Smart phone, tablet and other portable electronic devices with high voltage direct charging.



## 4 Ordering information

Table 1. Ordering information

Type number	Topside mark	Package		Version
		Name	Description	
PCA9481AUK	9481AUK	WLCSP70	wafer level chip scale package, 70 terminals, 0.4 mm pitch, 4.16 mm x 2.96 mm x 0.525 mm body (backside coating included)	SOT2057-1

### 4.1 Ordering options

Table 2. Ordering options

Type number	Orderable part number	Package	Packing method	Minimum order quantity	Temperature
PCA9481AUK	PCA9481AUKZ	WLCSP70	REEL 13" Q1 DP CHIPS	6000	T <sub>amb</sub> = -40 °C to +85 °C

## 5 Block diagram

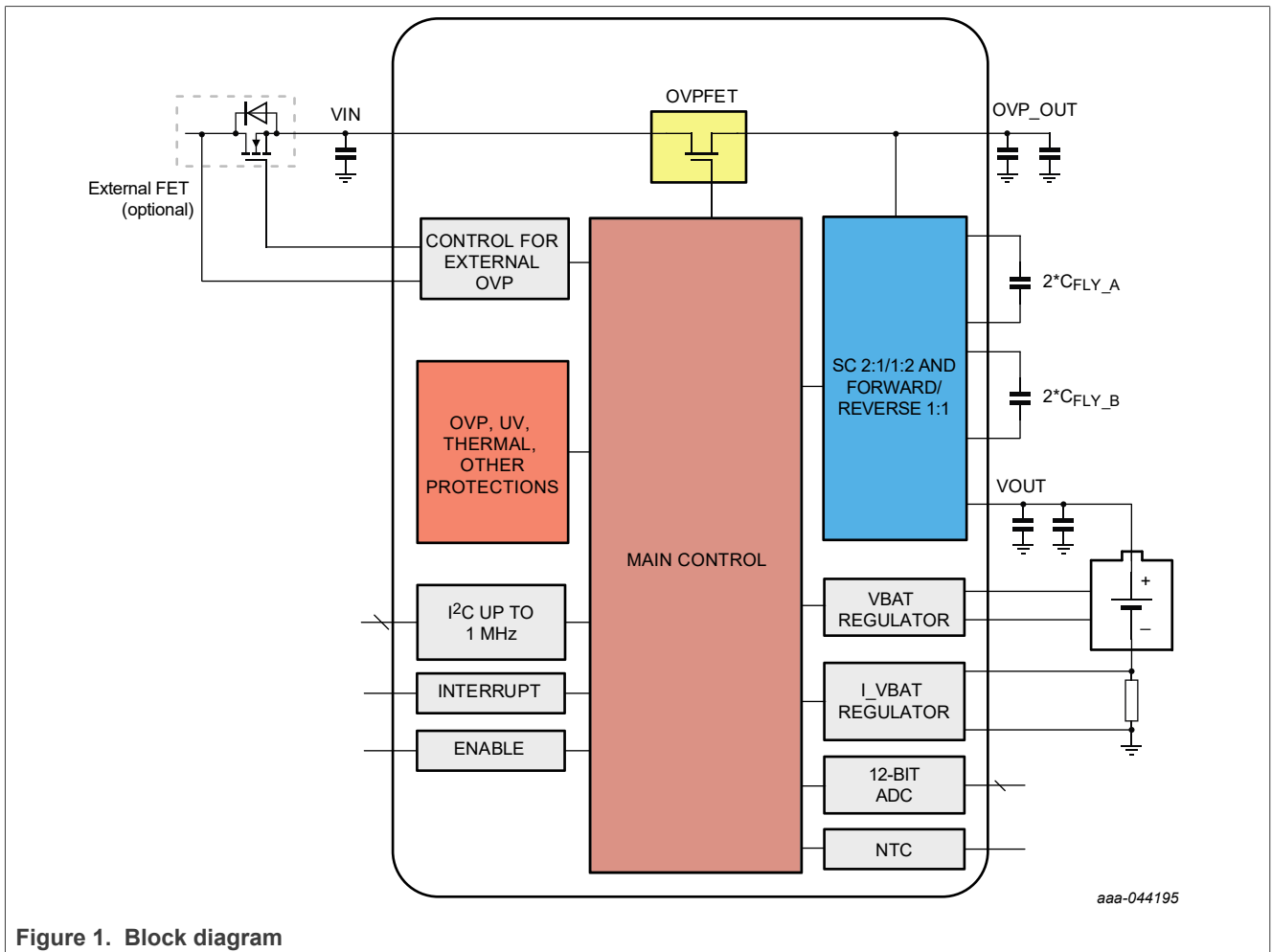


Figure 1. Block diagram

## 6 Legal information

### 6.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
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