

### Small-Footprint Synchronous Buck Controller with a Source Controller Provides a Compact USB PD3.1 Solution

The APK43070 is a single-chip synchronous buck controller with USB Type-C® PD3.1 source controller with support for standard power range (SPR)/programmable power supply (PPS) up to 21V, and extended power range (EPR)/adjustable voltage supply (AVS) up to 28V.

The device is targeted for DC power providers. It also controls single-port and multi-port USB PD charging applications.

The buck controller in the APK43070 is a constant-frequency synchronous controller with a high drive capability, optimized dead-time, and high driving gate voltage. This covers middle- and high-power charging with integrated drivers for external N-MOSFETs. To further enhance power-conversion efficiency, the device includes a VIN DC-power pass-through mode.

The APK43070's integration of PD3.1 decoder functions with a synchronous buck enables the buck's high-side MOS to also function as the VBUS switch, thereby reducing the BOM cost of each port.

Its built-in I2C interface supports smart power sharing in multi-port applications, without the need for an external MCU. Up to 8-port addresses are supported through resistor selection.

The APK43070 provides comprehensive protection features including OVP, OCP, OTP, as well as moisture detection of the connector and VBUS short protection on the CC1/CC2 pins up to 30V.

The device is available in the small-footprint W-QFN4040-24 (4mm x 4mm) package.

*The Diodes logo is a registered trademark of Diodes Incorporated in the United States and other countries.*

*All other trademarks are the property of their respective owners.*

© 2026 Copyright Diodes Incorporated. All Rights Reserved.



#### The DIODES Advantage

**The APK43070 provides a compact and versatile solution for USB PD-compliant power output equipment.**

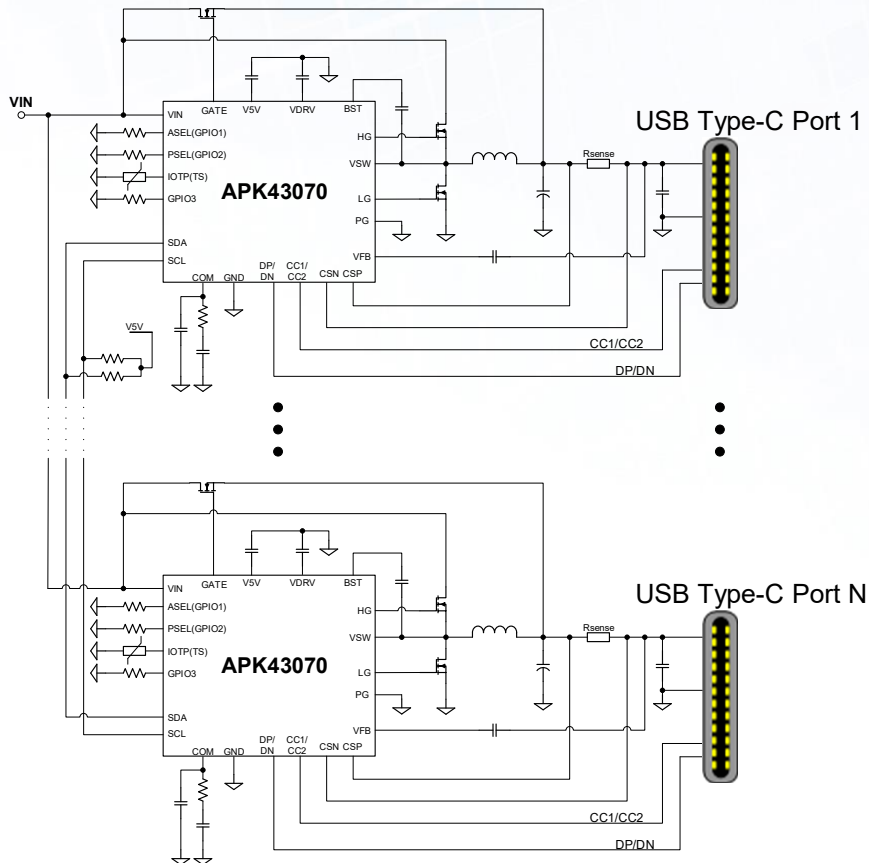
- Buck Controller and USB PD EPR Source Controller Combination**  
 Provides a compact and cost-effective solution for USB PD EPR ports
- I2C Interface for Power-Sharing Support**  
 Supports smart power sharing in up to eight USB PD ports without the need for an additional MCU
- 30V Tolerant CC Pins Withstand VBUS-to-CC Shorts**  
 Offers robust system protection from accidental shorts to high-voltage VBUS
- USB PD EPR Voltages up to 28V**  
 Supports USB PD3.1 output power to 140W
- Overtemperature Protection via External NTC**  
 Enhances system reliability by monitoring potential hot spots and provides automatic output-power management

#### Applications

- Multi-port chargers
- Multi-port power strips
- Portable outdoor power stations
- Car charging accessories



### Typical Application



### USB PD Controller Product Portfolio

Part Number	Description	VIN (Max.)	VBUS Out (Max.)	Ports	Operating Current (Max.)	I2C Support	Package
		V	V		mA		
<a href="#">APK43070</a>	Buck Controller + USB PD3.1 EPR/AVS Controller	40	28	1	3.5	Yes	W-QFN4040-24 (Type A1)
<a href="#">AP43771H</a>	USB PD3.1 EPR (up to 28V) Controller	34	28	1	3.3	No	W-QFN3030-14 (Type A1)
<a href="#">AP43776</a>	Dual-Channel USB PD3.1 PPS + QC5 Protocol Decoder	6	20	2	2.5	Yes	W-QFN4040-20 (Type A1)

### Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Firmware Code	Package	Moisture Sensitivity	Packing	
					Quantity	Carrier
<a href="#">APK43070DKZ-13-FA01</a>	<a href="#">Standard</a>	FA01—Standard Code	W-QFN4040-24 (Type A1)	MSL-1	3,000	13" Tape & Reel