



# New Product Announcement

## AP43781

### USB PD Controller Supports DisplayPort Over USB Type-C Alternate Mode

The AP43781 is a USB Type-C® Power Delivery (PD) 3.1 SPR (Standard Power Range, 3.3V~21V) controller that supports up to 100W power source applications with legacy capabilities.

The device is compliant with USB Type-C specification and USB power delivery specification Rev. 3.1.

It supports PPS with 20mV/step resolution and 50mA/step current resolution for optimal battery thermal management. In addition, cable-loss compensation and Start of Packet (SOP) command for e-Marker detection are supported.

The device supports DisplayPort™ Alternate Mode by decoding the CC pin handshaking and via I2C, thereby controlling the SS data switches.

The AP43781 offers comprehensive safety features, including overvoltage protection (OVP), undervoltage protection (UVP), overcurrent protection (OCP), short-circuit protection (SCP) and/or overtemperature protection (OTP).

A one-time programmable ROM is provided for main firmware, and a multi-time programmable ROM is provided for user-configuration data.

The AP43781 is available in the compact W-QFN4040-24 (Type A1) package.



#### The DIODES Advantage

**This 100W USB PD protocol controller monitors USB Type-C ports, DFP power charging, and UFP data transfer applications.**

- **AP43781 Detects USB Type-C Alternate Mode; Drives a USB/DP Mux for DisplayPort Over USB Type-C**  
Enables Downstream Facing Port (DFP) charging and Upstream Facing Port (UFP) video data traffic management
- **I2C Interface Controls High-Speed Mux Switches and ReDrivers for Data Transfer, and DC-DC Converters for Charging**  
Supports inter-chip communication for low standby power in multiple USB Type-C port applications
- **Flexible Program Modes**  
OTP (one-time programmable) ROM (Read Only Memory) is provided for main firmware; multi-time-programmable ROM is provided for user-configuration data
- **E-Marker Cable Detection with Built-In VCONN and Overcurrent Protection**  
Supports USB Type-C cable authentication

#### Applications

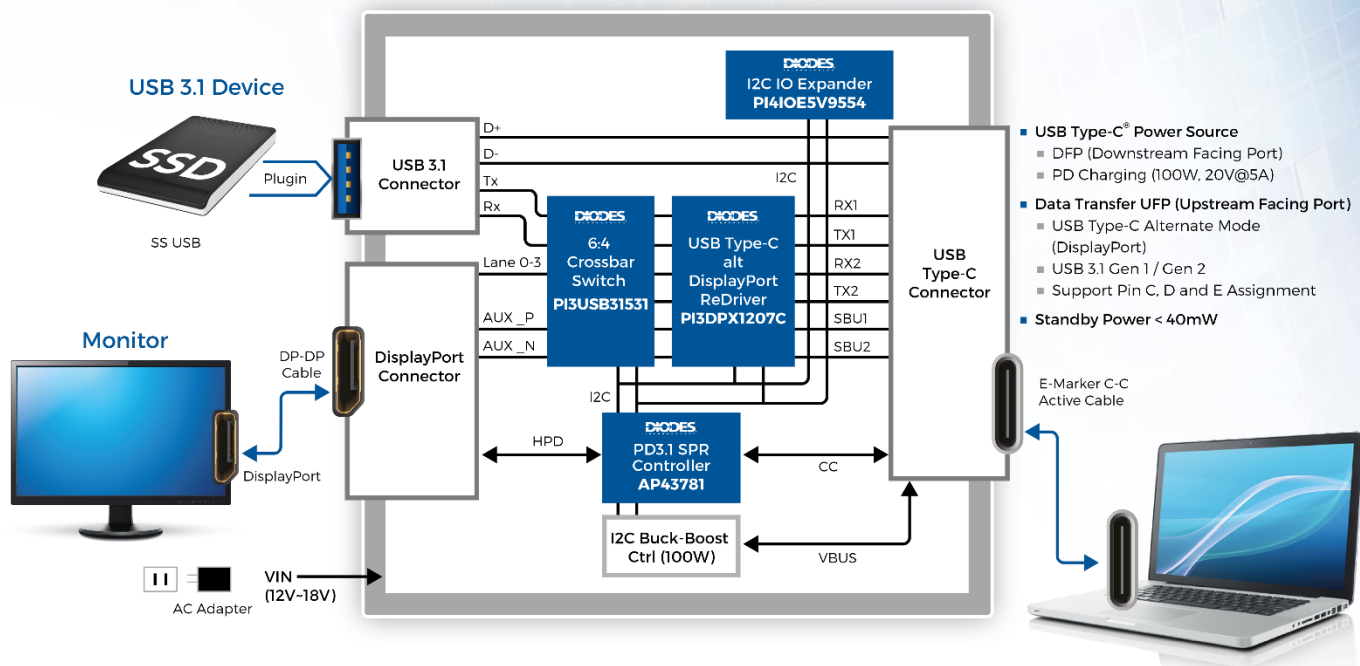
- Monitors with USB Type-C ports
- Projectors with USB Type-C ports
- TV power boards with USB Type-C ports

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### Typical Application



### USB Type-C-LINK Monitor (CLM) Evaluation Board (EVB) System Configuration

### Product Portfolio

Part Number	Protocols Supported	Power Role	I2C Support	SR Controller Embedded	V <sub>BUS</sub> MOS Embedded	V <sub>VCC</sub> Maximum Rating	Package
<a href="#">AP43781</a>	USB PD3.1 SPR (MCU + OTP + Hardwired)	DFP (Downstream-Facing Port)	Yes	No	No	24	W-QFN4040-24 (Type A1)

### Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Packaging	Moisture Sensitivity	Packing	
				Quantity	Carrier
<a href="#">AP43781DKZ-13</a>	<a href="#">Standard</a>	W-QFN4040-24 (Type A1)	MSL-1	3,000	13" Tape & Reel