



# New Product Announcement

## AP33771C AP33772S

### High-Performance USB PD 3.1 EPR Sink Controllers Provide a Versatile Solution for USB PD Equipment

The AP33771C and AP33772S are USB Type-C® Power Delivery (PD) 3.1 EPR (Extended Power Range) sink controllers. These devices are embedded into equipment that use a USB Type-C socket as the power supply source.

The products are compliant with USB PD specification Rev. 3.1 V1.2 and support PD3.1 EPR/AVS up to 28V, and SPR/PPS up to 21V.

The AP33771C has a preloaded power menu, making it simpler to use; the AP33772S includes an I2C interface that provides greater flexibility for more sophisticated designs.

Both devices have built-in application firmware that automatically carries out the PD3.1 negotiation procedure with the attached USB PD3.1-compliant charger to obtain required power levels. They also drive an external LED (driven by one of their GPIOs) to provide a clear indication of charging states and potential fault situations.

The AP33771C's power menu consists of six different output voltages and eight different output currents, both set by external resistors. It supports USB-C®-to-USB-C cable compensation and Type-A source charging.

The AP33772S, using I2C interface and GPIO pins, communicates with a host MCU to determine a more flexible power profile and other intelligent power-related management functions.

The AP33771C is available in the small footprint W-DFN3030-14 (3mm x 3mm) package and the AP33772S is available in the small footprint W-QFN4040-24 (4mm x 4mm) package.

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#### The DIODES Advantage

The AP33771C and AP33772S provide a simple and versatile high-power-density solution for USB PD 3.1 EPR equipment.

- **AP33771C: Preloaded Power Menu to Support Power Device Objects (PDOs) and Augmented Power Device Objects (APDOs)**  
Provides a simplified solution for battery-powered USB-C portable devices using only two resistors to set input voltage and power
- **AP33772S: Built-In Firmware and I2C Register Enables the System's Host MCU to Specify the Desired Power Profile**  
Automatically converts requested voltage and current to find a match from PD source's devices
- **Drives NMOS VBUS Power Switch**  
Reduces bill-of-materials (BOM) cost
- **34V Tolerant CC Pins Prevent VBUS-to-CC Short**  
Enables robust system protection from accidental shorts to high-voltage VBUS
- **Small (<16mm<sup>2</sup>) Footprint with Built-In Drive for External VBUS NMOS Power Switches**  
Provides a compact and highly functional solution for USB PD3.1 EPR applications

#### Applications

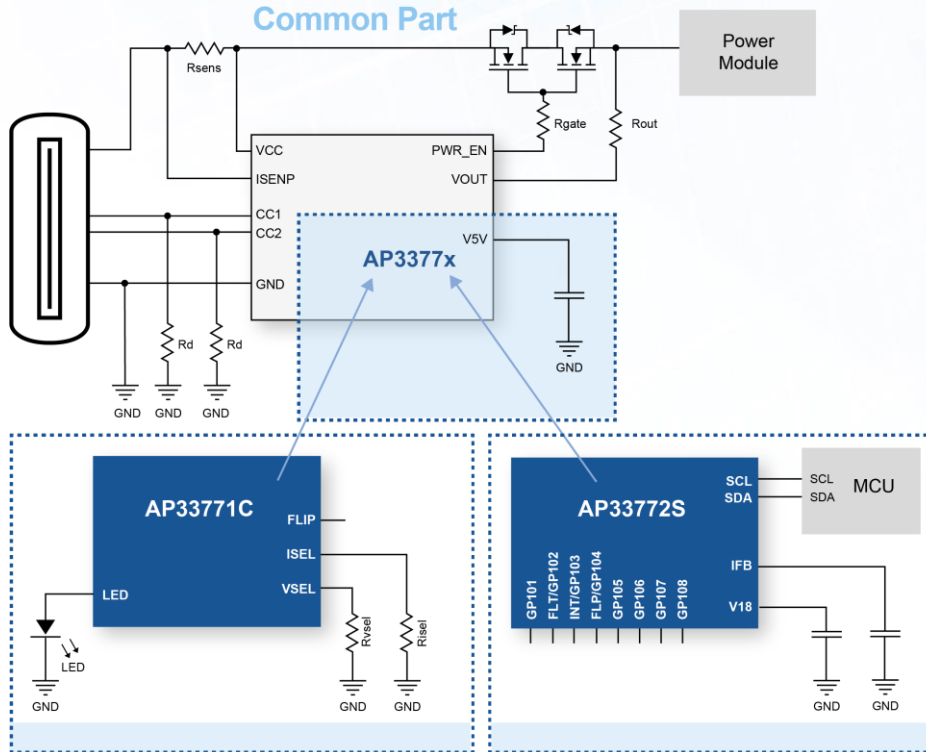
- Small home appliances with USB-C power/charging ports
- Battery-powered portable devices
- Power tools with USB-C charging ports
- USB-C sink devices



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## AP33771C AP33772S

### Typical Application



Index	1	2	3	4	5	6	7	8
VSEL	5V	9V	12V	15V	20V	28V	Reserved	Reserved
ISEL	1A	1.5A	2A	2.5A	3A	3.5A	4A	5A
Resistance (kΩ, 1%)	100	82	66	52	39	26	15	5.1

### Product Portfolio

Part Number	MAX VCC	Operating Current	Voltage/Current Sense Reference	Voltage Control Type	Current Control Type	USB PD Protocol Compatible	CC Pins Protection Voltage	Typical UVLO Voltage	Package
	V	µA					V	V	
<a href="#">AP33771C</a>	34	3300	Adjustable	One Resistor	One Resistor	3.1 EPR	34	2.7	W-DFN3030-14 (Type A1)
<a href="#">AP33772S</a>	34	3300	Programmable	I2C	I2C	3.1 EPR	34	2.7	W-QFN4040-24 (Type A1)

### Ordering Information

Orderable Part Number	Firmware Code	Compliance (Only Automotive Supports PPAP)	Package Code	Package	Moisture Sensitivity	Packing	
						Quantity	Carrier
<a href="#">AP33771CFBZ-13-FA01</a>	FA01 – standard code	<a href="#">Standard</a>	FBZ	W-DFN3030-14 (Type A1)	MSL-1	3,000	13" Tape & Reel
<a href="#">AP33772SDKZ-13-FA01</a>	FA01 – standard code	<a href="#">Standard</a>	DKZ	W-QFN4040-24 (Type A1)	MSL-1	3,000	13" Tape & Reel