



New Product Announcement

AP33771/ AP33772

High-Performance USB PD3.0 Sink Controllers Provide a Versatile Solution for USB PD Equipment

The AP33771 and AP33772 are USB Type-C® Power Delivery (PD) 3.0 sink controllers that are embedded into equipment that use a USB Type-C socket as the power supply source.

The devices are compliant with USB Type-C specification rev. 2.0 and USB PD specification rev. 3.0 V1.1 (USB PD3.0 PPS silicon compliance certification: TID – 5000).

The AP33771 has a preloaded power menu making it simpler to use, while the AP33772 includes an I2C interface providing greater flexibility for more sophisticated designs.

In order to obtain required power levels, both devices have built-in application firmware that can automatically carry out the PD3.0 negotiation procedure with the attached USB PD3.0-compliant charger. LED lighting (driven by one of their GPIOs) enables a clear indication of the charging state and potential fault situation.

The AP33771's power menu consists of eight different output voltages and ten different power levels. It supports USB-C-to-USB-C cable compensation and Type-A source charging.

The AP33772, using the 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 AP33771 and AP33772 are available in the small footprint W-QFN4040-24 (4mm x 4mm) package.

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The DIODES Advantage

The AP33771 and AP33772 provide a simple and versatile high-power-density solution for USB PD equipment.

- AP33771: Preloaded Power Menu for Power Device Objects (PDOs); Augmented Power Device Objects (APDOs) have a Power Profile Request**
 Simplifies solution for battery-powered USB-C portable devices through a simple resistor setting for input voltage (three resistors) and input power (one resistor)
- AP33772: Flexible Solution Using the Device's Host MCU to Specify the Desired Power Profile via an I2C Interface**
 Enables the I2C register and built-in firmware to automatically convert requested power and voltage to find a match from PD source's devices
- Charging State and Fault Indication**
 Drives LED lighting patterns to reflect quick charging status as well as protocol mismatch and fault indication
- Compact Solution**
 Small package (W-QFN4040-24, 4mm x 4mm) with built-in drive of external VBUS NMOS power switches

Applications

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

**AP33771/
AP33772**

Power Capacity

R1	Power Capacity
6.8kΩ	12W
16kΩ	15W
27kΩ	18W
36kΩ	20W
45.3kΩ	27W
56kΩ	36W
64.9kΩ	45W
75kΩ	60W
82kΩ	90W
91kΩ	100W

Voltage Selection

VSEL2	VSEL1	VSEL0	Target Voltage
0	0	0	5V
0	0	1	9V
0	1	0	15V
0	1	1	20V
1	0	0	4.3V
1	0	1	8.6V
1	1	0	12.9V
1	1	1	17.2V

Part Number	MAX VCC (V)	Operating Current (μA)	Typical Deep Sleep Current (μA)	Current/Power Control Type	Protocol Compatible	Typical UVLO Voltage (V)	Package
AP33771	24	3300	550	Three/One Resistor	USB PD3.0 PPS	2.7	W-QFN4040-24
AP33772	24	3300	550	I2C	USB PD3.0 PPS	2.7	W-QFN4040-24

Orderable Part Number	Compliance	Package Code	Package	Moisture Sensitivity	Carrier	Quantity
AP33771DKZ-13	Standard	DKZ	W-QFN4040-24	MSL-1	13" Tape & Reel	3000
AP33772DKZ-13	Standard	DKZ	W-QFN4040-24	MSL-1	13" Tape & Reel	3000