Low-Power Offline Primary Side Regulation Controller

The AP3776/AP3776B is a high performance AC-DC power supply controller for battery charger and adapter applications.

It can meet less than 10mW standby power for “Super Star” charger criteria. The device uses Pulse Frequency Modulation (PFM) method to build discontinuous conduction mode (DCM) flyback power supplies.

The AP3776/AP3776B provides accurate constant voltage (CV), constant current (CC) and outstanding dynamic performance, eliminating the need for an optocoupler. It also eliminates the need of loop compensation circuitry while maintaining stability.

The AP3776/AP3776B achieves excellent regulation and high average efficiency, less than 10mW no-load power consumption and less than 1s startup time.

When the AP3776/AP3776B is used with AP4341, APR343 or APR3415, improved under-shoot performance and higher conversion efficiency can be achieved.

The Diodes’ Advantage

The AP3776/AP3776B can meet less than 10mW standby power for “Super Star” charger criteria.

- **Primary Side Control**
  - Eliminates the need for an optocoupler

- **10mW No-load Input Power**
  - Ultra low standby power

- **Random Frequency Adjustment**
  - Reduced System EMI

- **Semi-valley Turn on**
  - For higher efficiency

- **Multi Protections: OVP & OTP & SCP**
  - For system safety

- **Internal Cable Compensation**
  - To compensate for voltage drop on cable

Applications

- Charger/adapter for portable applications
**New Product Announcement**

AP3776/AP3776B

**Typical Application Schematic**

![Typical Application Schematic](image)

**Product Portfolio**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Vcc Max (V)</th>
<th>Startup Current (μA)</th>
<th>Operating Current (μA)</th>
<th>UVLO Threshold on/off (V)</th>
<th>Power Rating (W)</th>
<th>Standby Power (mW)</th>
<th>Cable Compensation</th>
<th>Package Outlines</th>
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<tbody>
<tr>
<td>AP3776</td>
<td>28</td>
<td>0.2</td>
<td>280</td>
<td>13/6.1</td>
<td>15W</td>
<td>10</td>
<td>7%</td>
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**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
<th>Temperature Range</th>
<th>Cable Compensation Voltage</th>
<th>Marking ID</th>
<th>Packing</th>
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<tr>
<td>AP3776MTR-G1</td>
<td>SO-8</td>
<td>-40 to +150°C</td>
<td>7%</td>
<td>3776M-G1</td>
<td>4,000/Tape &amp; Reel</td>
</tr>
<tr>
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