USB Power Delivery (Type-C PD) 45 W USB wall power adapter solution based on STCH02 and STUSB4700

Features
- USB wall power adapter input: 85 V\textsubscript{AC} to 264 V\textsubscript{AC}
- USB voltage output: 5 V, 9 V and 15 V
- Current limit: 3 A for all voltage level profiles
- Load power limited to 45 W
- Cable compensation
- Isolated quasi-resonant flyback
- Efficiency 90\% (approx.)
- USB Type-C Power Delivery compatible
- USB-IF certified

Description
This board has been physically tested and validated; it is not for sale.

This USB Power Delivery wall adapter is a USB-IF certified solution with a 45 W isolated power supply with USB Power Delivery controller.

This USB Type-C PD wall power adapter design is for universal line voltage applications based on the STCH02 Primary controller and STUSB4700 USB PD controller.

The 5 V, 9 V and 15 V USB output voltage profiles all have a 3 A rating.

The offline power supply is implemented in an isolated flyback topology based on the STCH02 quasi-resonant controller with ultra-low standby power consumption. The USB Power Delivery (PD) is managed by the STUSB4700 and is Type-C compatible: power negotiation, Vbus discharge, protections, etc. are entirely managed by the IC.

The USB power supply architecture connects a power board with a controller board. This design optimizes the form factor and lets you scale the power section up or down to suit different USB Power Adapter applications.
Schematic diagrams

Figure 1: Power board schematic diagram
Figure 2: Control board schematic diagram
## Revision history

Table 1: Document revision history

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<thead>
<tr>
<th>Date</th>
<th>Version</th>
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<tr>
<td>19-Oct-2017</td>
<td>1</td>
<td>Initial version</td>
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<tr>
<td>13-Nov-2017</td>
<td>2</td>
<td>Updated cover page image, description and Figure 2: &quot;Control board schematic diagram&quot;.</td>
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