

KEY FEATURES AND ADVANTAGES

- Advanced primary sensing control circuitry achieves accurate voltage and current (CV and CC) regulation without an opto-coupler
- Integrated primary switch and start-up device support application designs with very low component count
- Advanced insulated gate bipolar transistor (IGBT) technology provides a primary switch that is robust, reliable and avalanche-capable
- Integrated start-up switch enables very fast turn-on with no impact on no-load power
- Optimised PWM/PFM with quasi-resonant switching enables efficiency standards compliance with margin
- Enables fully compliant solutions for “MoU” Common External Power Supply universal USB chargers
 - Switching frequency dither and edge rate control of the primary switch gate drive ease design for low EMI and compliance to EN 301 489-34 with margin
 - Inherently low ripple and low EMI enable compliance with the interoperability standard, IEC 62684
- Best in class load-transient performance *and* no-load power less than 30 mW for five-star chargers
- Full featured protection includes
 - Single fault and over-temperature
 - Output over-voltage and short-circuit
 - Input under-voltage
- Convenient surface mount SOP-8 package for small size and low cost manufacture



SOP-8

APPLICATIONS

Universal input chargers for mobile phones, including “universal” USB and all major OEM specifications

Universal standby and auxiliary power supplies up to 3.5 W.

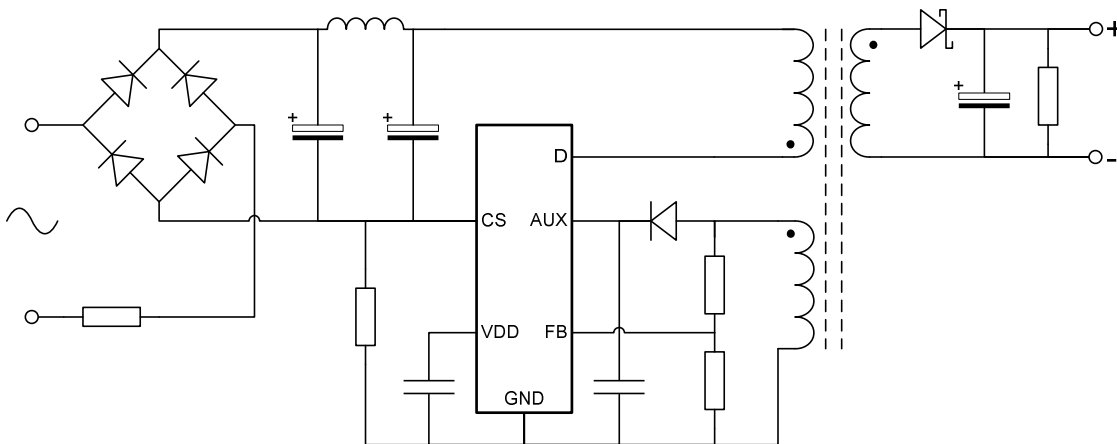


Figure 1: Typical Application Circuit

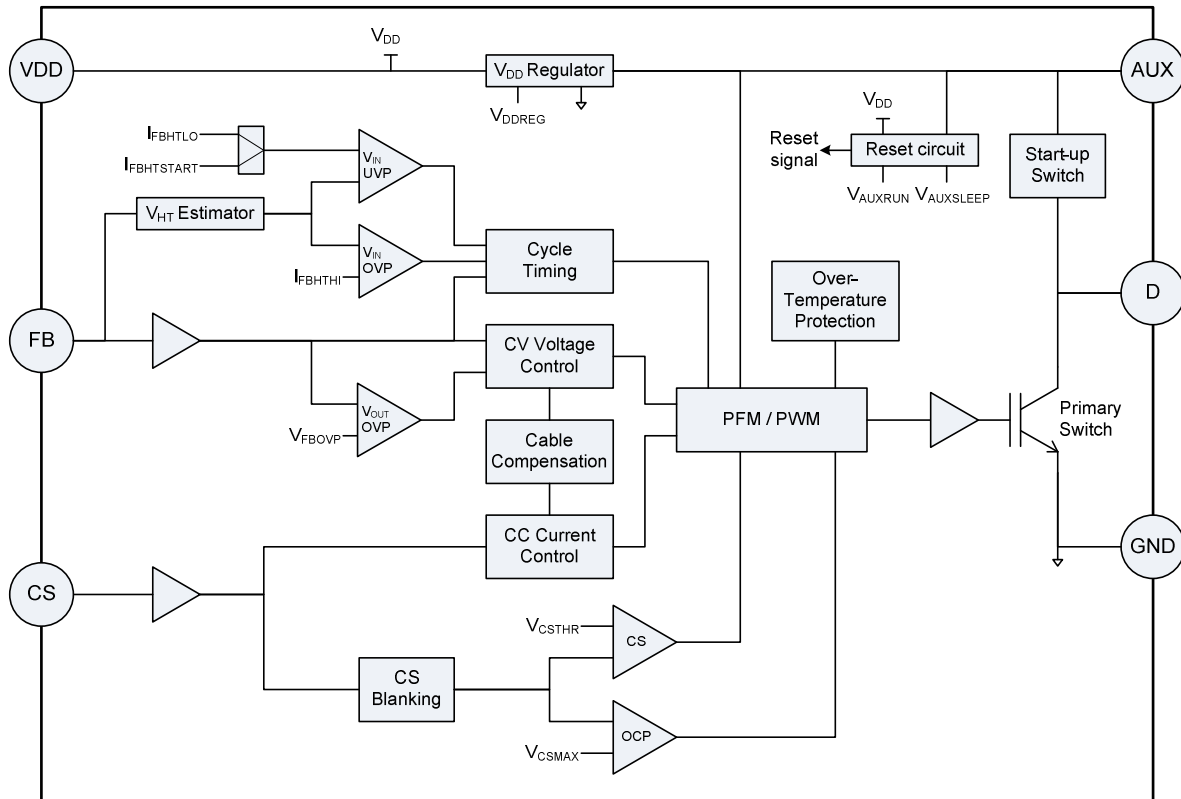
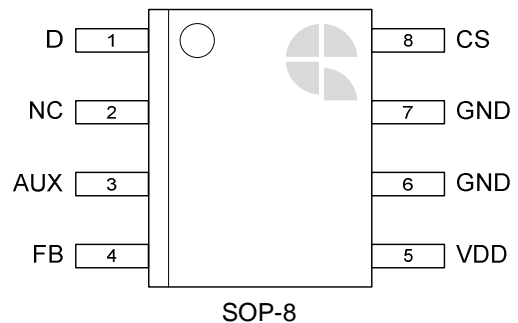
BLOCK DIAGRAM


Figure 2: C6182 Block Diagram

PIN DEFINITIONS

- D** High voltage connection to the drain of the primary switch and the start-up switch.
- NC** Not connected.
- AUX** During Run mode, power derived from the transformer auxiliary winding is fed to the control circuitry via the AUX pin.
- FB** The FB input provides feedback to the control circuitry by monitoring the transformer voltage waveform.
- VDD** Connection for capacitive decoupling of the internal power supply.
- GND** Power and signal ground.
- CS** Primary current sense, via Rcs (see Figure 3).



TYPICAL APPLICATION

| Parameter | Symbol | Range or Value | Units | Comment |
|----------------------------------|----------------|----------------|----------|--|
| Supply voltage | V_{IN} | 85 - 264 | Vac | Universal mains |
| Output voltage | V_{OUTCV} | 5 | V | Constant voltage mode, at the load |
| Output current | I_{OUTCC} | 630 | mA | Constant current mode |
| Switching frequency at full load | f_{MAX} | 65 | kHz | Determined by the chosen variant |
| Output cable resistance | R_{CAB} | 0.639 | Ω | Typical of a 1.5 m, 28 AWG output cable |
| Cable compensation | G_{CAB} | 6.7 | % | Determined by the chosen variant |
| No-load power | P_{NL} | 26 | mW | |
| Average efficiency | η | > 70 | % | Energy Star test method (minimum is 64.3%) |
| Turn-on delay | T_{ON} | < 0.1 | s | Enabled by active start-up device |
| Undershoot voltage | $V_{UNDERSHT}$ | > 4.3 | V | Load step from 0 to 0.5 A |

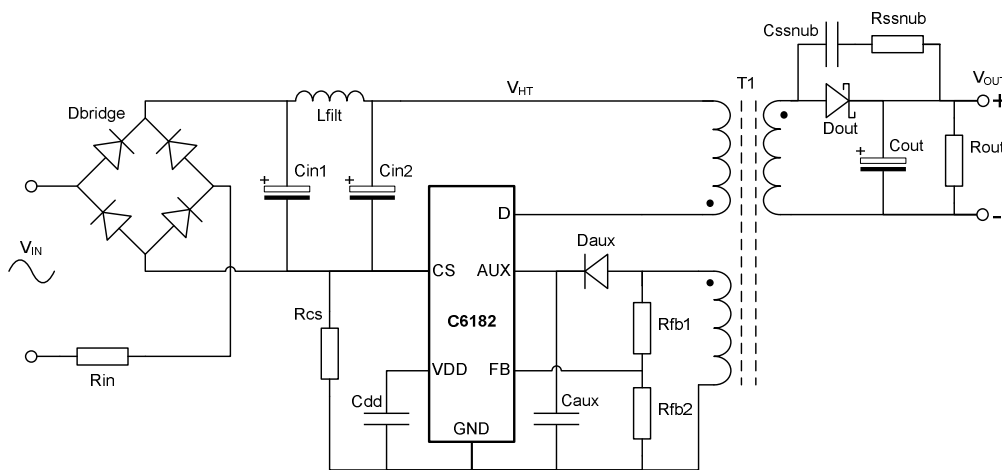


Figure 3: Typical Universal Input, Five Star USB Charger Using C6182

By sensing the primary-side waveforms of transformer voltage and primary current, the C6182 achieves constant voltage and constant current output within tight limits without the need for any secondary-side sensing components. Figure 4 shows the output characteristics of a typical charger implementation.

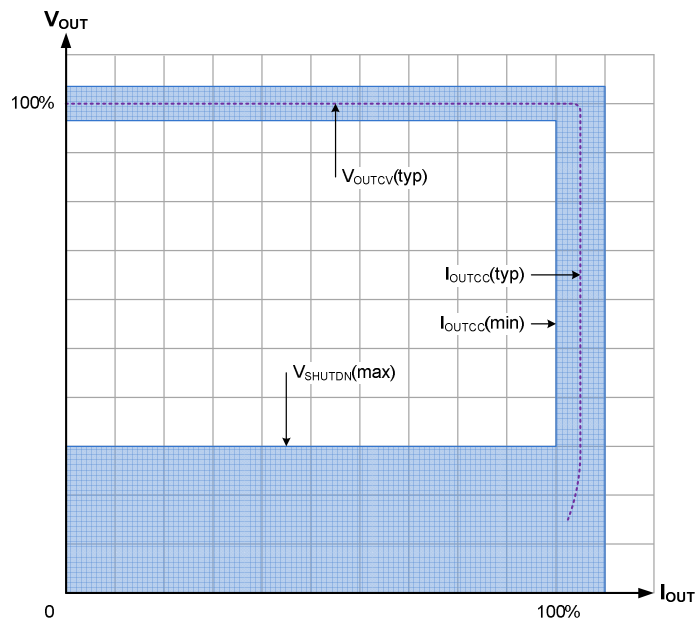


Figure 4: Typical CV/CC Output Characteristic Achieved Using C6182

DATASHEET STATUS

The status of this Datasheet is shown in the footer.

| Datasheet Status | Product Status | Nature of Datasheet Content |
|------------------|--------------------------------------|--|
| Product preview | In definition and design | Target specifications for design and development of the described product. |
| Preliminary | In prototyping and pre-qualification | Preliminary specifications of functionality and performance which are supported by results from testing of initial prototypes. |
| Pre-production | In pre-production and qualification | Specifications of functionality and performance which are supported by results from testing of pre-production units. |
| Product data | In production | Specifications relating to functionality and performance which are supported by results from testing of pre-production and production units. |

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