

### KEY FEATURES AND ADVANTAGES

- Advanced primary sensing controller achieves accurate regulation without an opto-coupler
- Constant power feature
  - Optimised for fast start-up in to constant power loads with large capacitance
  - Supports motor drive applications
- Compensates for output cable voltage drop
- Optimised PWM/PFM with quasi resonant switching enables efficiency standards compliance with margin
- Switching frequency dither eases design for low EMI
- Inherently low ripple
- Best in class load-transient performance and no-load power less than 100 mW
- Enables consumer appliance low load (stand-by) requirements such as EC 1275/2008 tier two
- Full featured protection includes
  - Single fault and over-temperature
  - Output over-voltage and short-circuit
  - Input over-voltage and under-voltage
- Convenient surface mount SOT23-6 package for small size and low cost manufacture



C2283PX2  
SOT23-6

### APPLICATIONS

Adapters for networking products up to 18 W

Universal standby and auxiliary power supplies up to 18 W

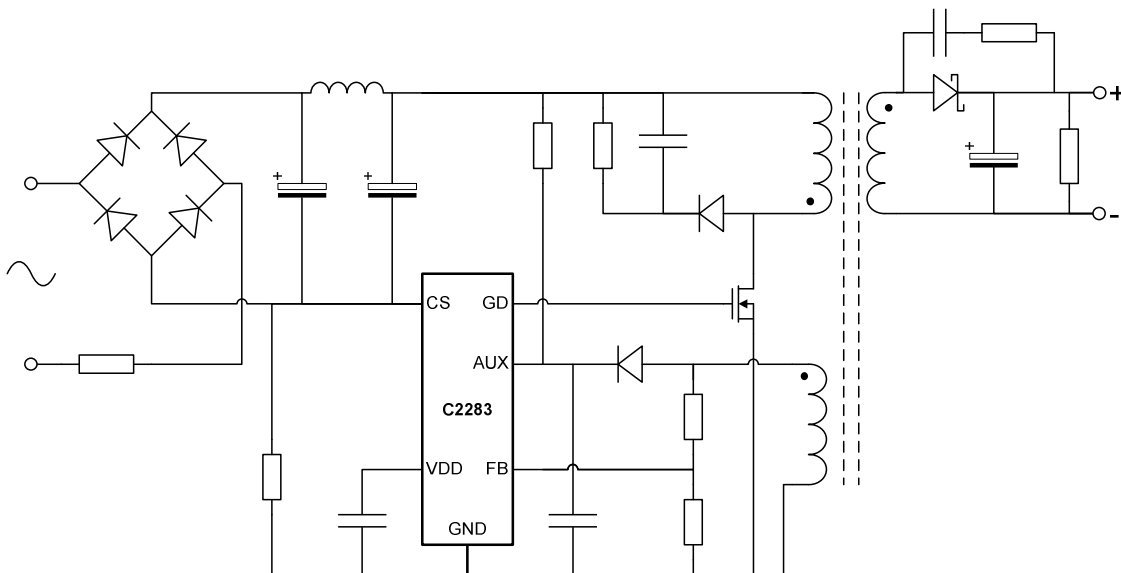


Figure 1: Typical Application Circuit



### TYPICAL APPLICATION

Parameter	Symbol	Range or Value	Units	Comment
Supply voltage	$V_{IN}$	85 - 264	Vac	Universal mains
Output voltage	$V_{OUTCV}$	$12 \pm 5\%$	V	Constant voltage (CV) mode, at the load
Load pull-up current	$I_{OUTCC}$	$2.0 \pm 10\%$	A	Constant current (CC) mode
Transformer	T1	EE19	-	
Switching frequency at full load	$f_{MAX}$	80	kHz	Determined by the chosen C2283 variant
Output cable resistance	$R_{CAB}$	0.16	$\Omega$	Typical of a 1.5 m, 22 AWG output cable
Cable compensation	$G_{CAB}$	2.0	%	Determined by the chosen C2283 variant
No-load power	$P_{NL}$	90	mW	Energy Star test method
Average efficiency	$\eta$	79	%	Energy Star test method
Turn-on delay	$T_{ON}$	< 1	s	

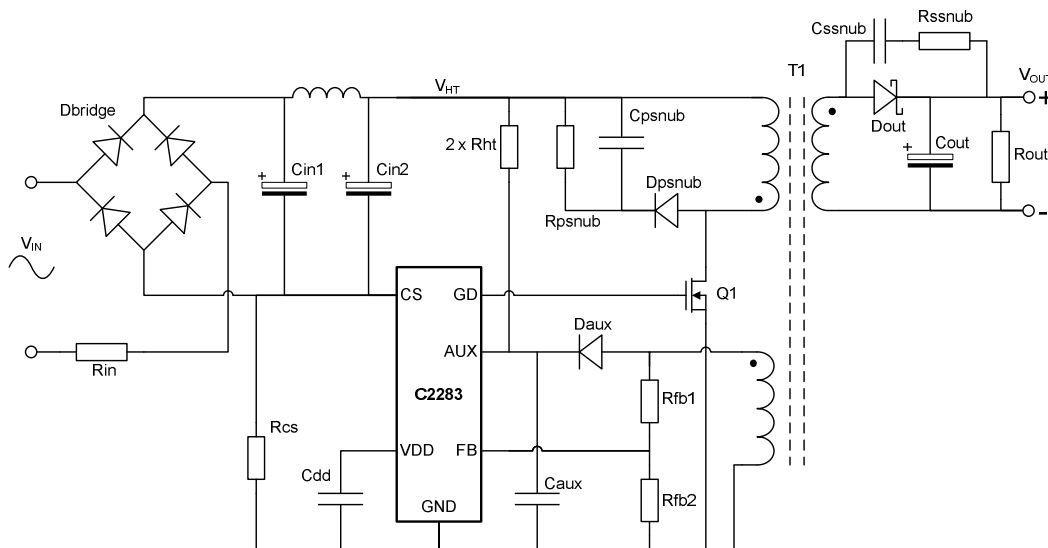


Figure 3: Typical Universal Input, 12 W, Adapter

The C2283 controller is optimised for fast start-up in to loads with large capacitance. The constant current (CC) pull-up set point of the VI characteristic is determined by the value of  $R_{cs}$ . The controller regulates in CC mode when the output voltage is above  $V_{SHUTDOWN(max)}$  and until it is above approximately 50% of the programmed constant-voltage (CV) regulation point (set by the values of  $R_{fb1}$  and  $R_{fb2}$ ). It then regulates in a power limited or “constant power” (CP) mode until the output voltage reaches the CV set point, at which point it changes to CV mode regulation.  $I_{OUT}$  at the point of transition between CP and CV modes,  $I_{OUTCP(min)}$ , will be greater than 50% of  $I_{OUTCC(typ)}$ .

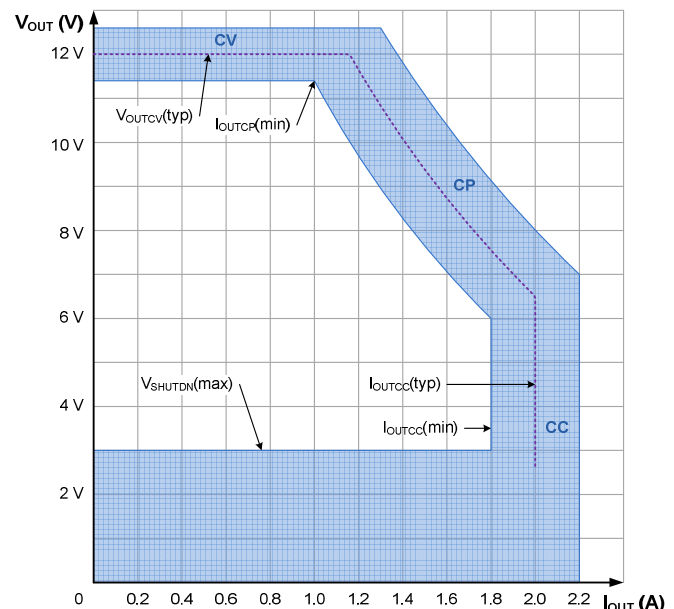


Figure 4: VI Output Characteristic of a Typical 12 V, 1 A adapter Implemented using C2283.

### 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.

### CONTACT DETAILS

Cambridge Semiconductor Ltd  
St Andrew's House  
St Andrew's Road  
Cambridge  
CB4 1DL  
United Kingdom

Phone: +44 (0)1223 446450

Fax: +44 (0)1223 446451

Email: [sales.enquiries@camsemi.com](mailto:sales.enquiries@camsemi.com)

Web: [www.camsemi.com](http://www.camsemi.com)

### DISCLAIMER

The product information provided herein is believed to be accurate and is provided on an "as is" basis. Cambridge Semiconductor Ltd (CamSemi) assumes no responsibility or liability for the direct or indirect consequences of use of the information in respect of any infringement of patents or other rights of third parties. Cambridge Semiconductor Ltd does not grant any licence under its patent or intellectual property rights or the rights of other parties.

Any application circuits described herein are for illustrative purposes only. In respect of any application of the product described herein Cambridge Semiconductor Ltd expressly disclaims all warranties of any kind, whether express or implied, including, but not limited to, the implied warranties of merchantability, fitness for a particular purpose and non-infringement of third party rights. No advice or information, whether oral or written, obtained from Cambridge Semiconductor Ltd shall create any warranty of any kind. Cambridge Semiconductor Ltd shall not be liable for any direct, indirect, incidental, special, consequential or exemplary damages, howsoever caused including but not limited to, damages for loss of profits, goodwill, use, data or other intangible losses.

The products and circuits described herein are subject to the usage conditions and end application exclusions as outlined in Cambridge Semiconductor Ltd Terms and Conditions of Sale which can be found at [www.camsemi.com/legal](http://www.camsemi.com/legal).

Cambridge Semiconductor Ltd reserves the right to change specifications without notice. To obtain the most current product information available visit [www.camsemi.com](http://www.camsemi.com) or contact us at the address shown above.