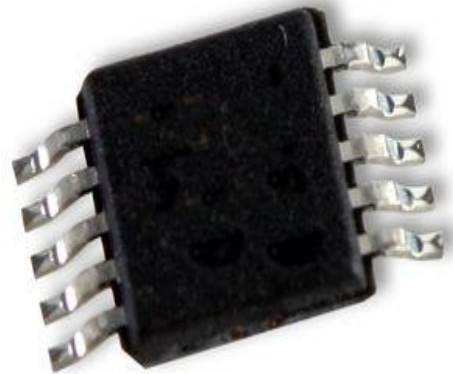




## ADP1882/ADP1883 Synchronous Current Mode with Constant on Time PWM Buck Controller

### General Description:

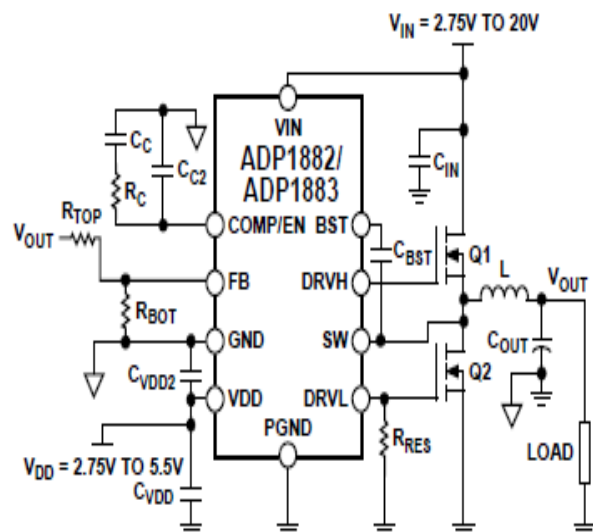
The ADP1882/ADP1883 are versatile current-mode, synchronous step-down controllers that provide superior transient response, optimal stability, and current-limit protection by using a constant on-time, pseudo-fixed frequency with a programmable current-limit, current-control scheme. In addition, these devices offer optimum performance at low duty cycles by using valley current-mode control architecture. This allows the ADP1882/ADP1883 to drive all N-channel power stages to regulate output voltages as low as 0.8 V.



The ADP1883 is the power saving mode (PSM) version of the device and is capable of pulse skipping to maintain output regulation while achieving improved system efficiency at light loads (see the Power Saving Mode (PSM) Version (ADP1883) section for more information).

Available in three frequency options (300 kHz, 600 kHz, and 1.0 MHz, plus the PSM option), the ADP1882/ADP1883 are well suited for a wide range of applications. These ICs not only operate from a 2.75 V to 5.5 V bias supply, but they also can accept a power input as high as 20 V.

In addition, an internally fixed soft start period is included to limit input in-rush current from the input supply during startup and to provide reverse current protection during soft start for a pre-charged output. The low-side current-sense, current-gain scheme and integration of a boost diode, along with the PSM/forced pulse-width modulation (PWM) option, reduce the external part count and improve efficiency.



The ADP1882/ADP1883 operate over the  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  junction temperature range and are available in a 10-lead MSOP.

## Key Features:

- Power input voltage as low as 2.75 V to 20 V
- Bias supply voltage range: 2.75 V to 5.5 V
- Minimum output voltage: 0.8 V
- 0.8 V reference voltage with  $\pm 1.0\%$  accuracy
- Supports all N-channel MOSFET power stages
- Available in 300 kHz, 600 kHz, and 1.0 MHz options
- No current-sense resistor required
- Power saving mode (PSM) for light loads (ADP1883 only)
- Resistor-programmable current-sense gain
- Thermal overload protection
- Short-circuit protection
- Precision enable input
- Integrated bootstrap diode for high-side drive
- 140  $\mu$ A shutdown supply current
- Starts into a precharged load
- Small, 10-lead MSOP package

## Applications:

- Telecom and networking systems
- Mid to high end servers
- Set-top boxes
- DSP core power supplies

## Related Products Information:

Mfr Part #	Farnell #	Newark #	Description
ADP1882ARMZ-0.3-R7	1827349	81R1686	Synchronous Current Mode with Constant On Time PWM Buck Controller-10 lead MSOP package Ccomp(pf)-911
ADP1883ARMZ-0.3-R7	1827353	81R1689	Synchronous Current Mode with Constant On Time PWM Buck Controller-10 lead MSOP package Ccomp(pf)-773
ADP1882ARMZ-0.6-R7	1827350	81R1687	Synchronous Current Mode with Constant On Time PWM Buck Controller-10 lead MSOP package Ccomp(pf)- 418
ADP1883ARMZ-0.6-R7	1827354	81R1690	Synchronous Current Mode with Constant On Time PWM Buck Controller-10 lead MSOP package Ccomp(pf)- 334
ADP1882ARMZ-1.0-R7	1827351	81R1688	Synchronous Current Mode with Constant On Time

			PWM Buck Controller-10 lead MSOP package Ccomp(pf)- 275
ADP1883ARMZ-1.0-R7	1827355	81R1691	Synchronous Current Mode with Constant On Time PWM Buck Controller-10 lead MSOP package Ccomp(pf)- 200

