

## Product Overview

### NCP1380: Controller, Quasi-Resonant Current Mode

For complete documentation, see the data sheet.

The NCP1380 is a high performance device aimed at powering quasi-resonant converters. Capitalizing on a proprietary valley lockout system, the controller shifts gears and reduces the switching frequency as the power loading becomes lighter. This results in a stable operation despite switching events always triggering in the drain-source valley. This system works down to the 4th valley and toggles to a variable frequency mode beyond, ensuring an excellent standby power performance. To improve the safety in the overload situations, the controller includes an Over Power Protection (OPP) circuit which clamps the delivered power at high-line. Safety-wise, a fixed internal timer relies on the feedback voltage to detect a fault. Once the timer elapses, the controller stops and stays latched for option A and C or enters auto-recovery mode for option B and D. Particularly well suited for adapter applications, the controller features a pin to implement either a combined overvoltage / overtemperature protection (version A and B) or a combined brownout / overvoltage protection (version C and D).

#### Features

- Quasi-resonant peak current mode control operation
- Valley switching operation with valley lockout
- Frequency foldback at light load
- Adjustable overpower protection
- Auto-recovery or latched internal output short circuit protection
- Fixed internal 80 ms timer for short circuit protection
- Combined overvoltage and overtemperature protection (A and B versions)
- Combined overvoltage protection and brownout (C and D versions)
- VCC range operation up to 28 V

#### Benefits

- High efficiency operation
- Provides for noise-immune operation
- Improves light load efficiency

#### Applications

- AC-DC adapters for notebooks
- Offline battery chargers
- Auxiliary power supplies (flat TV, appliances)

#### End Products

- Power AC-DC converters for adapters, TVs and set top boxes

### Part Electrical Specifications

Product	Compliance	Status	Topology	Control Mode	f <sub>sw</sub> Typ (kHz)	Stand-by Mode	UVLO (V)	Short Circuit Protection	Latch	Soft Start	V <sub>CC</sub> Max (V)	Drive Cap. (mA)	Package Type
NCP1380ADR2G	Pb-free	Active	Flyback	Current Mode	Variable	Yes	9	Yes	Yes	Yes	28	500 / 800	SOIC-8
	Halide free												
NCP1380BDR2G	Pb-free	Active	Flyback	Current Mode	Variable	Yes	9	Yes	No	Yes	28	500 / 800	SOIC-8
	Halide free												
NCP1380CDR2G	Pb-free	Active	Flyback	Current Mode	Variable	Yes	9	Yes	Yes	Yes	28	500 / 800	SOIC-8
	Halide free												
NCP1380DDR2G	Pb-free	Active	Flyback	Current Mode	Variable	Yes	9	Yes	No	Yes	28	500 / 800	SOIC-8
	Halide free												

# Application Diagram

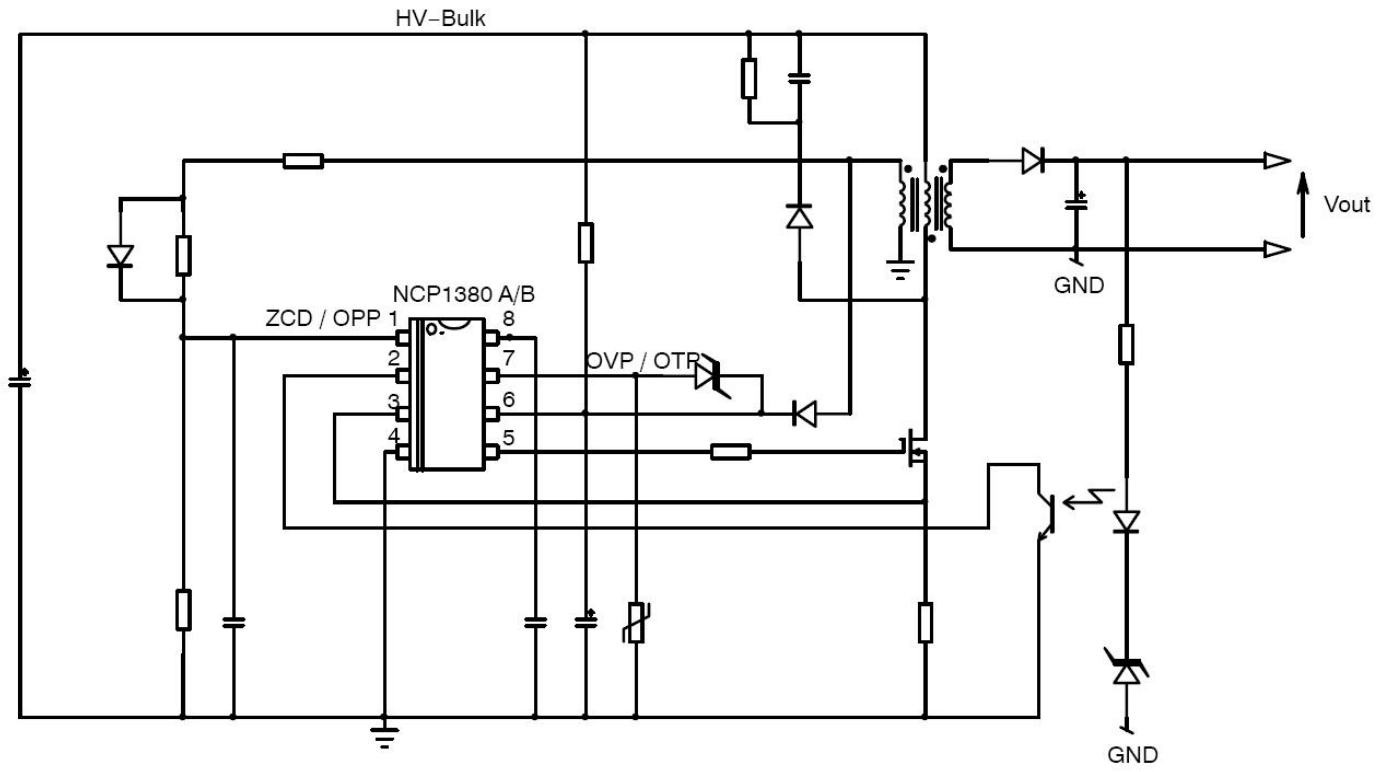


Figure 1. Typical Application Schematic for A and B Versions

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Created on: 9/18/2019