

## Product Overview

### NCP1338: PWM Controller, Free Running Quasi-Resonant Current Mode

For complete documentation, see the data sheet.

The NCP1338 combines a true current mode modulator and a demagnetization detector which ensures full Borderline/Critical Conduction Mode in any load/line conditions together with minimum drain voltage switching (Quasi-Resonant operation). The transformer core reset detection is done internally, without using any external signal, due to the Soxyless concept. The frequency is internally limited to 130 kHz, preventing the controller from operating above the 150 kHz CISPR-22 EMI starting limit. By monitoring the feedback pin activity, the controller enters skip mode as soon as the power demand falls below a predetermined level. As each restart is softened by an internal Soft-Skip™, and as the frequency cannot go below 25 kHz, no audible noise can be heard. The NCP1338 also features an efficient protective circuitry which, in presence of an overcurrent condition, disables the output pulses and enters a safe burst mode, trying to restart. Once the default has gone, the device auto-recovers. Also included is a bulk voltage monitoring function (known as brown-out protection), an adjustable overpower compensation, and a VCC OVP. The Fault Timer is reset by any of these conditions, to ensure that the controller immediately restarts when the condition disappears. Finally, an internal 4.0 ms Soft-Start eliminates the traditional startup stress. NCP1338 can be used in applications where the VCC supply voltage is delivered by an external dc voltage source. NCP1338 vs NCP1337: When a BO condition is applied, both controllers stop. When the BO condition is removed, NCP1337 doesn't restart if the fault timer has timed out; whereas NCP1338 always restarts (if Vcc is higher than 12 V).

#### Features

- Overvoltage Protection
  - Internal Leading Edge Blanking
  - Free-Running Borderline/Critical Mode Quasi-Resonant Operation
  - Soft-Skip Mode with Minimum Switching Frequency for Standby
  - Current-Mode
  - Auto-Recovery Short-Circuit Protection Independent of Auxiliary Voltage
  - Brown-Out Protection
  - Two Externally Triggerable Fault Comparators (one for a disable function, and the other for a permanent latch)
  - Internal 4.0 ms Soft-Start
  - 500 mA Peak Current Drive Sink Capability
- For more features, see the data sheet

#### Benefits

- rugged design
- Noise immunity
- Reduces EMI and capacitive losses
- reduces noise and increases efficiency in stand-by mode

#### Applications

- Ac-dc Adapters for Notebooks, etc.
- Offline Battery Chargers
- Auxiliary Power Supplies (USB, Appliances, TVs, etc.)

#### End Products

- Consumer Electronics (DVD Players, Set-Top Boxes, TVs, etc.)

#### Part Electrical Specifications

Product	Pricing (\$/Unit)	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
NCP1338DR2G	0.62	Pb-free Halide free	Active	Flyback	Current Mode	Variable	Yes	Yes	Yes	Yes	Yes	20	500 / 500	SOIC-7

## Application Diagram

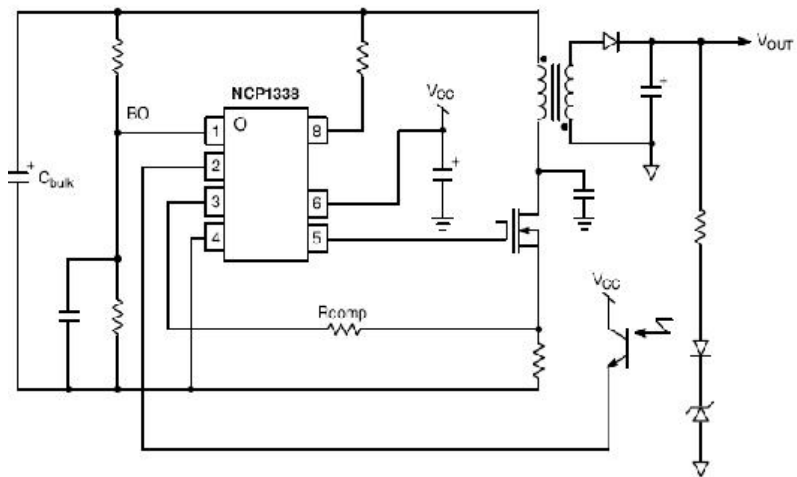


Figure 1. Typical Application Schematic

For more information please contact your local sales support at [www.onsemi.com](http://www.onsemi.com).

Created on: 6/3/2020