

## Product Overview

### NCP1377: Controller, Free Running Quasi-Resonant Current Mode

For complete documentation, see the data sheet.

The NCP1377 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). Due to its inherent skip cycle capability, the controller enters burst mode as soon as the power demand falls below a predetermined level. As this happens at low peak current, no audible noise can be heard. For NCP1377, an internal 8.0 $\mu$ s timer prevents the free-run frequency to exceed the 150kHz CISPR-22 EMI starting limit while the skip adjustment capability lets the user select the frequency at which the burst foldback takes place. For NCP1377B, the internal timer duration is reduced to 3.0 $\mu$ s to allow operation at higher frequencies. The transformer core reset detection is done through an auxiliary winding which, brought via a dedicated pin, also enables fast Over-Voltage Protection (OVP). Once an OVP has been detected, the IC permanently latches-off. The 1377 features a sampling time of 4.5 $\mu$ s whereas it is 1.5 $\mu$ s for the B version. The NCP1377 also features an efficient protective circuitries which, in presence of an overcurrent condition, disables the output pulses and enters a safe burst mode, trying to re-start. Once the default has gone, the device auto-recovers. Finally an internal 1ms soft-start eliminates the traditional startup stress.

### Features

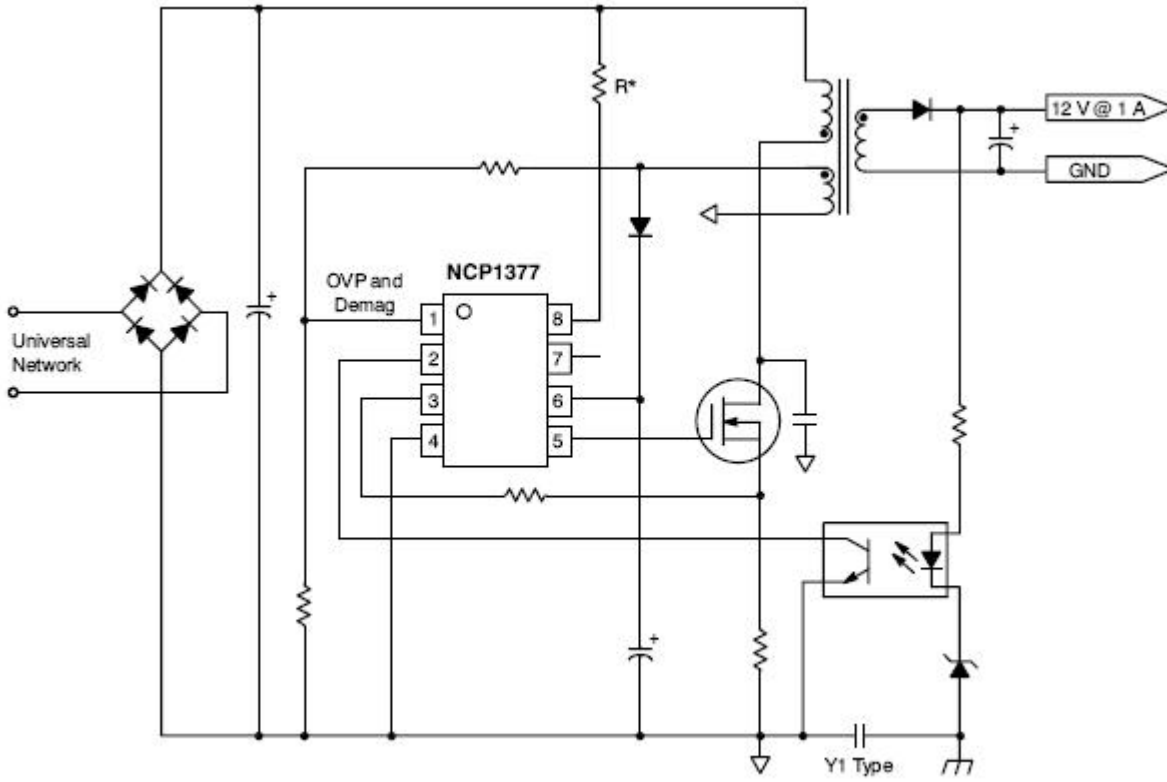
- Free-running borderline / critical mode quasi-resonant operation
- Latched Over Voltage Protection
- Auto-recovery short-circuit protection via UVLO crossover
- External latch triggering, e.g. via over-temperature signal
- Current-Mode with adjustable Skip-cycle capability
- Internal 1ms soft-start
- Internal temperature shutdown
- Internal Leading Edge Blanking
- 500mA peak current source/sink capability
- Under Voltage Lockout level of 12.5V (on) and 7.5V (min)

For more features, see the data sheet

### Applications

- AC/DC adapters for notebooks etc.
- Offline battery chargers
- Consumer electronics (DVD players, set-top boxes, TVs, etc.)
- Auxiliary power supplies (USB, appliances, TVs etc.)

# Application Diagram



Typical Application Schematic

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

Created on: 10/26/2020