

# NCP1207A, NCP1207B

## PWM Current-Mode Controller for Free Running Quasi-Resonant Operation

The NCP1207A/B combines a true current mode modulator and a demagnetization detector to ensure full borderline/critical Conduction Mode in any load/line conditions and 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 the NCP1207A, an internal 8.0  $\mu$ s timer prevents the free-run frequency to exceed 125 kHz (therefore below the 150 kHz CISPR-22 EMI starting limit), while the skip adjustment capability lets the user select the frequency at which the burst foldback takes place. For the NCP1207B, the internal timer duration is reduced to 4.5  $\mu$ s to allow operation at higher frequencies (up to 200 kHz).

The Dynamic Self-Supply (DSS) drastically simplifies the transformer design in avoiding the use of an auxiliary winding to supply the NCP1207A/B. This feature is particularly useful in applications where the output voltage varies during operation (e.g. battery chargers). Due to its high-voltage technology, the IC is directly connected to the high-voltage DC rail. As a result, the short-circuit trip point is not dependent upon any  $V_{CC}$  auxiliary level.

The transformer core reset detection is done through an auxiliary winding which, brought via a dedicated pin, also enables fast Overvoltage Protection (OVP). Once an OVP has been detected, the IC permanently latches off.

Finally, the continuous feedback signal monitoring implemented with an overcurrent fault protection circuitry (OCP) makes the final design rugged and reliable.

- Free-Running Borderline/Critical Mode Quasi-Resonant Operation
- Current-Mode with Adjustable Skip-Cycle Capability
- No Auxiliary Winding  $V_{CC}$  Operation
- Auto-Recovery Overcurrent Protection
- Latching Overvoltage Protection
- External Latch Triggering, e.g. Via Overtemperature Signal
- 500 mA Peak Current Source/Sink Capability
- Undervoltage Lockout for  $V_{CC}$  Below 10 V
- Internal 1.0 ms Soft-Start
- Internal 8.0  $\mu$ s Minimum  $T_{OFF}$  for NCP1207A, 4.5  $\mu$ s Minimum  $T_{OFF}$  for NCP1207B
- Adjustable Skip Level
- Internal Temperature Shutdown
- Direct Optocoupler Connection
- SPICE Models Available for TRANsient Analysis
- These are Pb-Free and Halide-Free Devices

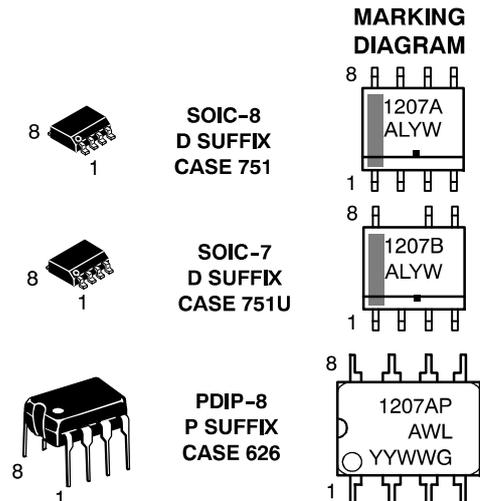
### Typical Applications

- 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.)



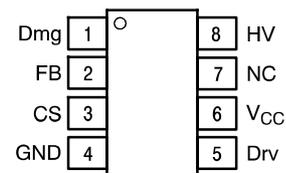
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1207A/B/AP = Device Code  
 A = Assembly Location  
 L, WL = Wafer Lot  
 Y, YY = Year  
 W, WW = Work Week  
 ■ or G = Pb-Free Package

### PIN CONNECTIONS



### ORDERING INFORMATION

Device	Package	Shipping†
NCP1207ADR2G	SOIC-8 (Pb-Free)	2500/Tape & Reel
NCP1207APG	PDIP-8 (Pb-Free)	50 Units / Rail
NCP1207BDR2G	SOIC-7 (Pb-Free)	2500/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

