# NCV97400

## Automotive Multi-Output Power Management IC (PMIC) for Safety Applications

The NCV97400 is a 4-output monolithic regulator consisting of 3 buck regulators and 1 boost regulator with supervisory functions including window voltage monitoring on all outputs and a window watchdog timer. This product is ideal for ADAS (Advanced Driver Assistance Systems) applications and utilizes an independent voltage reference and an adjustable independent oscillator to realize the supervisory features. A 40 V non-synchronous buck regulator converts the battery supply voltage to a 3.3 V output, and delivers up to 3 A (peak). This output rail may be used as the input voltage for the 2 synchronous secondary buck converters and the non-synchronous secondary boost converter. Each secondary buck is adjustable and can be set from 2.5 V to 0.8 V with 2 A peak current limit and can be supplied by up to 3.6 V from a separate supply. The secondary boost output voltage is fixed and is intended to supply a low current 5.0 V rail for In-Vehicle Networking circuits (IVN). All internal MOSFETs are N-channel devices, and bootstrap circuits are used to drive high side MOSFETs. All 4 SMPS outputs use peak current mode control with internal slope compensation. The IC incorporates an internal regulator that supplies charge to the low-voltage gate drivers. The NCV97400 is a functional safety solution that reduces the time required to develop safety systems that comply with the International Standards Organization (ISO) 26262. The device includes a range of integrated safety features such as dedicated feedback references, output voltage monitoring, and window watchdog timer.

- 3 Enabled Buck Converters
- 1 Boost Converter for IVN Supply
- Wide Input of 4.1 to 40 V with Undervoltage Lockout (UVLO)
- Fixed, 2 MHz Base Switching Frequency
- Pseudo-random Spread Spectrum for Improved EMI
- Window Watchdog with Independent References
- Cycle-by-cycle Current Limit Protection
- External Frequency Synchronization
- NCV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable
- QFN Package with Wettable Flanks (pin edge plating)

  For more features, see the data sheet

- Safety Applications
- ADAS (Advanced Driver Assistance Systems)
- Body Electronics
- Telematics
- Automotive

| | Pricing ($/Unit) | Compliance | Status | Topology | Control Mode | $V_{CC}$ Min (V) | $V_{CC}$ Max (V) | $V_O$ Typ (V) | $I_O$ Typ (A) | Efficiency (%) | $f_{SW}$ Typ (kHz) | Package Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NCV97400MW00R2G | 4.6666 | A P Pb H | Active | Step-Down | Current Mode | 4.1 | 40 | | | 80-85 | 2000 | QFNW-32 |