

NCP1083

Integrated PoE-PD and DC-DC Converter Controller, 40 W, with Auxiliary Supply Support



Product Overview

For complete documentation, see the data sheet.

The NCP1083 is a member of the ON Semiconductor high power HIPO™ Power over Ethernet Powered Device (PoE-PD) product family and represents a robust, flexible and highly integrated solution targeting demanding medium and high power Ethernet applications. It combines in a single unit an enhanced PoE-PD interface supporting the IEEE 802.3af and the upcoming draft IEEE 802.3at (D3.0) standard and a flexible and configurable DC-DC converter controller.

The NCP1083's exceptional capabilities enable applications to smoothly transition from non-PoE to PoE enabled networks by also supporting power from auxiliary sources such as AC power adapters and battery supplies, eliminating the need for a second switching power supply.

ON Semiconductor's unique manufacturing process and design enhancements allow the NCP1083 to deliver up to 25.5 W for the draft IEEE 802.3at (D3.0) standard and up to 40 W for proprietary high power PoE applications. The NCP1083 enables the draft IEEE 802.3at (D3.0) and implements a two event physical layer classification. Additional proprietary classification procedures support high power sourcing equipment (PSE) on the market. The unique high power features leverage the significant cost advantages of PoE-enabled systems to a much broader spectrum of products in emerging markets such as industrial ethernet devices, PTZ and Dome IP cameras, RFID readers, MIMO WLAN access points, high-end VoIP phones, notebooks, etc.

The integrated current mode DC-DC controller facilitates isolated and non-isolated fly-back, forward and buck converter topologies. It has all the features necessary for a flexible, robust and highly efficient design including programmable switching frequency, duty cycle up to 80 percent, slope compensation, and soft start-up.

The NCP1083 is fabricated in a robust high voltage process and integrates a rugged vertical N-channel DMOS with a low loss current sense technique suitable for the most demanding environments

Features

- Auxiliary supply support with an input down to 9 V DC in combination with an extended power range up to 40 W.
- Improved robustness behavior against cable ESD. The NCP1083 reaches more than 4 kV on HBM and 3 kV for CESD.
- A programmable operational current limit up to 1100 mA for extended power ranges up to 40 W.

Benefits

- Eliminates the need for a second DC-DC converter to support traditional non-PoE power sources which may range down to 9 V.
- Protects the device against cable transients and hot swap events that can occur in harsh environments and when installed outdoors.
- Supports the IEEE802.3at and proprietary high power solutions beyond the standard up to 40 W.

Applications

- Power over Ethernet Powered Devices (PoE-PD)
- Wall-wart alternative
- PoE in combination with a wall wart
- IP PTZ cameras
- Point of sale

End Products

- High end VoIP phones
- WLAN MIMO access point
- Industrial high power equipment

Part Electrical Specifications

| Product | Pricing (\$/Unit) | Compliance | Status | Topology | Phases | Control Mode | V _{CC} Min (V) | V _{CC} Max (V) | f _{sw} Typ (kHz) | Package Type |
|--------------|-------------------|------------|--------|----------|--------|--------------|-------------------------|-------------------------|---------------------------|--------------|
| NCP1083DEG | 0.9135 | Pb H | Active | Flyback | 1 | Current Mode | 0 | 57 | 250 | TSSOP-20 |
| NCP1083DER2G | 0.9135 | Pb H | Active | Flyback | 1 | Current Mode | 0 | 57 | 250 | TSSOP-20 |