High Efficiency, Integrated 802.3at PoE-PD Controller and DC/DC Controller

FEATURES

- IEEE 802.3af/at compliant PD controller
- Type 2 PSE indication per IEEE802.3at
- Power delivery up to 25.5 Watt
- Integrated 100V 0.65 Ω hot swap MOSFET
- Accurate 140 mA typical inrush current level
- Programmable classification
- Current limit at 1000 mA
- Programmable UVLO of hot swap switch
- Programmable DC/DC switching frequency
- Current mode pulse width modulator
- 80% max duty cycle w/ internal compensation
- Support for isolated / non-isolated converters
- Seamless support for local power down to 9V
- OCP, SCP, OVP and OTP protections
- −40°C to 85°C ambient temperature range
- TSSOP-20 Package

APPLICATIONS

- Wireless access points
- IP security cameras
- Digital signage
- VoIP phones
- IEEE 802.3af/at PoE powered device
- Small-cell base stations
- Safety backup power
- Thin/Zero Client Terminals
- PoE LED networking

GENERAL DESCRIPTION

The CY1122 is a power solution for PoE PD (Powered Device). It integrates anIEEE802.3 af/at compliant PoE PD controller and a high efficiency current mode DC/DC controller. The PD controller includes PoE detection, classification, under-voltage lockout (UVLO) and an inrush control.
With the inrush current limit mechanism, CY1122 is safely protected during the input capacitor charging and without interruption due to die heating. The PoE interface allows both the classification and the current limitation are programmable through the adjusting of application circuits. Also, CY1122 performs IEEE802.3at Layer1 hardware classification, and provides an indication of Type 2 PSE detection.

The CY1122 also implements all features which are necessary in DC/DC controller for a flexible, robust and highly efficient design, including programmable switching frequency, duty cycle up to 80%, slope compensation, soft startup, and bootstrap startup source. In addition, a decent gate driver is implemented to optimize the design of forward and flyback converters.

Besides, CY1122 supports different input voltage options either from PoE front input or rear external adapter dependent on users' preferences. The DC/DC converter is designed for 9V converter startup circuitry. Both isolated and non-isolated DC/DC converter topologies are supported. To be a good power solution, CY1122 also incorporates a variety of protections: OCP(over current protection), SCP(short circuit protection), OVP(over voltage protection) and OTP (over temperature protection)

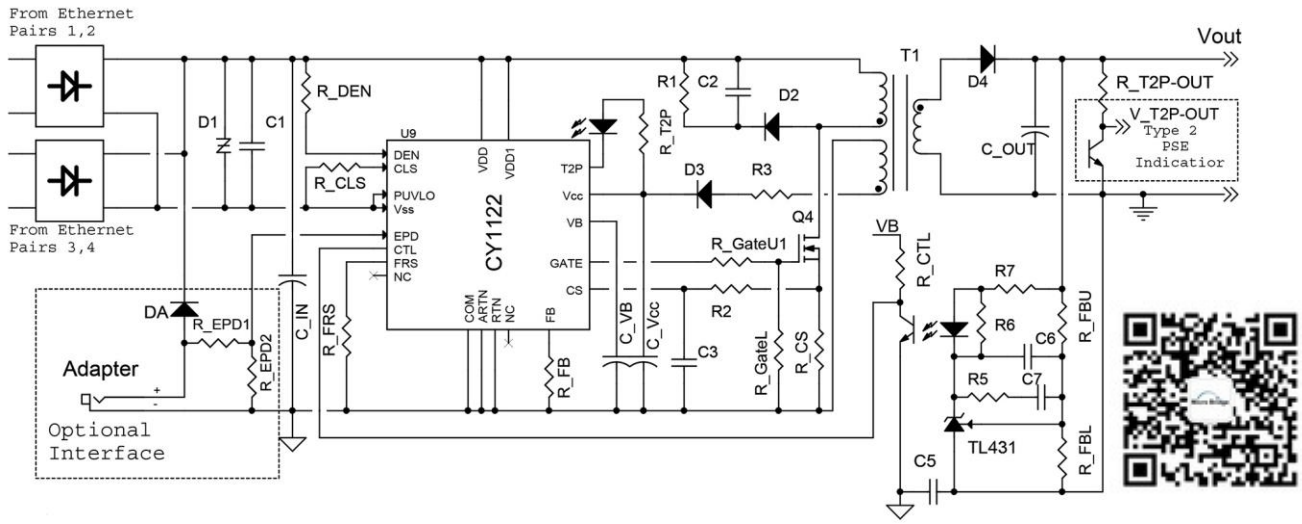

Figure 1. A Typical PoE PD Converter Using CY1122