



Description

This reference design is a two-stage, high-efficiency, 30kW power supply with a high voltage DC (HVDC) output. The first stage is a three-level flying capacitor power factor correction (PFC) converter running off of a three-phase input source. The PFC control is implemented with a [TMS320F28P650DK](#) high-performance microcontroller. The flying capacitor topology is selected over more traditional topologies (for example, Vienna rectifier) due to a frequency-doubling effect in the inductors. This doubling results in smaller and higher efficiency inductors. The PFC is followed by two Δ - Δ connected three phase inductor-inductor-capacitor (LLC) converters. There is one LLC for +400V and one for -400V. The LLC converters can be configured as separate supplies or as a single 800V output. The Δ - Δ connection provides reduced root-mean-square (RMS) currents. LLC control is implemented with a single [TMS320F28P650DK](#) high-performance microcontroller.

Features

- Peak efficiency: 98.5%
- PFC operating frequency: 65 kHz
- LLC operating frequency: 100kHz and 1.5MHz
- Dimensions: 800mm × 160mm × 32mm

Applications

- [Open rack server PSU](#)

Resources

[PMP23630](#)

[AMC0236](#), [AMC131M03](#)

[AMC1336](#), [AMC3306M05](#)

[TMCS1133](#), [TMS320F28P650DK](#)

[UCC33421-Q1](#), [UCC5350](#)

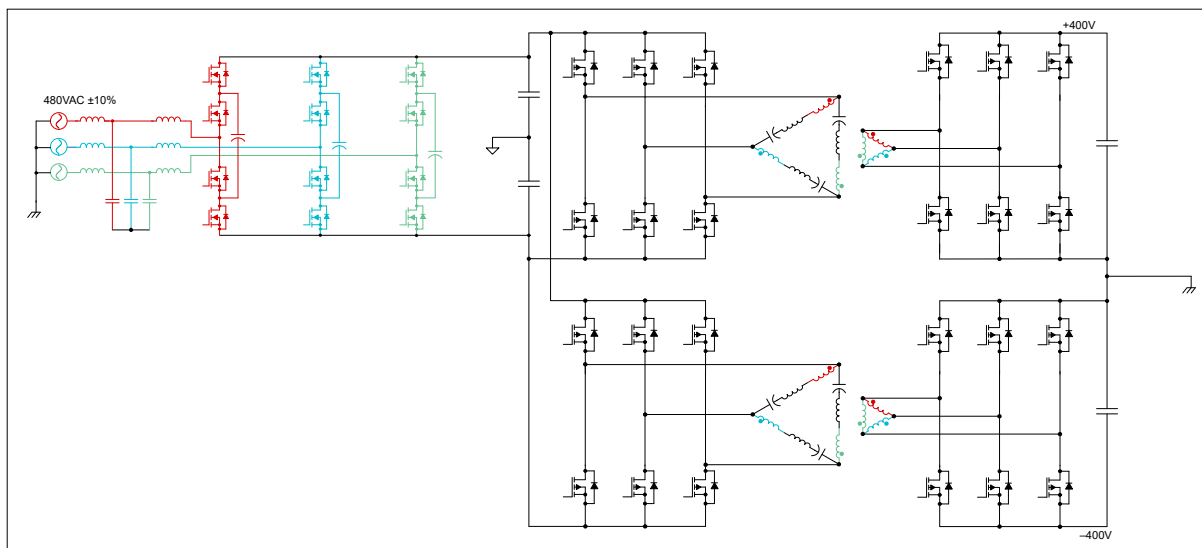
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