

Working Principle:

The input signal is applied across the two terminals A and B with 50hz Frequency.

When terminal A is positive and B is negative then D1 and D4 become forward biased and D2 and D3 become reverse biased.

On the other hand, diodes D2 and D3 become forward biased and D1 and D4 become reverse biased.

Thus, the bridge rectifier allows both positive and negative half cycles of the input AC signal.

Cin filter capacitor is added to removes the unwanted rectified Ac components.

Thus results is a very small conduction angle for the input current as well as poor PF, and input current obtained distorted waveform.

Here boost converter is used to step-up its input voltage to some higher level. This output voltage compare with reference voltage to make a new binary signal.

Then the pi controller tuning this signal to allow the control system to attain the set reference while performing as desired.

Next the product block multiplication or division of pi controller output signal with boost converter input gain voltage and make a sinusoidal reference signal.

Then this signal compare with inductor current sampling signal and hysteresis controller make a switching frequency to turn of mosfet. When inductor current drops to OA. The mosfet switch turn on. In addition, the capacitor is to filters the inductive current to make the

input current waveform more sinusoidal and smoother. This corrects PF and obtains a high PF Value closer to 1.

sinusoidal reference value

In a switching cycle, V_{OUT} is detected through FB, and the COMP value obtained after error amplification is

multiplied with the MULT pin signal to derive a sinusoidal reference value. **Then the** reference value is periodically compared to the inductor current sampling signal to complete the MOSFET switch's shutdown logic.

After the ZCS pin detects that the boost inductance current drops to 0A, the MOSFET switch's start-up logic is triggered, which

completes the switching cycle. In addition, **the C1 capacitor smoothly** filters the inductive current to make the input current waveform more sinusoidal and smoother. This corrects PF and obtains a high PF value closer to 1.