

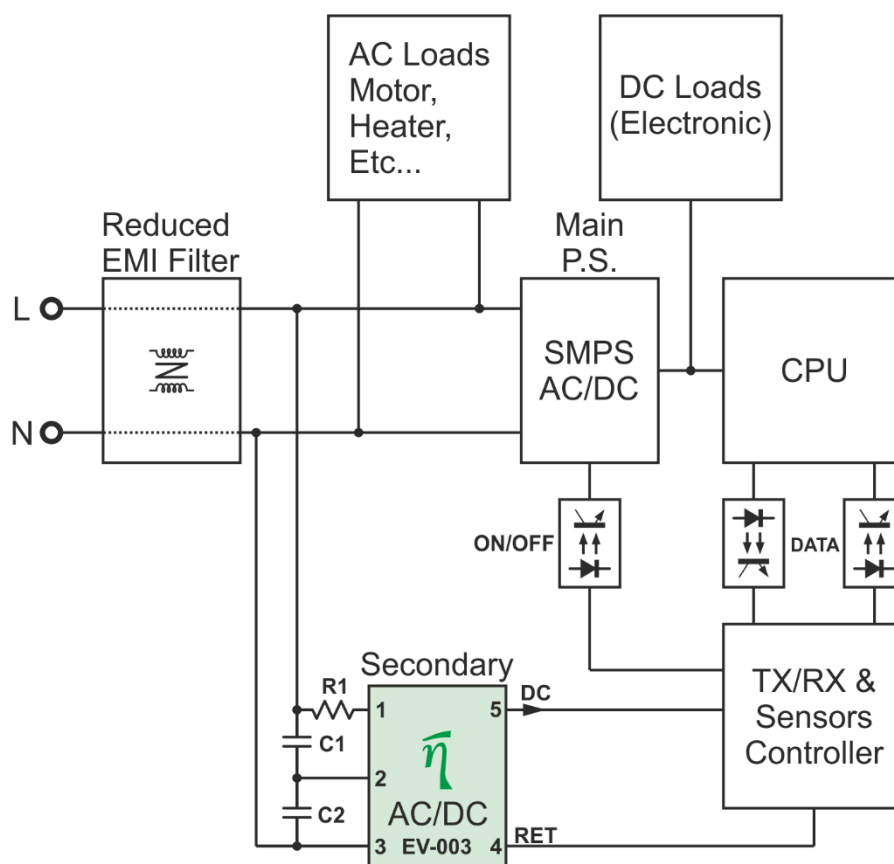
AN014 - Consumer Electronics & White Goods

Abstract

Typical consumer electronics & white goods appliances use one or two SMPSs (Switch-Mode-Power-Supply). The first is the main power supply, which converts the mains voltage to DC voltage. The second is a secondary power supply, which powers the standby circuitry. In some designs, the secondary power supply does not exist and the main power supply powers all the electronic circuitry in the equipment. During the standby mode, the equipment continues to consume power. The power consumption of the standby circuitry is low. However, during the standby mode, most of the power is consumed by the secondary SMPS itself, resulting in high power consumption in standby. When the secondary power supply does not exist, the power consumption in standby is higher.

Eta-Bar's EV-003 is an AC to DC secondary power supply. Its main features are: **Zero-Standby**^{*}, non-isolated, high efficiency, inductor-less AC to DC converter with regulated DC output. The EV-003 operates during all operation modes (Standby mode and ON mode). However, its main contribution to energy saving is during the standby mode, during which a minimal power consumption is required.

The EV-003 is capable of driving the IOT controller and transceiver. With EV-003, the number of elements in the EMI (Electro-Magnetic-Interference) filter can be reduced, resulting in a 'Reduced EMI filter'^{**}. EV-003 operates in wide temperature range and wide AC input voltage range.



^{*} **Zero-Standby** - According to the IEC 62301 Clause 4.5 regards measurements of less than 5 mW as zero power

^{**} See AN015 - Reduced EMI Filter

Main Features:

- Topology : Capacitive power supply (inductor-less),
Un-Isolated power supply.
- Input voltage range : 85 to 140 VAC ; 50 to 60 Hz
185 to 265 VAC ; 50 to 60 Hz
- DC output :
 - Voltage mode: Regulated voltage: adjustable 0.7 to 70 V DC
Output current capabilities:
 - Average current: up to 60 mA
 - Peak current: up to 500 mA for less than 500 mSec
 - Current mode: Regulated current: adjustable 1 mA to 60 mA DC
- Efficiency : >85% (Condition: at nominal output)
- Standby power : less than 5 mWatt
- EMI filters : Reduced EMI filter (see AN015 - Reduced EMI Filter)
Not required for the EV-003