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Information Brief

MC33368D
High Voltage
Active Power Factor Controller

Motorola's new **MC33368D** high voltage active power factor controller functions as a boost preconverter in off-line power supply applications. It is optimized for low power, high density power supplies requiring low power dissipation, reduced component count, and minimum board area. The **MC33368D** is packaged in the standard body SOIC-16 to provide a small footprint. Integration of the high voltage startup saves approximately 0.7 watts of power compared to resistor bootstrapped circuits!

The **MC33368D** features a watch dog timer to initiate output switching, a one-quadrant multiplier to force the line current to follow the instantaneous line voltage, a zero current detector to ensure critical conduction operation, a transconductance error amplifier, a current sensing comparator, a 5V reference, an undervoltage lockout (UVLO) circuit which monitors the V_{CC} supply voltage, and a CMOS driver for driving MOSFETs.

The **MC33368D** also includes a programmable output switching frequency clamp. Protection features include an output overvoltage comparator to minimize overshoot, a restart delay timer, and cycle-by-cycle current limiting.

FEATURES

- Lossless off-line start-up
- Restart delay timer
- No load and low loadoperation
- Output overvoltage comparator
- Active leading-edge blanking for noise immunity
- Watchdog timer to initiate switching
- Cycle-by-cycle current limiting
- Frequency control
- Internal +5V reference
- Undervoltage lockout (UVLO)
- –25 to +125°C junction temperature range
- Standard SOIC-16

TYPES OF APPLICATIONS

- Off-line power supplies
- Lamp ballasts
- Battery chargers

BENEFITS TO YOU

- Conforms to international standards by addressing IEC1000 -3 -2 (formerly IEC555-2) and FCC requirements for control of line current harmonic content.
- Improves reliability with internal current limiting.
- Reduces power consumption by saving approximately 0.7 watts of power compared to resistor bootstrapped circuits.
- Increases system safety by limiting power during short circuit condition (hiccup mode fault protection).
- Meets agency standards by controlling EMI with a frequency clamp.
- Provides system versatility with on / off control.
- Reduces cost with the minimum number of external components required.
- Saves space with surface-mount narrow body SOIC-16 packaging.

ANSWERS FOR THESE QUESTIONS

- Are you presently designing an off-line power supply?
- Is efficiency critical to your application?
- Do you need to improve your system power factor?
- Is conformance to international standards for line current harmonic content important?
- Do you have a standby operating mode requirement in your application?
- Is controlling EMI a design requirement?
- Is input power protection required in your design?
- Is space a critical design requirement?
- Do you want to minimize the number of external components?

LITERATURE

Data sheet: The MC33368/D contains full specifications, parametric curves and extensive applications information.

ORDERING INFORMATION

MC33368D is available in the convenient standard body SOIC-16 package. Pin 15 has been eliminated to achieve the required high voltage spacing requirements.

Device	Temperature Range	Package
MC33368D	–25 to +125°C	SOIC-16

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