ML4800

Low Start-up Current PFC/PWM Controller Combo

GENERAL DESCRIPTION

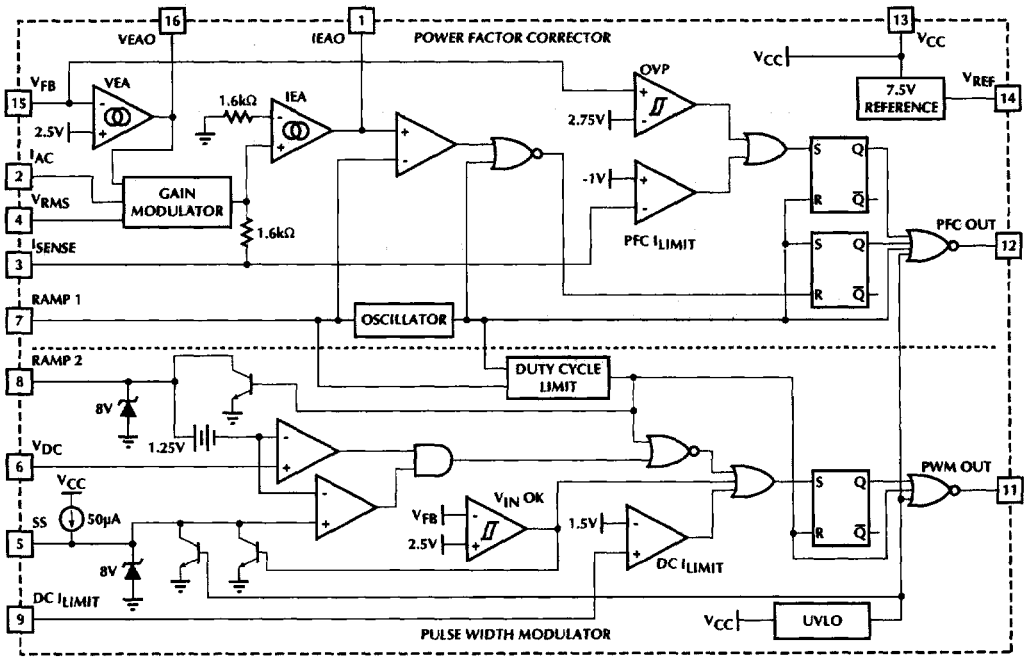
The ML4800 is a controller for power factor corrected, switched mode power supplies. Key features of this combined PFC and PWM controller are low start-up and operating currents. Power Factor Correction (PFC) allows the use of smaller, lower cost bulk capacitors, reduces power line loading and stress on the switching FETs, and results in a power supply that fully complies with IEC1000-3-2 specifications. The ML4800 includes circuits for the implementation of a leading edge, average current, "boost" type power factor correction and a trailing edge, pulse width modulator (PWM).

The PWM section of the ML800 operates at the same frequency as the PFC section. An over-voltage comparator shuts down the PFC section in the event of a sudden decrease in load. The PFC section also includes peak current limiting and input voltage brown-out protection. The ML4800 can be operated in current or voltage mode at up to 250kHz and includes a duty cycle limit to prevent transformer saturation.

FEATURES

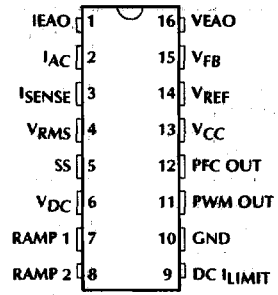
- Internally synchronized PFC and PWM in one IC
- Low start-up current (300µA typ.)
- Low operating current (4mA typ.)
- Low total harmonic distortion
- Reduces ripple current in the storage capacitor between the PFC and PWM sections
- Average current, continuous boost leading edge PFC
- High efficiency trailing edge PWM can be configured for current mode or voltage mode operation
- Current fed gain modulator for improved noise immunity
- Brown-out control, overvoltage protection, UVLO, and soft start

BLOCK DIAGRAM



PIN CONFIGURATION

ML4800
16-Pin PDIP (P16)
16-Pin Wide SOIC (S16W)



TOP VIEW

PIN DESCRIPTION

PIN	NAME	FUNCTION
1	IEAO	PFC transconductance current error amplifier output
2	I_{AC}	PFC gain control reference input
3	I_{SENSE}	Current sense input to the PFC current limit comparator
4	V_{RMS}	Input for PFC RMS line voltage compensation
5	SS	Connection point for the PWM soft start capacitor
6	V_{DC}	PWM voltage feedback input
7	RAMP 1	Oscillator timing node; timing set by R_TC_T
8	RAMP 2	When in current mode, this pin functions as as the current sense input; when in voltage mode, it is the PWM input from PFC output (feed forward ramp).
9	DC I_{LIMIT}	PWM current limit comparator input
10	GND	Ground
11	PWM OUT	PWM driver output
12	PFC OUT	PFC driver output
13	V_{CC}	Positive supply (connected to an internal shunt regulator)
14	V_{REF}	Buffered output for the internal 7.5V reference
15	V_{FB}	PFC transconductance voltage error amplifier input
16	VEAO	PFC transconductance voltage error amplifier output