



G1610B

High Performance Current Mode PWM Controller

1. General Description

G1610B is a highly integrated Green Mode PWM control IC. It minimizes the component counts, circuit space, and reduces the overall material cost for the power applications.

The G1610B features green-mode power-saving operation, auto gain control, and internal slope compensation, soft-start functions to optimized high performance, low standby power consumption and wide output voltage range PD adapter solutions.

At full loading, the IC operates in fixed frequency mode. When the loading goes low, it operates in Green mode with valley switching for high power conversion efficiency. When the load is very small, the IC operates in Extended Burst Mode to minimize the standby power loss. As a result, high conversion efficiency can be achieved in the whole loading range.

G1610B offers complete protection coverage including cycle-by-cycle current limiting (OCP), over temperature protection (OTP), output short, output and VDD over voltage protection. Excellent EMI performance is achieved with proprietary frequency shuffling technique.

Applications

Offline AC/DC flyback converter for

- PD adapters
- Wide output range adapters
- Open Frame Switching Power Supply

Features

- ◆ Ultra low operating current at light/no load
- ◆ Adaptive loop gain compensation
- ◆ Extended burst mode control for improved efficiency and low standby power
- ◆ Frequency Conversion Mode Operation with 65KHz or 45KHz fixed frequency @ Full Load
- ◆ Peak Load Mode with 125KHz max frequency
- ◆ Valley switching operation @ Green mode
- ◆ Internal OCP compensation for universal line voltage
- ◆ Power on soft start reducing MOSFET V_{ds} stress
- ◆ Audio noise free operation
- ◆ Protection Features
 - VDD UV lockout and Over voltage protection
 - Cycle-by-Cycle over current protection with auto-recovery
 - Output over voltage protection with latch shut down
 - Secondary rectifier diode open and short circuit protection with auto-recovery
 - Secondary winding Open and short circuit protection with auto-recovery
 - Output short protection (SCP) with auto-recovery
 - Over temperature protection (OTP) with latch shut down
 - Overload protection (OLP) with auto-recovery
- ◆ Pb-free SOP8

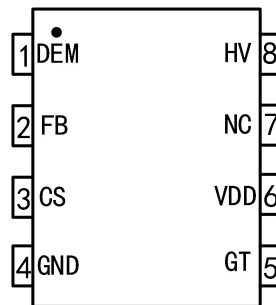


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2. Products Information

2.1 Pin configuration



SOP8 Package

Fig.1. G1610B Pin Configuration

Pin Name	I/O	Description
DEM	I	Multiple functions pin. Connecting a NTC resistor to ground for OTP detection. Connecting a resistor from Vaux can adjust IOVP/ISCP trigger current and detect transformer core demagnetization. If both OTP and OVP/SCP are needed, a diode should be connected between DEM pin and the NTC resistor.
FB	I	Feedback input pin. By connecting an opto-coupler to close the control loop and achieve the regulation.
CS	I	Current sense input, connect it to sense the MOSFET current.
GND	P	Ground.
GT	O	Gate driver output to driver the external MOSFET.
VDD	P	Power Supply.
NC		Not connection.
HV	P	Connected to the line input via resistors and diodes for startup and x-cap discharge, this pin allows the brownout detection as well.