GreenChip SMPS Primary Side Control IC with QR/DCM Operation and X-Capacitor Discharge

TEA19363T

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The TEA19363T is a member of the GreenChip family of controller ICs for switched mode power supplies. It is intended for flyback topologies to be used either standalone or together with USB PD or smart charging controllers (like the TEA190x series) at the secondary side. The built-in green functions provide high efficiency at all power levels.

The TEA19363T is compatible with multiple output voltage applications with a wide output range from 5 V to 20 V in Constant Voltage (CV) mode. When used with a secondary-side controller IC, like the TEA190x series, it supports Constant Current (CC) mode down to 3 V output voltage.

To support computing applications that typically have an X-capacitor with a higher value than 100 nF, the TEA19363T incorporates an active X-capacitor discharge function.

At high power levels, the flyback converter operates in Quasi-Resonant (QR) mode. At lower power levels, the controller switches to Frequency Reduction (FR) in Discontinuous Conduction Mode (DCM) operation. The peak current is limited to a minimum level. Valley switching is used in all operating modes.

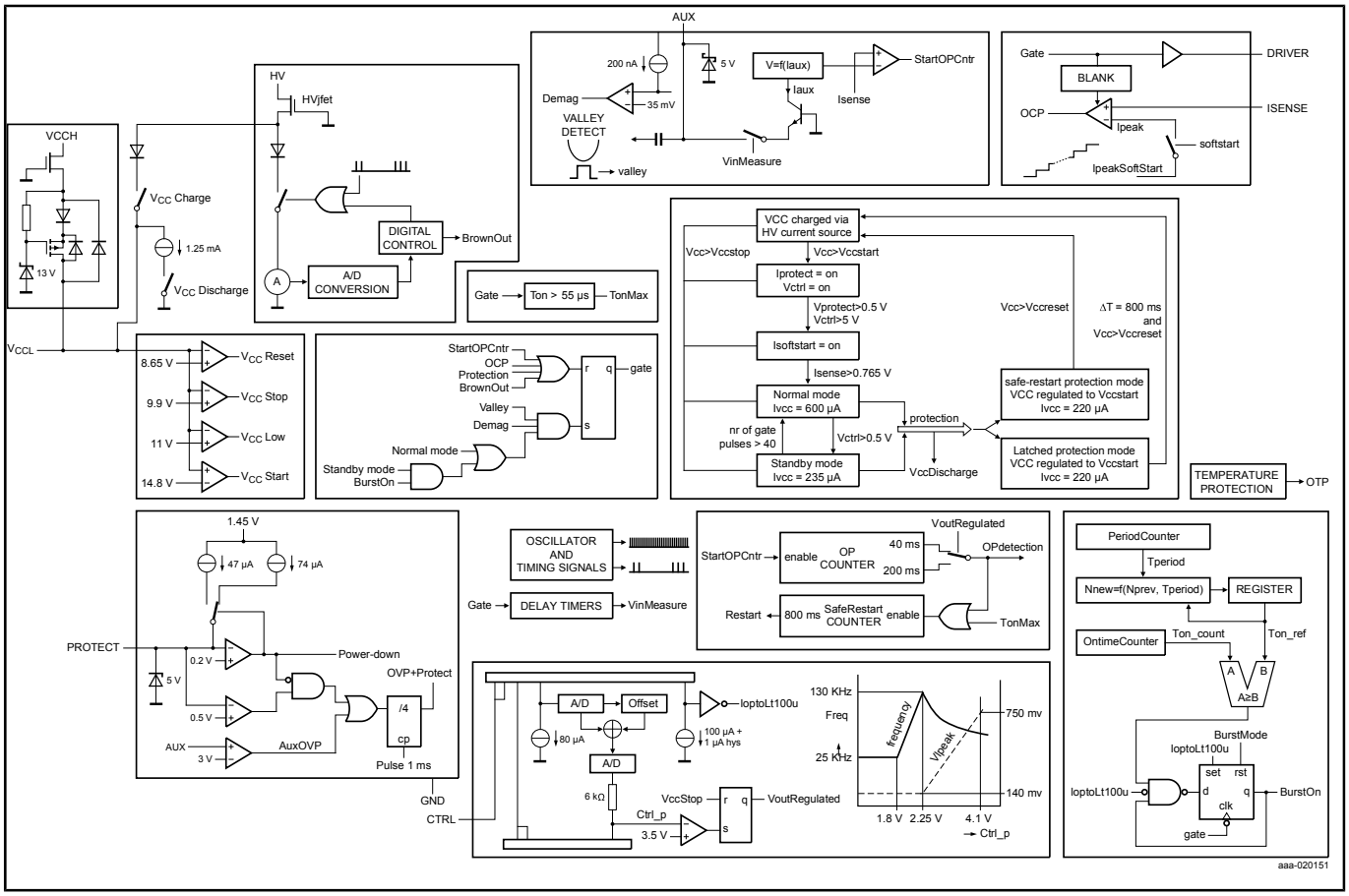
At very low power levels, the controller uses burst mode to regulate the output power. A special optocoupler current reduction regulation has been integrated which reduces the average optocoupler current in all modes to a minimum level. This reduction ensures high efficiency at low power and excellent no-load power performance. As the switching frequency in this mode is never less than fsw(min) and the burst repetition rate is regulated to a low value, the audible noise is minimized. During the non-switching phase of the burst mode, the internal IC supply current is minimized for further efficiency optimization.

The TEA19363T includes a wide set of protections that are safe restart protections. If the output is shorted, the system stops switching and restarts. The output power is then limited to a lower level. If the output is shorted, the system stops switching and restarts. The output power is then limited to a lower level.

The TEA19363T is manufactured in a high-voltage Silicon-On-Insulator (SOI) process. The SOI process combines the advantages of a low-voltage process (accuracy, highspeed protection, functions, and control). However, it also maintains the high-voltage capabilities (high-voltage start-up, low standby power, and brownin/brownout sensing at the input).

The TEA19363T enables low-cost, highly efficient and reliable supplies for power requirements up to 75 W using a minimum number of external components.

TEA1936X Block Diagram Block Diagram



View additional information for GreenChip SMPS Primary Side Control IC with QR/DCM Operation and X-Capacitor Discharge.

Note: The information on this document is subject to change without notice.