

# Synchronous Rectifier Controller with Zero Voltage Switching for Wide Output Voltage Operating Range

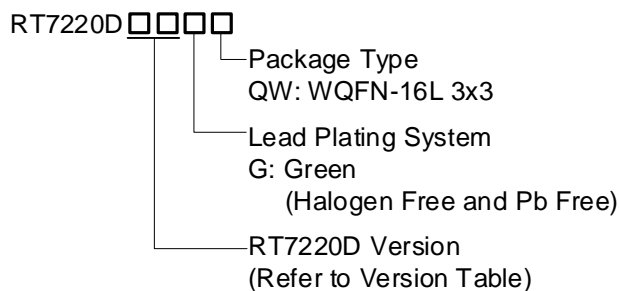
## General Description

The RT7220D is a Synchronous Rectifier (SR) controller for Flyback converters operating in Continuous Conduction Mode (CCM), Discontinuous Conduction Mode (DCM) and Quasi-Resonant (QR) mode. The RT7220D will sense the drain voltage of MOSFET to determine SR gate on/off so as to minimize turn-off dead-time and enhance efficiency.

The RT7220D supports the wide output voltage range from 3V to 21V, and a HV LDO is especially built-in for the MOSFET gate driver at low output voltage. When it works with the primary-side controller RT7757, the Zero-Voltage-Switching (ZVS) control can be enabled to optimize the efficiency at high line.

Furthermore, the RT7220D provides a green mode operation in light load condition, which reduces operation current to be under 250µA.

## Ordering Information



Note:

The products are:

- ▶ RoHS compliant and compatible with the current requirements of IPC/JEDEC J-STD-020.
- ▶ Suitable for use in SnPb or Pb-free soldering processes.

## Features

- Suitable for Flyback Converter in CCM, DCM and Quasi-Resonant (QR) Mode
- Suitable for 3V to 21V V<sub>OUT</sub> Range
- ZVS Function to Optimize Efficiency (Work with the Primary-Side Controller RT7757)
- <1.65mA Operating Current in ZVS Mode
- <250µA Operating Current in Green Mode
- Built-in HV LDO to Supply SR Driver when V<sub>OUT</sub> Lower than 5V
- Automatic Dead-Time Tracking Control to Optimize Efficiency
- Protection
  - ▶ SR Gate Driver with 6V Clamp
  - ▶ SR Gate Initial Pull-Low before Start-Up
  - ▶ SR Minimum Off-Time
  - ▶ Fast Turn-Off (<50ns) Gate Driver

## Applications

- USB PD Power Converters
- Fast-Charger Power Adapeters
- General Purpose High-Efficiency and/or Compact-Size Flyback Power Converters