

Monolithic Power Systems (MPS) is a high-performance analog semiconductor company headquartered in San Jose, California. Formed in 1997, the company has three core strengths; deep system-level and applications knowledge, strong analog design expertise, and an innovative proprietary process technology. These combined advantages enable MPS to deliver highly integrated monolithic products that offer energy efficient, cost-effective solutions.

MPS' systems and applications expertise stems from a team of industry veterans who possess a combination of highly-technical electronics knowledge, sophisticated system and IC level design capabilities and extensive customer application experience. This allows the company to work closely with customers to identify new product opportunities, reduce time-to-market and effectively support its applications. In addition, MPS has developed a portfolio of intellectual property and proprietary wafer fabrication processes that enhance its products and market share.

MPS' proprietary BCD Plus™ process technology is key to its competitive advantage. Many conventional analog technologies are handicapped by an inability to support the integration of power devices at high power levels. This results in unacceptably large semiconductors and/or significant levels of power loss. High power loss results in significant heat dissipation. This must be managed to avoid damaging or reducing the overall performance and efficiency of the system.

Other analog semiconductor vendors rely on multiple chip solutions to avoid these issues. In contrast, MPS' BCD Plus process technology resolves each of these issues. Implemented at standard CMOS foundries, this unique process integrates BiCMOS signal transistors with a highly efficient DMOS power transistor. This allows MPS to design and deliver smaller, single-chip power management ICs that are highly efficient and accurate. In addition, MPS' single process technology simplifies the design process, and is applicable across a wide range of analog applications. The result is higher productivity and significant cost advantages for any MPS customer.

MPS' product families include:

- AC/DC Offline
- Audio (Class-D Audio Amplifiers)
- Backlighting Solutions
- Battery Chargers / Protection
- Discrete High-Voltage MOSFETs
- Half-Bridge and Full-Bridge Power Drivers
- Isolated and Transformer Based Power Supplies
- Lighting & Illumination
- Linear Regulators
- Photo-Flash Solutions
- Power Over Ethernet (PoE) PD Solutions
- Precision Analog
- Push-Button Interface
- Supervisory Circuits / Voltage Supervisors
- Switching Power Supply Regulators
- USB and Current-Limit Load Switches

MPS is a fabless semiconductor company, working with third party foundries. However, in contrast to many other fabless companies that use standard process technologies, MPS works with its foundry partners to install its own proprietary process technology in their facilities for use solely by MPS. MPS has worldwide offices in Korea, China, Taiwan, Japan and across Europe.

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MPS
Monolithic Power Systems

SECONDARY-SIDE SYNCHRONOUS RECTIFICATION

Products Delivering the **Highest Efficiency**, When You **Need It**.



SR Controllers – Flyback

White Goods • Power Meters • Computing • HD-TV

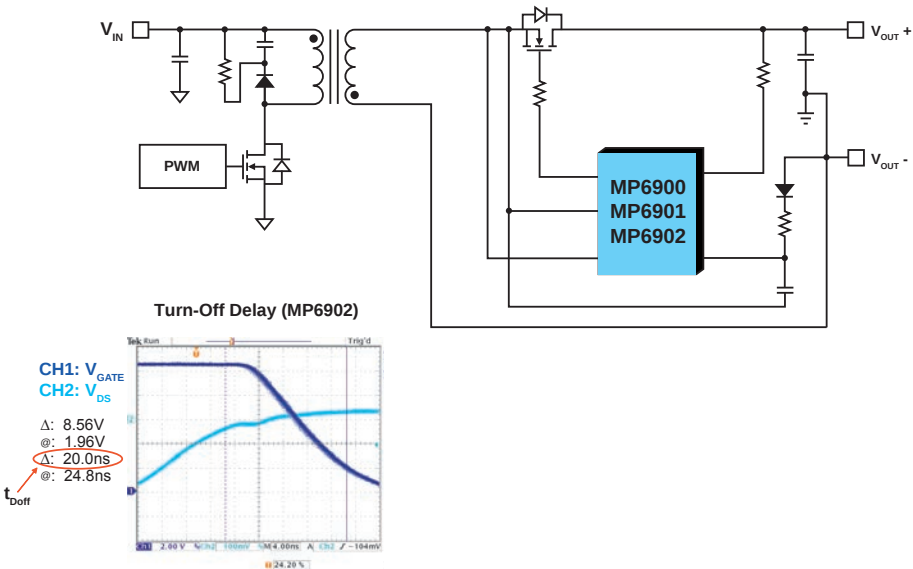
Synchronous Rectifier (SR) Flyback & LLC

SR Controllers – LLC

Telecom & Computing • LED Street Lighting • Gaming • LCD-TVs

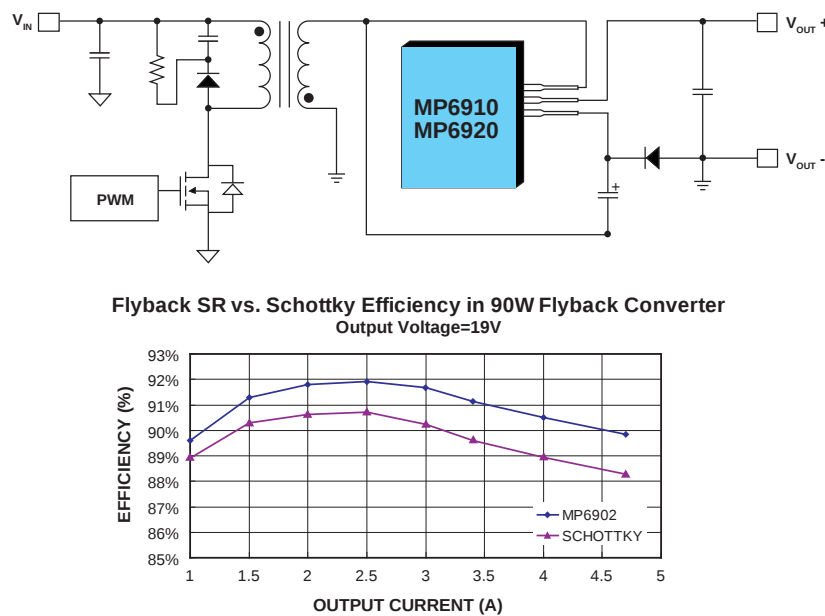
MP6900/01/02

SR Controller Replacing Diode in Flyback Application



MP6910 & MP6920

SR Regulator with Internal FET in Flyback Application



Features

- Fast Turn-Off of 20ns
- Inherent Light Power Mode Control
- Low Forward Voltage Drop Control
- Reverse Current Protection
- Flyback Supports CCM, DCM & QR
- LLC Supports CCM, CRGM & DC
- High-Side and Low-Side Configurable

Flyback Secondary-Side “Intelligent” Rectifier Parts Table

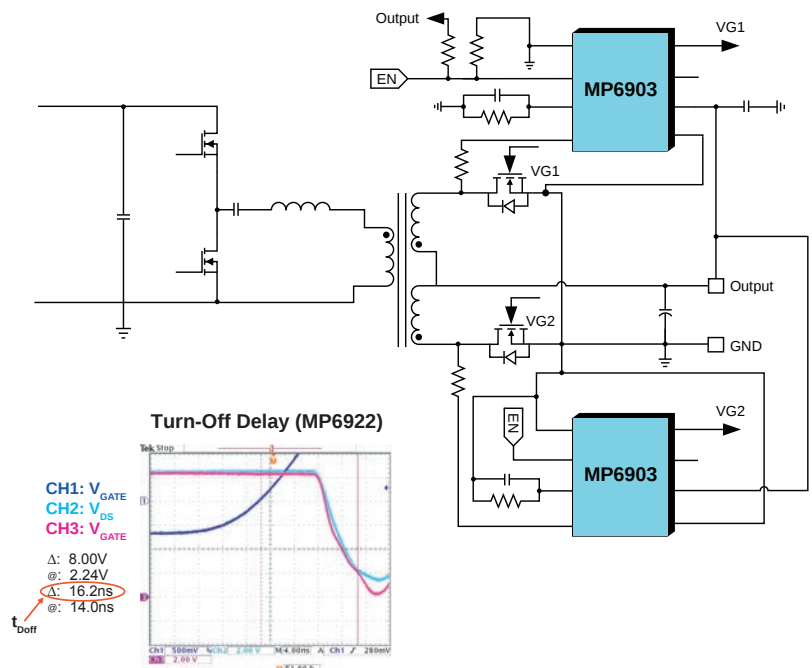
Part Number	Description	Drain Rating (V)	Switching FET	Turn Off Delay (ns)	V_{OUT} Max (V)	Minimum on Time (ns)	Light Load Management	Package
MP6900DJ	Rectifier	180	External	20	24	200	-	TSOT23-5
MP6900DS	Rectifier	180	External	20	24	200	-	SOIC-8
MP6900DQ	Rectifier	180	External	20	24	200	-	QFN-6
MP6901DJ	Rectifier	180	External	20	24	1600	-	SOIC8
MP6901DS	Rectifier	180	External	20	24	1600	-	TSOT23-5
MP6902DS	Rectifier	180	External	35	24	1600	Yes	SOIC8
MP6910DZ	Ideal Diode	100	Integrated/ 10mOhm	30	19	1600	Yes	TO220-3
MP6920DN	Ideal Diode	60	Integrated/ 10mOhm	30	5	1600	Yes	SOIC8E
MP6960GS	CV/CC Control	180	External	35	24	1600	Yes	SOIC8

LLC Secondary-Side “Intelligent” Rectifier Parts Table

Part Number	Description	Drain Rating (V)	Switching FET	Turn Off Delay (ns)	V_{OUT} Max (V)	Minimum on Time (ns)	Light Load Management	Package
MP6903DS	Single SR	180	External	60	24	800	Yes	SOIC-8E
MP6922DSE/DN	Dual SR	180	External	35	24	1000	Yes	SOIC-8/8E
MP6922DS	Dual SR	180	External	35	24	1000	Yes	SOIC-14
MP6922AGSE/GN	Dual SR	180	External	50	24	1000	Yes	SOIC-8/8E
MP6922AGS	Dual SR	180	External	50	24	1000	Yes	SOIC-14

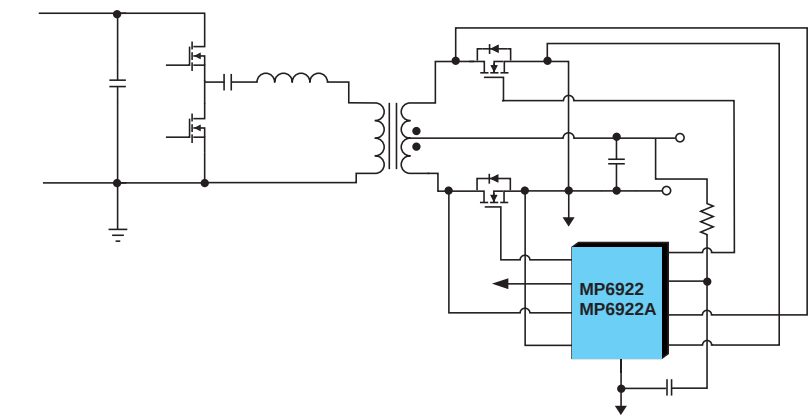
MP6903

Two SR Controllers Working with LLC Controller for Dual Outputs



MP6922/22A

Single SR Controller Working with LLC Controller for Dual Outputs



LLC SR vs. Schottky Efficiency in 90W LLC Converter
Output Voltage=12V

