



New products, tips and tools for power, analog and digital designers.

Advantages

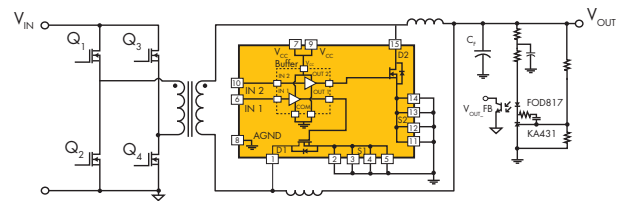
- Highly integrated solution eliminates extra components and simplifies design
- Compact, low-profile EPM15 package
- 10% lower on-resistance versus comparable discrete solutions
- 16% lower stray inductance reduces unwanted high voltage spikes, which increases design margin and lowers EMI
- Excellent high current driving capability with its built-in buffer IC

Applications

- SMPS designs
- Servers/Telecom
- Desktop computing
- PDP TVs
- LCD TVs

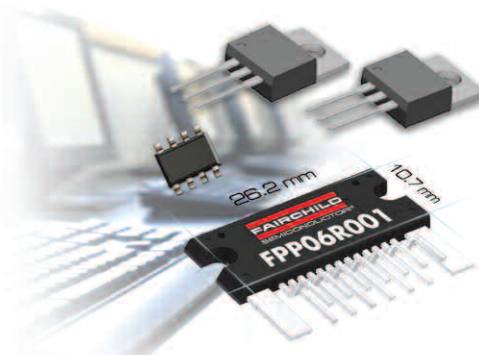
Save Space and Increase Efficiency in Power Supplies with the Power-SPM™ Module

The FPP06R001 is a highly integrated Power-SPM synchronous rectification module that integrates two PowerTrench® MOSFETs and a high current gate driver into a compact EPM15 package. This module increases power efficiency, system ruggedness and space efficiency in power supply designs. Providing 10% lower on-resistance and 16% lower stray inductance, the FPP06R001 delivers lower thermal dissipation and reduced voltage stress compared to using discrete components. These benefits make this module instrumental in helping power supply designers meet next generation ENERGY STAR® requirements, which specify that power supplies must achieve 85% or greater efficiency at normal output load conditions. By replacing up to ten discrete components, the FPP06R001 simplifies the design process and reduces board space by 20%.



Application Circuit of Full Bridge Converter with FPP06R001

Product Number	BV _{DSS} (V)	I _D (A)	R _{DS(ON)} (mΩ)	Package
FPP06R001	75	60	4.3	EPM15



FOR MORE INFORMATION PLEASE VISIT THE FOLLOWING WEBSITE:

<http://www.fairchildsemi.com/pf/FP/FPP06R001.html>

www.fairchildsemi.com

the
power
franchise

FPF1007-09

Advantages

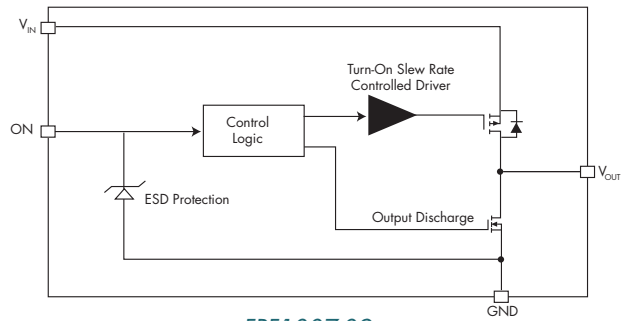
- Design flexibility with the choice of 10µs, 80µs and 1ms slew rate times
- Robust system protection with unique combination of protection and control features
- A highly integrated switch to reduce board space and component count

Applications

- PDAs
- Cell phones
- GPS devices
- MP3 players
- Digital cameras
- Peripheral ports
- Hot swap supplies
- Notebook computers

Simplify Design in Portable Devices with IntelliMAX™ Slew-Rate Controlled Load Switches

The FPF1007-09 series features multi-slew rate options as well as a protection interface between the application circuitry, battery or other accessory. With their high level of integration, these switches simplify design, reduce component count and minimize board space – attributes that are critical to mobile and consumer applications. This series has been specifically designed for applications with capacitive loads that are more susceptible to



FPF1007-09

current spikes and voltage sags – all of which can create issues in an application. The FPF1007-09 solutions feature slew-rate times of 10µs, 80µs and 1ms; therefore, a designer has the flexibility to choose the slew rate that is right for the application.

Product Number	V _{IN} Range (V)	Rise Time Typ. (µs)	R _{ON} Typ. (mΩ) @ V _{IN} =5.5V	On-Pin State	Output Discharge Resistor	Package
FPF1007	1.2 - 5.5	10	30	Active HI	Yes	MLP 2x2
FPF1008	1.2 - 5.5	80	30	Active HI	Yes	MLP 2x2
FPF1009	1.2 - 5.5	1000	30	Active HI	Yes	MLP 2x2



FAN7316/7

Advantages

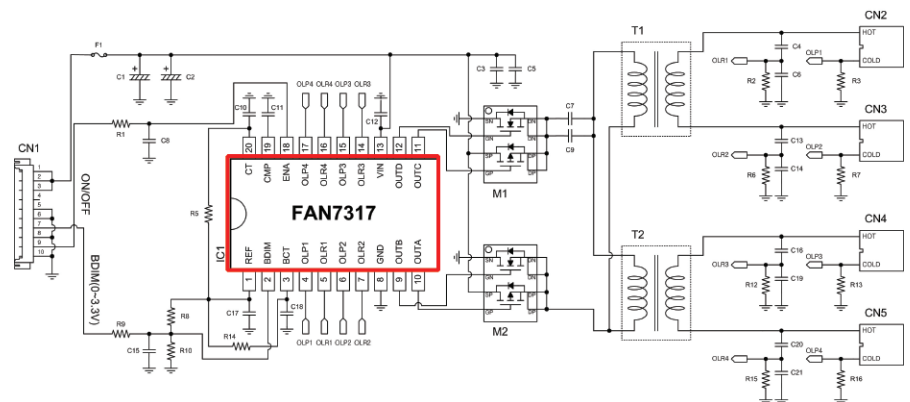
- Space and cost savings by eliminating up to 30 external components
- High system reliability by incorporating numerous protection functions
- Design flexibility through its wide input voltage range, selectable dimming polarity, analog and burst dimming mode and PWM dimming by an external pulse signal

Applications

- N-N half-bridge, push-pull topologies for LCD backlight inverter designs
- P-N full-bridge topology for LCD backlight inverter designs

Increase Reliability, Simplify Design and Reduce Total System Cost in LCD Backlight Systems

The FAN7316 and FAN7317, highly integrated CCFL backlight inverter drive ICs, feature a wide input voltage range as well as a built-in open lamp protection (OLP) and open lamp regulation (OLR) circuit, eliminating up to 30 external components in four lamp circuit inverter designs compared to similar devices on the market. These backlight inverter drive ICs offer selectable dimming polarity as well as analog and burst dimming functions, which simplify design and speed time-to-market. Ideal for N-N half-bridge, push-pull and P-N full-bridge LCD backlight inverter designs, these products offer the industry's most comprehensive protection functions for superior system reliability and also reduce system cost by eliminating external components.



Typical Application Circuit

Product Number	Topology	V _{IN} (V)	Dimming	OLP	OLR	SCP	V _{OUT} (V)	I _{OUT} (A)	Package
FAN7316	N-N Half-bridge, Push-pull	4.5-24	Analog, Burst	Yes	Yes	Yes	6	0.53	20-SOIC
FAN7317	P-N Full-bridge	6-24	Burst	Yes	Yes	Yes	7	0.2	20-SOIC



Power MOSFETs

Advantages

- Low $R_{DS(ON)}$ and gate charge to reduce switching and conduction losses
- 20% lower Figure of Merit (FOM) vs. alternate 40V MOSFET solutions

Applications

- Power supplies
- Networking communications
- Displays

Optimize Switching Designs with the FDMS8460 – 40V Synchronous Rectifier

The FDMS8460, 40V DC-DC synchronous rectifier, offers 20% lower Figure of Merit (FOM) compared to other 40V MOSFET solutions and is packaged in an industry standard 5mm x 6mm MLP package, providing designers the performance and the packaging to optimize their designs. This synchronous rectifier's ultra-low $R_{DS(ON)}$ of 2.2m Ω Max and extremely low Q_{gd} of 10nC allows conduction losses and switching losses to be drastically reduced in power supply designs.

Product Number	Configuration	V_{DS} (V)	V_{GS} (V)	$R_{DS(ON)}$ Max (m Ω)		Q_g Typ. (nC)		Q_{gd} Typ. (nC)	I_D (A)	Package
				@10V	@4.5V	@10V	@4.5V			
FDMS8460	Single	40	20	2.2	3	78	36	10	25	Power 56

Advantages

- Low $R_{DS(ON)}$ and 50% lower gate charge vs. alternate MOSFET solutions
- Provides superior heat dissipation

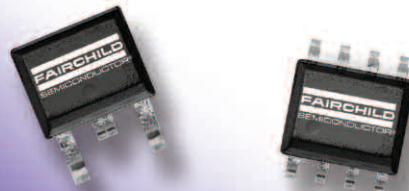
Applications

- Battery charging
- Inverter switching
- Motor drive control

Reduce Losses by 50% in Synchronous and Non-Synchronous Buck Applications

The FDD4141/FDS4141, 40V P-Channel PowerTrench® MOSFETs, are fabricated using Fairchild's proprietary PowerTrench process technology, which makes it possible to put die with higher load currents into smaller packages. These MOSFETs offer low $R_{DS(ON)}$ and 50% lower gate charge (Q_g) for battery charging and inverter switching applications found in portable, computing, consumer and home entertainment products. Using the FDD4141/FDS4141, these applications can switch at higher speeds without suffering the penalty of excessive heat. Fast switching is a requirement in applications such as Buck step-down converters that need to switch at several hundred kHz. Although other MOSFET solutions can switch at higher frequencies, these solutions have a high gate charge, which causes more heat and less efficiency.

Product Number	Configuration	BV_{DSS} (V)	$R_{DS(ON)}$ Max (m Ω) @ 10V	$R_{DS(ON)}$ Max (m Ω) @ 4.5V	Q_g (nC)	Package
FDD4141	P-Channel	40	12.3	18	19	D-PAK (TO-252)
FDS4141	P-Channel	40	13	19	19	SO-8



FSA110

Advantages

- 6pF typical switch off capacitance for HS USB
- 2.5mΩ on-resistance for audio signaling
- Flow-through pin-out eliminates PCB bias
- Power-off protection on the D+/R, D-/L Ports
- Negative-swing capable audio channel
- Automatic USB detection available
- Built-in termination on unselected audio paths inhibits audio pop

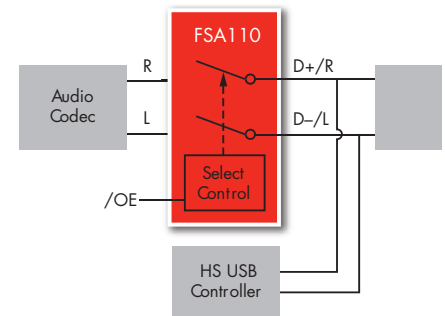
Applications

- Cell phones
- PDAs
- Digital cameras
- Notebooks
- LCD monitors
- TVs
- Set-top boxes



Enable Common USB and Headphone Jack for Portable Devices with the USB2.0 Hi-Speed (480Mbps) Switch

The FSA110 is a Double-Pole, Single Throw (DPST) switch that combines a low-distortion audio path with low off capacitance for USB applications. This configuration is ideal for wired-OR configurations, enabling shared USB2.0 Hi-Speed (HS) and audio on a single connector. The architecture is designed to allow audio signals to swing below ground so a common USB and headphone jack can be used in personal media players and portable peripheral devices.



FSA110 – Enables Shared USB2.0 Hi-Speed (HS) and Audio On A Single Connector in Portable Applications

Product Number	Configuration	R _{ON} (Ω)	Supply Voltage Range (V _{CC})	C _{OFF} (pF)	Package
FSA110	Audio and Wired-OR USB2.0 Hi-Speed Switch with Negative Signal Capability and Built-in Termination	1.5	2.7 - 4.3	6	USB UMLP

Field Stop IGBTs

Advantages

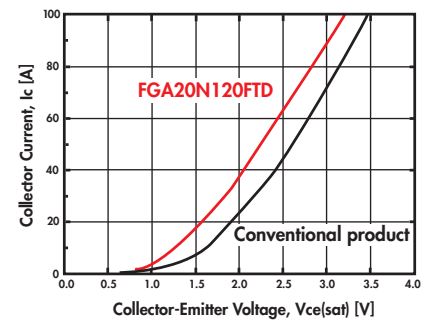
- 25% lower conduction losses and 8% lower switching losses for lower system operating temperature and higher efficiency
- High system reliability due to lower cooling needs
- Tight parametric distribution and increased avalanche energy minimize performance variability
- Built-in Fast Recovery Diode (FRD) reduces component count and increases system reliability

Applications

- Microwave ovens
- IH rice jars
- IH cookers
- Other induction heating applications
- Soft switching applications

Increase Efficiency and Improve System Reliability in Induction Heating Applications

This series of 1200V Field Stop Trench IGBTs, the FGA20N120FTD and FGA15N120FTD, provide system designers of induction heating applications with a highly efficient solution. Using both Field Stop structure and avalanche-rugged Trench gate technology, these IGBTs offer optimal tradeoffs between conduction losses and switching losses. The FGA20N120FTD and FGA15N120FTD minimize performance variability and device failures in avalanche-mode operation by having tight parameter distributions through using innovative Field Stop structure and having increased avalanche energy with the company's proprietary advanced Trench gate cell design. Compared to conventional



NPT-Trench IGBTs, the FGA20N120FTD offers 25% lower conduction losses and 8% lower switching losses, which significantly reduce the system's operating temperature. By lowering the cooling needs, the system reliability increases and the overall system cost is reduced. Reliability is also ensured by the built-in fast recovery diode (FRD) that is optimized for ZVS technology.

Product Number	BV_{CES} (V)	$V_{CE(sat)}$ (V)	I_c (A)	E_{off} (mJ)	Package
FGA20N120FTD	1200	1.6	20	0.71	TO-3PN
FGA15N120FTD	1200	1.58	15	0.58	TO-3PN



Schottky Diodes

Advantages

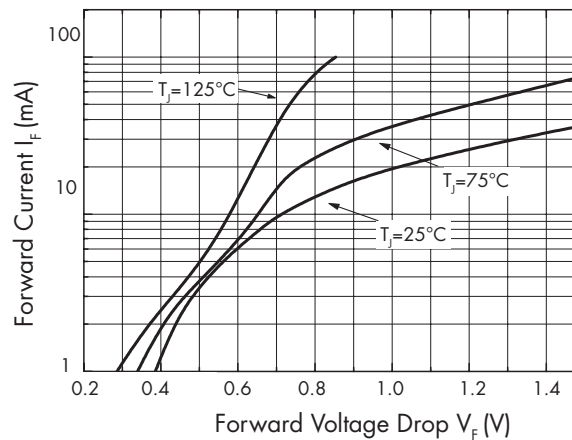
- Ultra-compact packaging saves space
- Fast switching capability
- Low V_F to extend battery life

Applications

- Mobile phones
- Digital cameras
- MP3 players
- PDAs

Save Space and Power in Portable Applications with Schottky Barrier Diodes

The BAS70SL/BAS40SL/RB751SL Schottky barrier diodes are excellent solutions for space-critical applications that require a compact footprint and low power consumption. These diodes feature extremely low V_F that is instrumental in extending battery life. This family of diodes is available in an ultra-compact SOD-923 (1.0mm x 0.6mm) package with a low profile height of 0.43mm, offering an ideal situation for space constrained portable applications.



Forward Current Characteristics

Product Number	Configuration	I_{FSM} (mA)	Thermal Resistance $R_{\theta JA}$ ($^\circ\text{C}/\text{W}$)	V_{RRM} Max Repetitive Reverse Voltage (V)	$I_{F(AV)}$ Average Rectified Forward Current (mA)	Package
BAS70SL	Single	100	550	70	70	SOD923
BAS40SL	Single	600	550	40	100	SOD923
RB751SL	Single	200	550	30	30	SOD923



**DATASHEETS,
SAMPLES, BUY**

TECHNICAL
INFORMATION

APPLICATIONS

DESIGN CENTER

SUPPORT

COMPANY

INVESTORS

POWER MANAGEMENT ICs

AC-DC: Power Factor Correction

- Continuous Conduction Mode (CCM) PFC Controllers
- Critical (CrCM) / Boundary Conduction Mode (BCM) PFC Controllers
- PFC + PWM Combination (Combo) Controllers

Isolated DC-DC

- Green-Mode PWM Controllers
- Integrated Green-Mode PWM Regulators (Green FPS™)
- Integrated PWM Regulators (FPS™)
- Primary-side only CV/CC Controllers
- Standard SMPS PWM Controllers

Non-Isolated DC-DC

- Charge-Pump Converters
- Multi-phase Controllers
- Step-down Controllers (External Switch)
- Step-down Regulators (Integrated Switch)
- Step-up Regulators (Integrated Switch)

Power Drivers

- Integrated Drivers
- High Voltage Gate Drivers (HVIC)
- Low-Side Gate Drivers
- Synchronous Rectifier Controllers / Drivers
- Synchronous-Buck / Multi-phase Drivers

Supervisory / Monitor ICs

- Ground Fault Interrupt (GFI) Controllers
- Supervisors + PWM
- Temperature Sensors
- Voltage Supervisors / Detectors / Stabilizers

Voltage Regulators

- LDOs
- Positive Voltage Linear Regulators
- Negative Voltage Linear Regulators
- Shunt Regulators

POWER SEMICONDUCTORS

Diodes & Rectifiers

- Bridge Rectifiers
- Rectifiers
- Schottky Diodes & Rectifiers
- Small Signal Diodes
- Transient Voltage Suppressors
- Zener Diodes

Integrated Power Solutions

- DrMOS FET plus Driver Multi-chip Module
- IGBT Module
- Full Function Load Switches (IntelliMAX™)
- MOSFET/Schottky Combos
- Solenoid Drivers
- Smart Power Modules (SPM®)

Transistors

- BJTs
- IGBT Discrete
- JFETs
- Load Switches
- MOSFETs
- MOSFET/Schottky Combos
- Small Signal Transistors

TRIACs

- TRIACs

LIGHTING AND DISPLAY

- CCFL Ballast IC
- CFL/Lighting Ballast Control IC
- Critical (CrCM)/Boundary Conduction Mode (BCM) PFC Controllers for Lighting
- High Voltage Gate Drivers (HVIC)
- LED Drivers
- PDP Smart Power Module (PDP-SPM™)

SIGNAL PATH ICs

Amplifiers & Comparators

- Audio Amplifiers
- Comparators
- High Performance Amplifiers (>15MHz)
- Operational Amplifiers

Signal Conversion

- Triple Video DACs
- Video Filter Drivers
- Video Switch Matrix/Multiplexers

Interface

- LVDS
- Serializer/Deserializer (µSerDes™)
- USB Transceiver

Switches

- Analog/Audio Switches
- Bus Switches
- USB Switches
- Video Switches

LOGIC | TINYLOGIC®

- Buffers, Drivers, Transceivers
- Flip flops, Latches, Registers
- Gates
- MSI Functions
- Multiplexer/Demultiplexer Encoders/Decoders
- Specialty Logic
- TinyLogic®
- Voltage Level Translators

OPTOELECTRONICS

- Infrared Products
- Optocouplers

For datasheets, application notes, samples and more, please visit: www.fairchildsemi.com