



## FPF1048B IntelliMAX™ 3A-Capable, Slew-Rate-Controlled Load Switch with True Reverse Current Blocking

### Features

- Input Voltage Operating Range: 1.5V to 5.5V
- Typical  $R_{DS(ON)}$ :
  - 21m $\Omega$  at  $V_{IN}=5.5V$
  - 23m $\Omega$  at  $V_{IN}=4.5V$
  - 41m $\Omega$  at  $V_{IN}=1.8V$
  - 90m $\Omega$  at  $V_{IN}=1.5V$
- Slew Rate/Inrush Control with  $t_R$ : 2.7ms (Typ.)
- 3A Maximum Continuous Current Capability
- Low Off Switch Current: <1 $\mu$ A
- True Reverse Current Blocking (TRCB)
- Logic CMOS IO Meets JESD76 Standard for GPIO Interface and Related Power Supply Requirements
- ESD Protected:
  - Human Body Model: >8kV
  - Charged Device Model: >1.5kV
  - IEC 61000-4-2 Air Discharge: >15kV
  - IEC 61000-4-2 Contact Discharge: >8kV

### Applications

- Smart Phones, Tablet PCs
- Storage, DSLR, and Portable Devices

### Description

The FPF1048B advanced load management switch targets applications requiring a highly integrated solution. It disconnects loads powered from the DC power rail (<6V) with stringent off-state current targets and high load capacitances (up to 100 $\mu$ F). The FPF1048B consists of slew-rate controlled low-impedance MOSFET switch (23m $\Omega$  typical) and integrated analog features. The slew-rate controlled turn-on characteristic prevents inrush current and the resulting excessive voltage droop on power rails.

The FPF1048B has a True Reverse Current Blocking (TRCB) function that obstructs unwanted reverse current from  $V_{OUT}$  to  $V_{IN}$  during both ON and OFF states. The exceptionally low off-state current drain (<1 $\mu$ A maximum) facilitates compliance with standby power requirements. The input voltage range operates from 1.5V to 5.5V<sub>DC</sub> to support a wide range of applications in consumer, optical, medical, storage, portable, and industrial-device power management. Switch control is managed by a logic input (active HIGH) capable of interfacing directly with low-voltage control signal / General-Purpose Input / Output (GPIO) without an external pull-down resistor.

The device is packaged in advanced, fully “green” compliant, 1.0mm x 1.5mm, Wafer-Level Chip-Scale Package (WLCSPP) with backside lamination.

### Ordering Information

Part Number	Top Mark	Switch $R_{ON}$ (Typical) at 4.5V <sub>IN</sub>	Input Buffer	Output Discharge	ON Pin Activity	$t_R$	Package
FPF1048BUCX	RA	23m $\Omega$	CMOS	NA	Active HIGH	2.7ms	6-Ball WLCSPP, 2x3 Array, 0.5mm Pitch, 300 $\mu$ m Ball

### Physical Dimensions

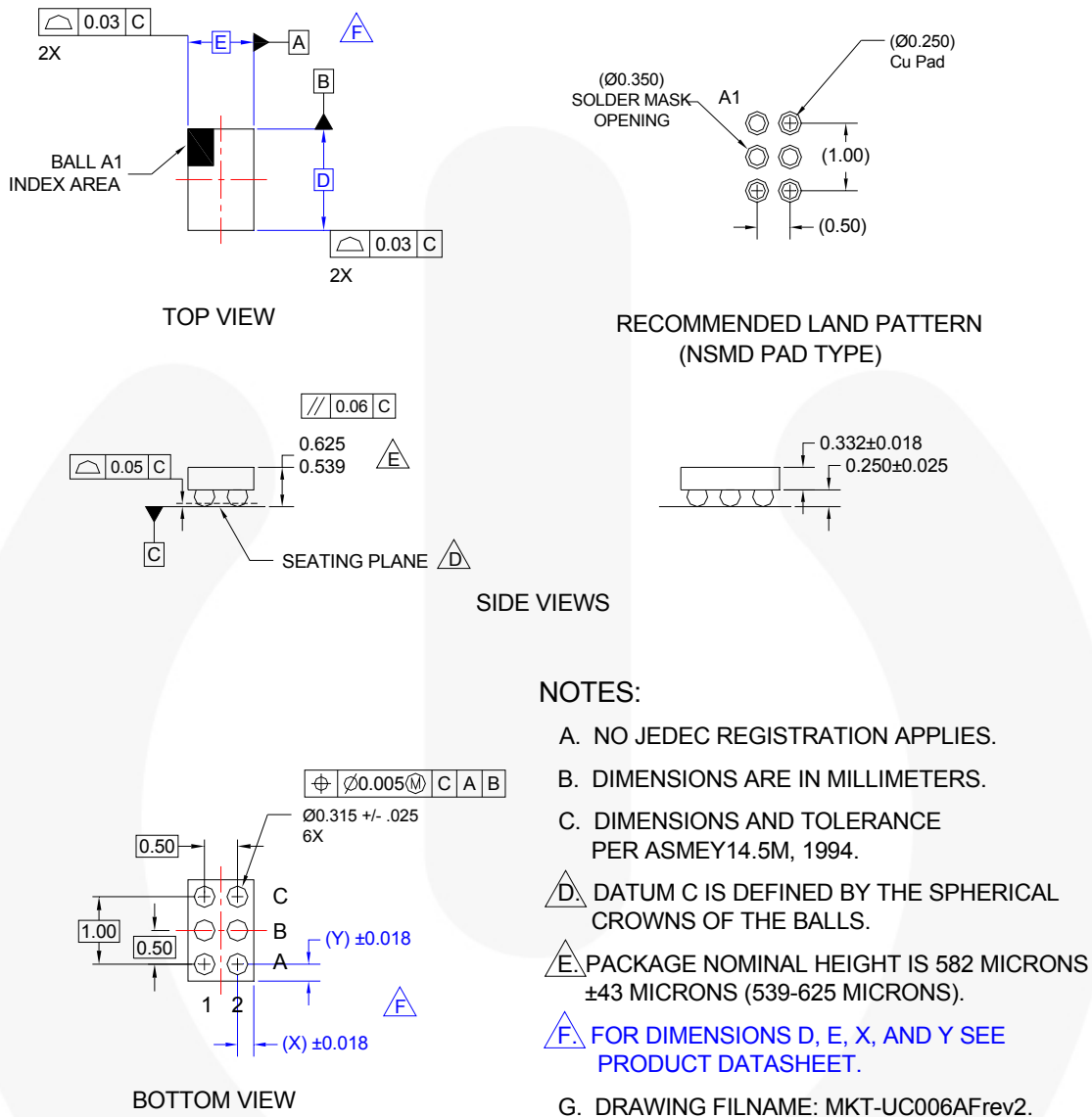


Figure 29. 6-Ball WLCSP, 2x3 Array, 0.5mm Pitch, 300µm Ball

### Product-Specific Dimensions

Product	D	E	X	Y
FPF1048BUCX	1460µm ±30µm	960µm ±30µm	230µm	230µm




Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner without notice. Please note the revision and/or date on the drawing and contact a Fairchild Semiconductor representative to verify or obtain the most recent revision. Package specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty therein, which covers Fairchild products.

Always visit Fairchild Semiconductor's online packaging area for the most recent package drawings:  
<http://www.fairchildsemi.com/packaging/>.



**TRADEMARKS**

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

- |   |  |   |   |
|---|--|---|---|
| 2Cool™  | F-PFS™   | PowerTrench®  | The Power Franchise®  |
| AccuPower™  | FRFET®   | PowerXS™  | <b>the power franchise</b>  |
| AX-CAP™*  | Global Power Resource™                         | Programmable Active Droop™  | TinyBoost™  |
| BitSiC™   | GreenBridge™                                   | QFET®   | TinyBuck™   |
| Build it Now™   | Green FPS™                                     | QS™   | TinyCalc™   |
| CorePLUS™   | Green FPS™ e-Series™                           | Quiet Series™   | TinyLogic®  |
| CorePOWER™  | Gmax™  | RapidConfigure™   | TINYOPTO™   |
| CROSSVOLT™  | GTO™   |  ™ | TinyPower™  |
| CTL™  | IntelliMAX™                                    | Saving our world, 1mW/W/kW at a time™   | TinyPWM™  |
| Current Transfer Logic™   | ISOPLANAR™                                     | SignalWise™   | TinyWire™   |
| DEUXPEED®   | Making Small Speakers Sound Louder and Better™ | SmartMax™   | TranSiC™  |
| Dual Cool™  | MegaBuck™                                      | SMART START™  | TriFault Detect™  |
| EcoSPARK®   | MICROCOUPLER™                                  | Solutions for Your Success™   | TRUECURRENT®*   |
| EfficientMax™   | MicroFET™                                      | SPM®  | µSerDes™  |
| ESBC™   | MicroPak™                                      | STEALTH™  |  ™ |
|  ™ | MicroPak2™                                     | SuperFET®   | UHC®  |
| Fairchild®  | MillerDrive™                                   | SuperSOT™-3   | Ultra FRFET™  |
| Fairchild Semiconductor®  | MotionMax™                                     | SuperSOT™-6   | UniFET™   |
| FACT Quiet Series™  | Motion-SPM™                                    | SuperSOT™-8   | VCX™  |
| FACT®   | mWSaver™                                       | SupreMOS®   | VisualMax™  |
| FAST®   | OptoHit™                                       | SyncFET™  | VoltagePlus™  |
| FastvCore™  | OPTOLOGIC®                                     | Sync-Lock™  | XS™   |
| FETBench™   | OPTOPLANAR®                                    |  ™ |   |
| FlashWriter®*   |  |   |   |
| FPS™  |  |   |   |

\* Trademarks of System General Corporation, used under license by Fairchild Semiconductor.

**DISCLAIMER**

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

**LIFE SUPPORT POLICY**

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

**ANTI-COUNTERFEITING POLICY**

Fairchild Semiconductor Corporation's Anti-Counterfeiting Policy. Fairchild's Anti-Counterfeiting Policy is also stated on our external website, [www.fairchildsemi.com](http://www.fairchildsemi.com), under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild's quality standards for handling and storage and provide access to Fairchild's full range of up-to-date technical and product information. Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

**PRODUCT STATUS DEFINITIONS**

**Definition of Terms**

Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

Rev. I61