



## FPF1039 Low On-Resistance, Slew-Rate-Controlled Load Switch

### Features

- 1.2 V to 5.5 V Input Voltage Operating Range
- Typical  $R_{ON}$ :
  - 20 m $\Omega$  at  $V_{IN}=5.5$  V
  - 21 m $\Omega$  at  $V_{IN}=4.5$  V
  - 37 m $\Omega$  at  $V_{IN}=1.8$  V
  - 75 m $\Omega$  at  $V_{IN}=1.2$  V
- Slew Rate / Inrush Control with  $t_R$ : 2.7 ms (Typical)
- 3 A Maximum Continuous Current Capability
- Output Capacitor Discharge Function
- Low <1  $\mu$ A Shutdown Current
- ESD Protected: Above 8 kV HBM, 1.5 kV CDM
- GPIO / CMOS-Compatible Enable Circuitry

### Applications

- HDD, Storage, and Solid-State Memory Devices
- Portable Media Devices, UMPC, Tablets, MIDs
- Wireless LAN Cards and Modules
- SLR Digital Cameras
- Portable Medical Devices
- GPS and Navigation Equipment
- Industrial Handheld and Enterprise Equipment

### Description

The FPF1039 advanced load-management switch target applications requiring a highly integrated solution for disconnecting loads powered from DC power rail (<6 V) with stringent shutdown current targets and high load capacitances (up to 200  $\mu$ F). The FPF1039 consists of slew-rate controlled low-impedance MOSFET switch (21 m $\Omega$  typical) and other integrated analog features. The slew-rate controlled turn-on characteristic prevents inrush current and the resulting excessive voltage droop on power rails.

This device has exceptionally low shutdown current drain (<1  $\mu$ A maximum) that facilitates compliance in low standby power applications. The input voltage range operates from 1.2 V to 5.5 V DC 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 / GPIO with no external pull-up required. The device is packaged in advanced fully “green” 1mm x1.5 mm Wafer-Level Chip-Scale Packaging (WLCSP); providing excellent thermal conductivity, small footprint, and low electrical resistance for wider application usage.

### Ordering Information

Part Number	Top Mark	Switch $R_{ON}$ (Typical) at 4.5 $V_{IN}$	Input Buffer	Output Discharge	ON Pin Activity	$t_R$	Package
FPF1039UCX	QF	21m $\Omega$	CMOS	65 $\Omega$	Active HIGH	2.7 ms	6-Bump, WLCSP, 1.0 mm x 1.5 mm, 0.5 mm Pitch
FPF1039BUCX	QF	21m $\Omega$	CMOS	65 $\Omega$	Active HIGH	2.7 ms	6-Bump, WLCSP with Backside Laminate, 1.0 mm x 1.5 mm, 0.5 mm Pitch

## Physical Dimensions

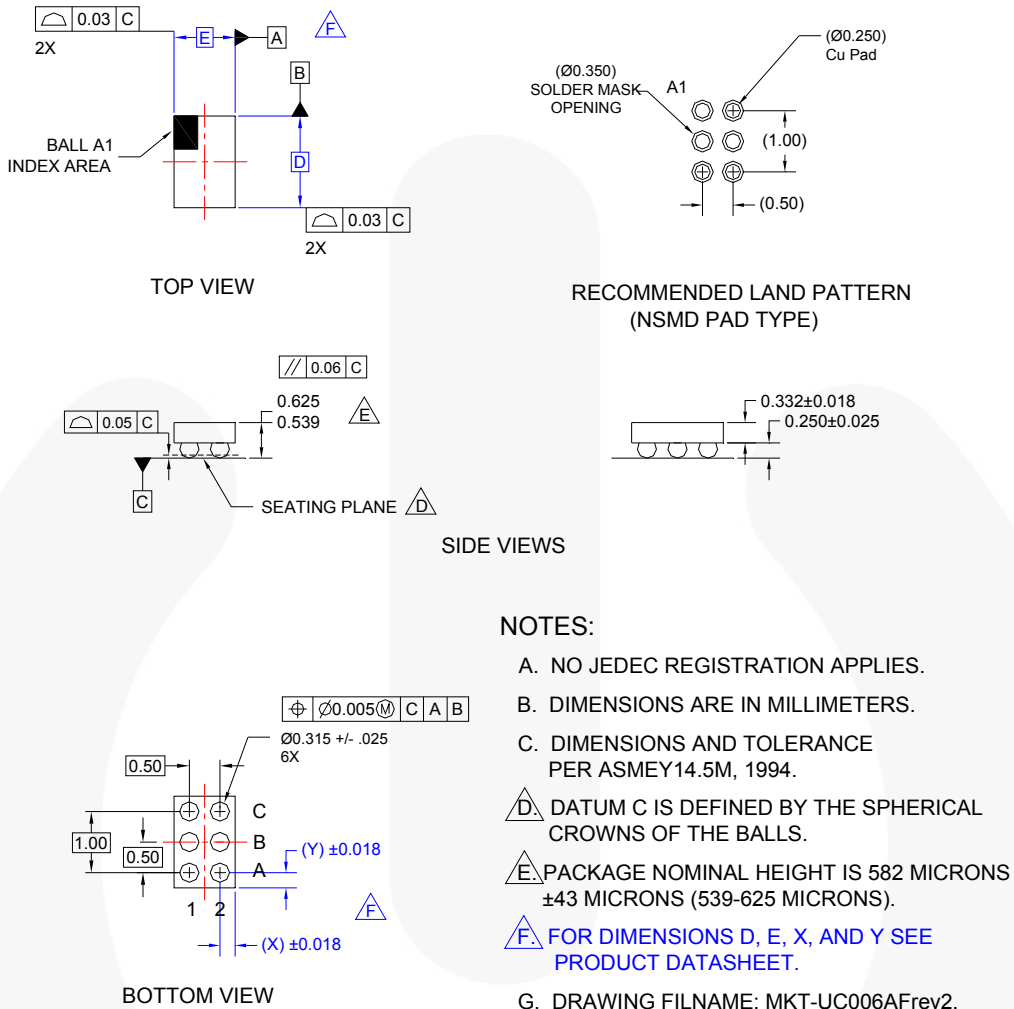


Figure 35. 6 Ball, 1.0 x 1.5mm Wafer-Level Chip-Scale Packaging (WLCSP)

### Nominal Values

Bump Pitch	Overall Package Height	Silicon Thickness	Solder Bump Height	Solder Bump Diameter
0.5 mm	0.582 mm	0.332 mm	0.250 mm	0.315 mm

### Product-Specific Dimensions

Product	D	E	X	Y
FPF1039UCX	1.5mm ±0.03	1.0mm ±0.03	0.240 mm	0.240 mm
FPF1039BUCX	1.5mm ±0.03	1.0mm ±0.03	0.240 mm	0.240 mm


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