



**LIMITED DATASHEET**  
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April 2014

# FPF2281 Over-Voltage Protection Load Switch

## Features

- Surge Protection
  - IEC 61000-4-5: > 100 V
- Over-Voltage Protection (OVP)
- Over-Temperature Protection (OTP)
- ESD Protection
  - Human Body Model (HBM): > 3.5 kV
  - Charged Device Model (CDM): > 2 kV
  - IEC 61000-4-2 Air Discharge: > 15 kV
  - IEC 61000-4-2 Contact Discharge: > 8 kV

## Applications

- Mobile Handsets and Tablets
- Portable Media Players
- MP3 Players

## Description

The FPF2281 features a low- $R_{ON}$  internal FET and an operating range of 2.5  $V_{DC}$  to 13.5  $V_{DC}$  (absolute maximum of 29  $V_{DC}$ ). An internal clamp is capable of shunting surge voltages >100 V, protecting downstream components and enhancing system robustness. The FPF2281 features over-voltage protection that powers down the internal FET if the input voltage exceeds the OVP threshold. The OVP threshold is adjustable with optional external resistors. Over-temperature protection also powers down the device at 130°C (typical). Exceptionally low off-state current (<1  $\mu A$  maximum) facilitates compliance with standby power requirements.

The FPF2281 is available in a fully “green” compliant 1.3 mm × 1.8 mm Wafer-Level Chip-Scale Package (WLCSP) with backside laminate.

## Related Resources

- <http://www.fairchildsemi.com/>

## Ordering Information

Part Number	Operating Temperature Range	Top Mark	Package	Packing Method
FPF2281BUCX_F130	-40°C – 85°C	HE	12-Ball, 0.4 mm Pitch WLCSP	Tape & Reel

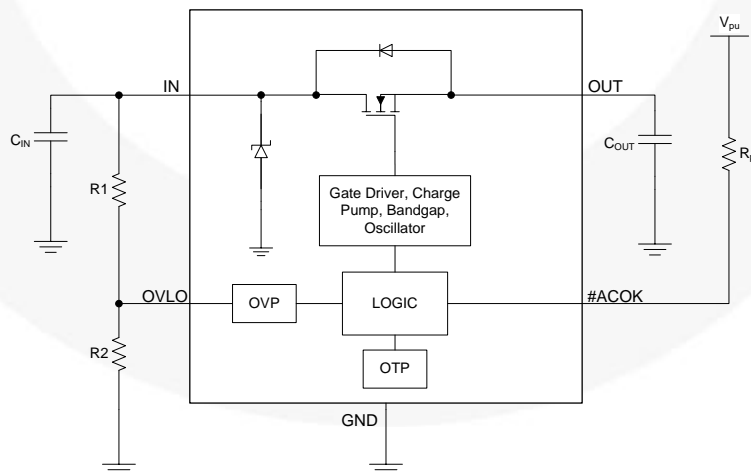


Figure 1. Functional Block Diagram

## Pin Configuration

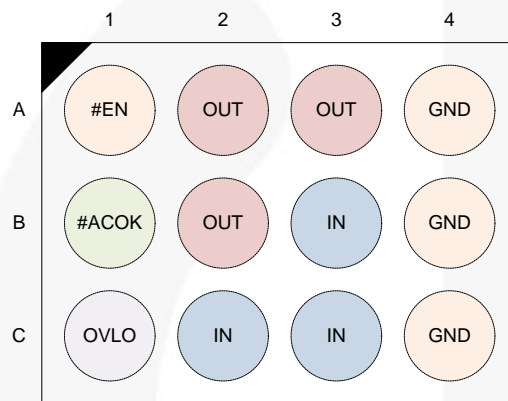
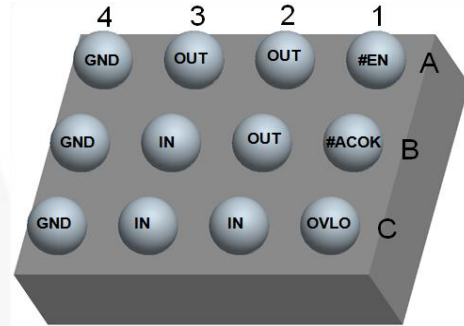
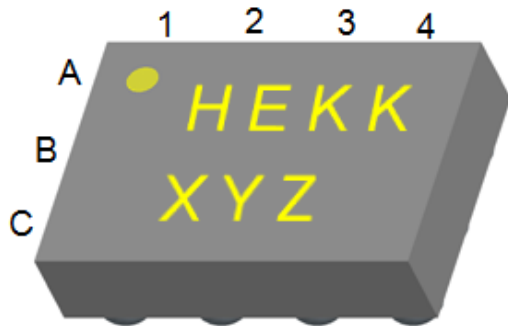


Figure 2. Pin Configuration (Top View)

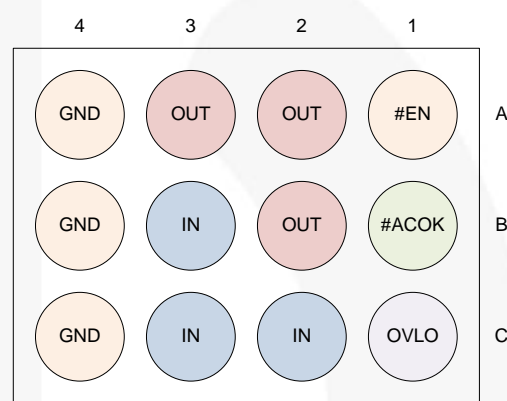


Figure 3. Pin Configuration (Bottom View)

## Pin Definitions

Name	Bump	Type	Description	
IN	B3, C2, C3	Input/Supply	Switch Input and Device Supply	
OUT	A2, A3, B2	Output	Switch Output to Load	
#ACOK	B1	Output	1	$V_{IN} < V_{IN\_min}$ or $V_{IN} \geq V_{OVLO}$
			0	Voltage Stable
#EN	A1	Input	Device Enable (Active LOW)	
OVLO	C1	Input	Over-Voltage Lockout Adjustment Pin	
GND	A4, B4, C4	Supply	Device Ground	

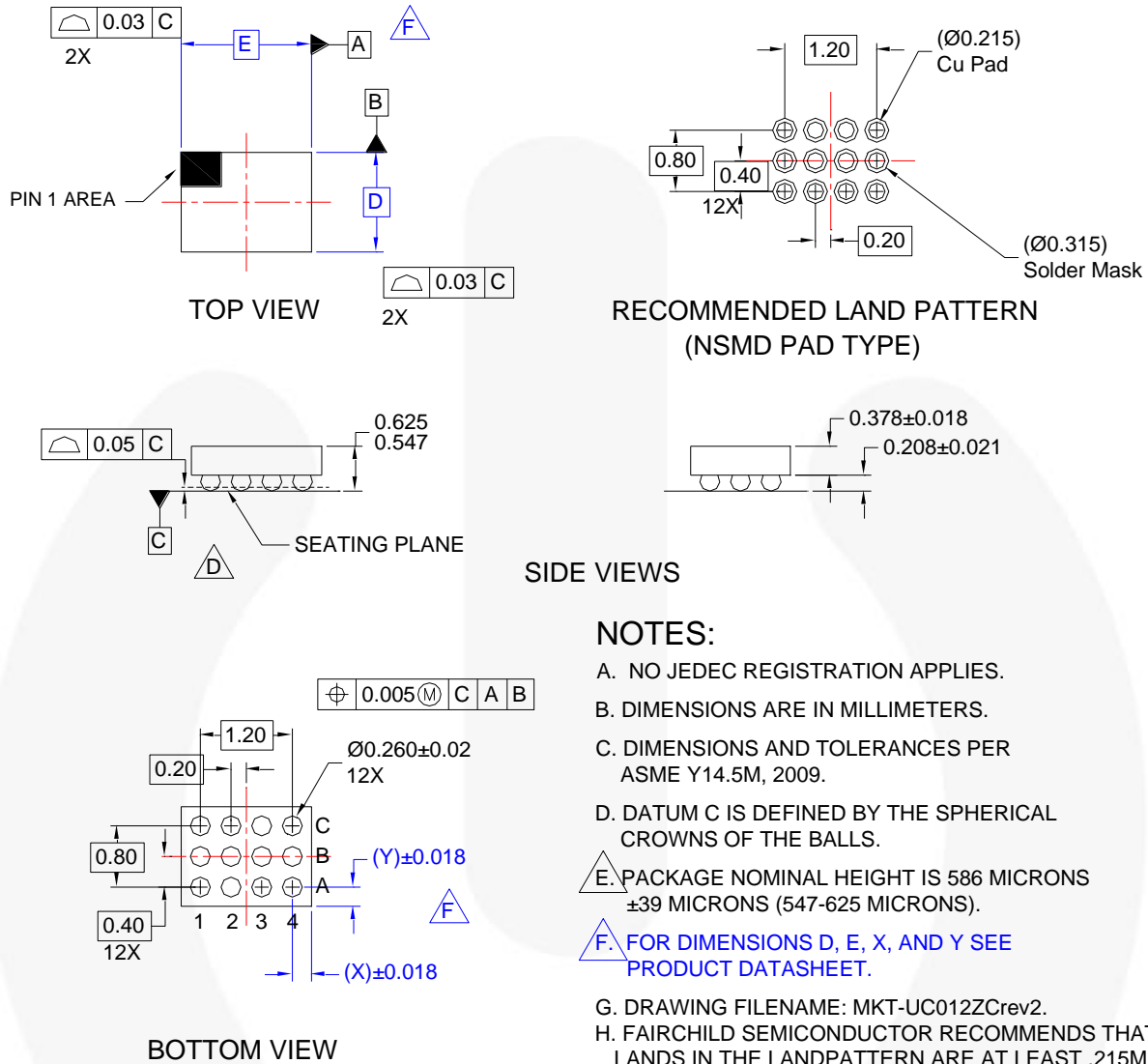
## Over-Voltage Lockout (OVLO) Calculation

OVLO can be set externally and override default OVP. By connecting an external resistor-driver to the OVLO pin. Equation (1) can produce the desired trip voltage and resistor values.

$$V_{IN\_OLVO} = V_{OVLO\_TH} \times [1 + R1/R2] \quad (1)$$

Recommended minimum  $R1 = 1 \text{ M}\Omega$ .

**Physical Dimensions**



**Figure 6. 12-Ball, 3x4 Array, 0.4 mm Pitch, Wafer-Level Chip-Scale Package (WLCSP)**

**Product-Specific Dimensions**

D	E	X	Y
1288 μm ±30 μm	1828 μm ±30 μm	314 μm ±18 μm	244 μm ±18 μm

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Rev. 168