LIMITED DATASHEET

Email Analog.Switch@fairchildsemi.com to request the full datasheet.

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 µA 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

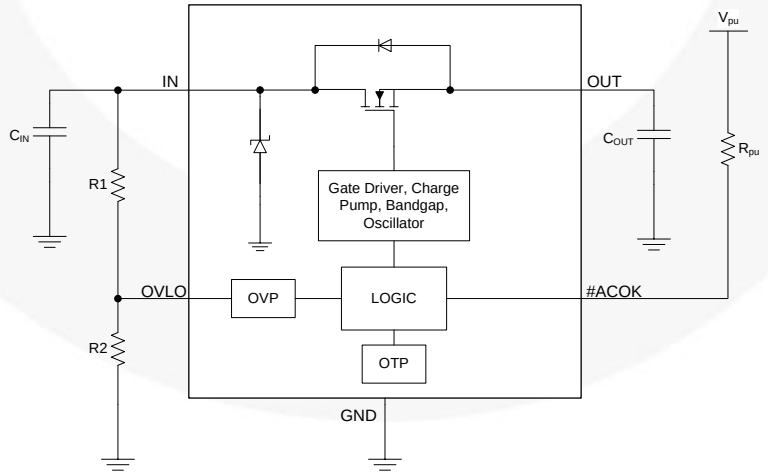
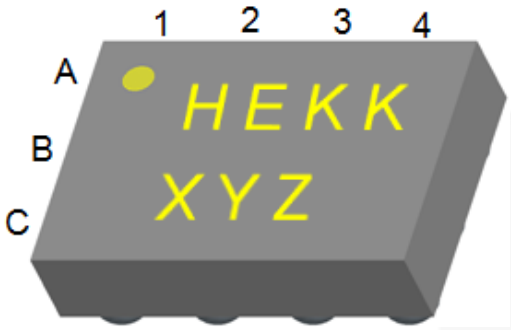
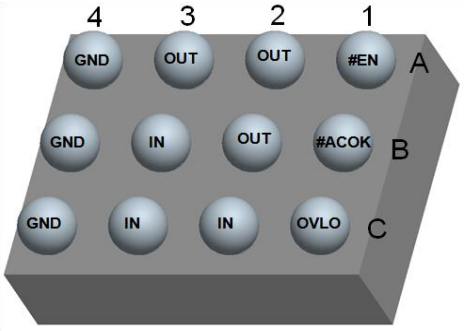


Figure 1. Functional Block Diagram

Pin Configuration





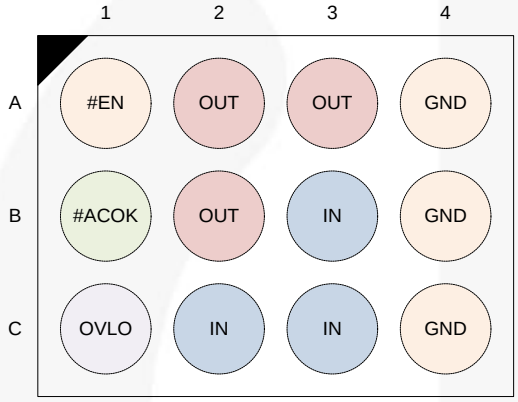


Figure 2. Pin Configuration (Top View)

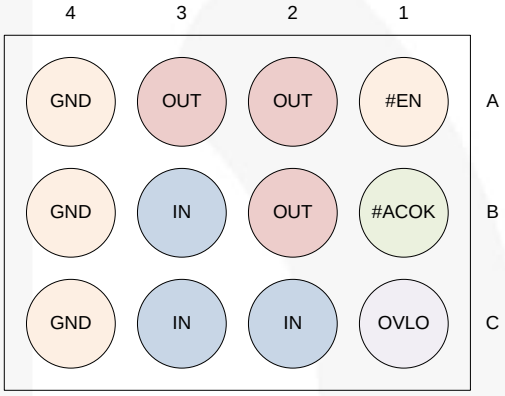


Figure 3. Pin Configuration (Bottom View)

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	Power Good	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		

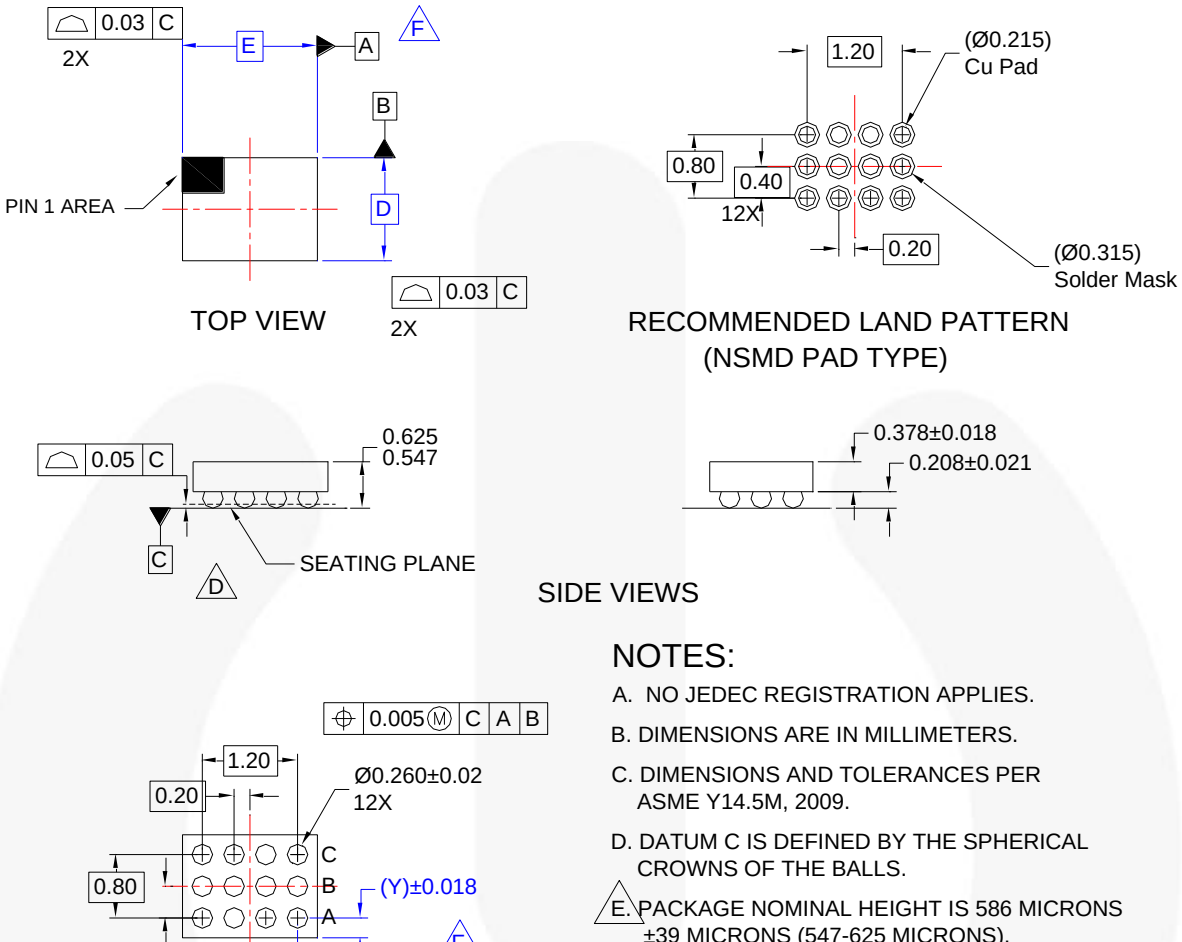
Over-Voltage Lockout (OVLO) Calculation

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 MΩ.

Physical Dimensions



NOTES:

A. NO JEDEC REGISTRATION APPLIES.

B. DIMENSIONS ARE IN MILLIMETERS.

C. DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 2009.

D. DATUM C IS DEFINED BY THE SPHERICAL CROWNS OF THE BALLS.

E. PACKAGE NOMINAL HEIGHT IS 586 MICRONS ±39 MICRONS (547-625 MICRONS).

F. FOR DIMENSIONS D, E, X, AND Y SEE PRODUCT DATASHEET.

G. DRAWING FILENAME: MKT-UC012ZCrev2.

H. FAIRCHILD SEMICONDUCTOR RECOMMENDS THAT LANDS IN THE LANDPATTERN ARE AT LEAST .215MM DIAMETER AS MEASURED AT THE BOTTOM OF THE LAND, NOT THE TOP EDGE.

Figure 6. 12-Ball, 3×4 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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