



New Product Announcement

DPS1113

USB-C™ Power Switch Supporting Fast Role Swap of USB Power Delivery Specification Release 3.0, V1.1

Diodes Incorporated announces the introduction of DPS1113, a single-channel power switch compatible to the Fast Role Swap (FRS) feature of USB Power Delivery Specification Release 3.0, V1.1 (USB PD 3.0) and the USB Type-C™ Specification Release 1.2.

DPS1113 integrates two N-MOSFET switches with very low $R_{DS(ON)}$ at $\leq 30m\Omega$. To ensure system integrity, the device hosts comprehensive fault detection and recovery mechanism such as input undervoltage lock-out, reverse voltage & current blocking, thermal shut-down, overcurrent and short-circuit protection. Other system-friendly features include adjustable DV/DT, current and voltage limit, as well as current monitor output and port discharge through the built-in 115 Ω resistor. Operating at an input voltage of 5V_{DC}, the output port can withstand reverse voltages up to 30V maximum.

The DPS1113 is packaged in a lead, halogen and antimony free QFN package which is fully RoHS-compliant. The 0.8mm low-profile height and 4x4mm footprint allow the device to be easily incorporated into end systems such as mobile and desktop computing, PC peripherals, AR/VR goggles, home electronics, instrumentation and in-flight entertainment



The Diodes Advantage

Low ON-state Resistance & Thermally Efficient QFN4040 Package

The low on-state resistance ($R_{DS(ON),TYP} \leq 30m\Omega @ V_{IN} = 4.5 \sim 5.5V$) enables maximum continuous current up to 3.5A. The thermally efficient QFN4040-17 package ensures sufficiently low surface temperature during operation.

Adjustable Features for Usability & Flexibility

Through external resistors, many parameters can be adjusted: ramp-up speed of output voltage, overcurrent limit, overvoltage limit.

Comprehensive Protection & Recovery Mechanisms

To protect the device and the system from possible fault, the comprehensive mechanism comprises of: input undervoltage lock-out, reverse voltage & current blocking, thermal shut-down, overcurrent and short-circuit protection.

Fast Role Swap (FRS) Support

The N-MOSFET switch is guaranteed to turn ON within the $t_{SrcFRSwap}$ time so that VBUS is at V_{SAFE5V} voltage level per the requirement of the USB PD 3.0.

Circuit Functions

- Gating Power In & Out of System
- Intelligent Protection of Power Path

Target Markets

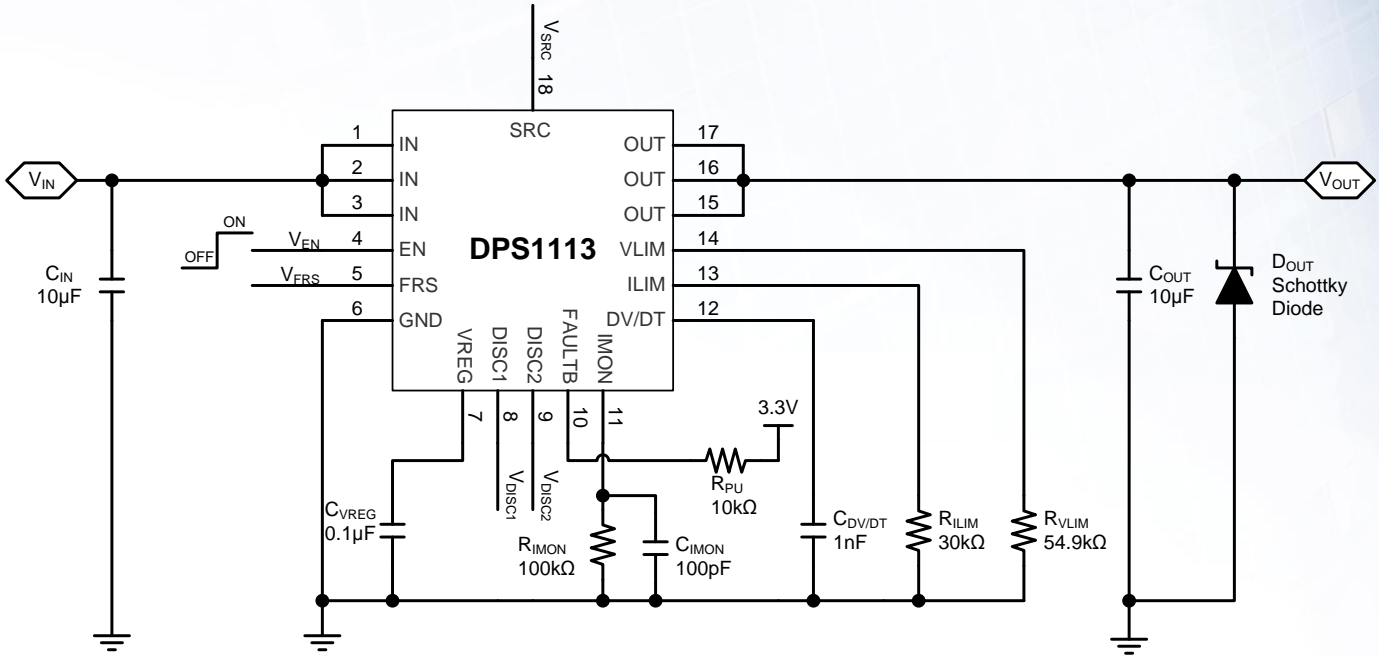
- Mobile & Desktop Computing
- Home Electronics
- AR/VR Goggles
- PC Peripherals
- Instrumentation
- In-flight Entertainment



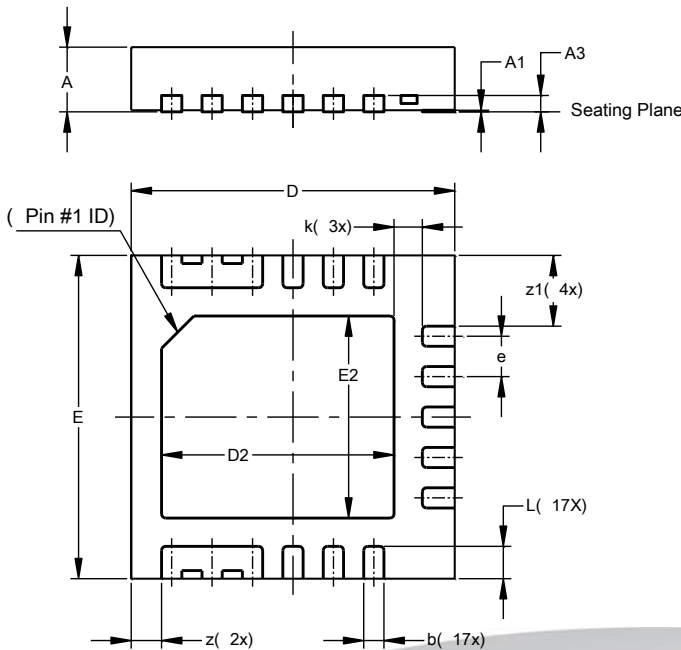
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Typical Application Circuit



Package Outline Dimension



V-QFN4040-17			
Dim	Min	Max	Typ
A	0.75	0.85	0.80
A1	0.00	0.05	0.02
A3	-	-	0.203
b	0.20	0.30	0.25
D	3.95	4.05	4.00
D2	2.775	2.975	2.875
E	3.95	4.05	4.00
E2	2.40	2.60	2.50
e	0.50 BSC		
k	-	-	0.35
L	0.35	0.45	0.40
z	-	-	0.38
z1	-	-	0.88
All Dimensions in mm			