



# New Product Announcement

## DPS1133

### World's 1<sup>st</sup> High-voltage Power Switch Supporting Fast Role Swap of USB Power Delivery Specification Release 3.0, V1

DPS1133 - the world's first high-voltage single-channel power switch designed to support the Fast Role Swap (FRS) feature of USB Power Delivery Specification Release 3.0 v1.1, (USB PD 3.0). The device, operating across all the voltage levels defined in the USB PD 3.0 industry standards, is typically populated next to the USB Type-C™ connector which is increasingly adopted across market segments.

DPS1133 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 mechanisms like 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 $\Omega$  resistor.

DPS1133 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, in-flight entertainment, robotics, PC peripherals, AR/VR goggles, home electronics, etc.



#### The Diodes Advantage

- **Low ON-state Resistance & Thermally Efficient QFN4040 Package**

The low on-state resistance ( $R_{DS(ON)_TYP} \leq 30m\Omega @ V_{IN} = 4.5\text{--}24V$ ) 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 built-in 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  $t_{SrcFRS\text{swap}}$  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

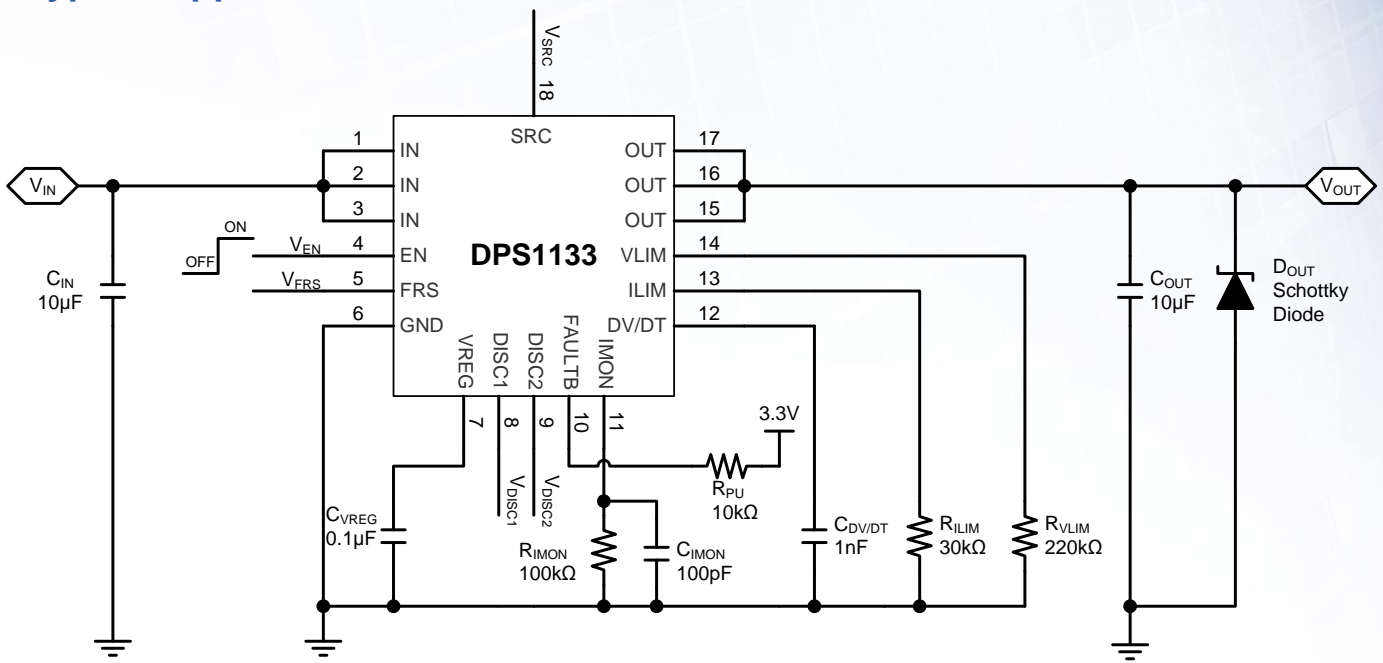
- Mobile & Desktop Computing
- Home Electronics
- AR/VR Goggles
- Robotics
- In-flight Entertainment



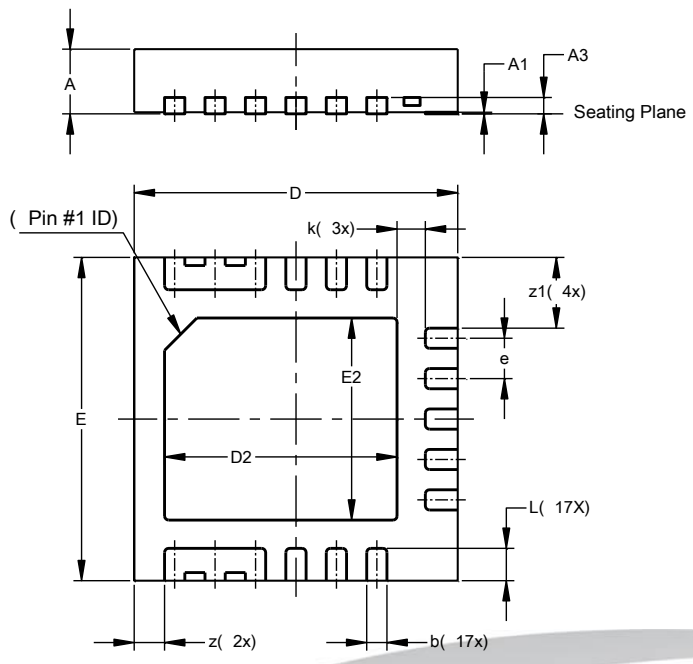
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### Typical Application Circuit



### Package Outline Dimensions



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			