

Compact Power Switch with Integrated 100V TVS featuring USB Line and Overvoltage Protection

The AP22953 is a single chip solution for all 5V VBUS rail USB ports (Type A, B and C). With its built-in TVS it provides up to 30V overvoltage protection, voltage surge protection up to 100V, and ESD protection of 15kV for both air and contact per IEC-61000.

Its bi-directional MOSFET switch ensures normal current flow in both charging and host mode, while protecting attached devices from overvoltage conditions. The switch is turned on by pulling the enable pin low and uses a soft-start delay to limit in-rush currents. An open-drain acknowledge pin is asserted low when the switch is operational. Overvoltage or thermal events change the state of this pin.

The typical applications include smartphones, tablet PCs, wearables, Internet of Things (IoT) devices, and electronic-point-of-sale (EPOS) systems.

The AP22953 is available in the wafer level chip scale W-WLB2013-12 2.0mm x 1.3mm x 0.64mm package with backside laminate.

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The Diodes Advantage

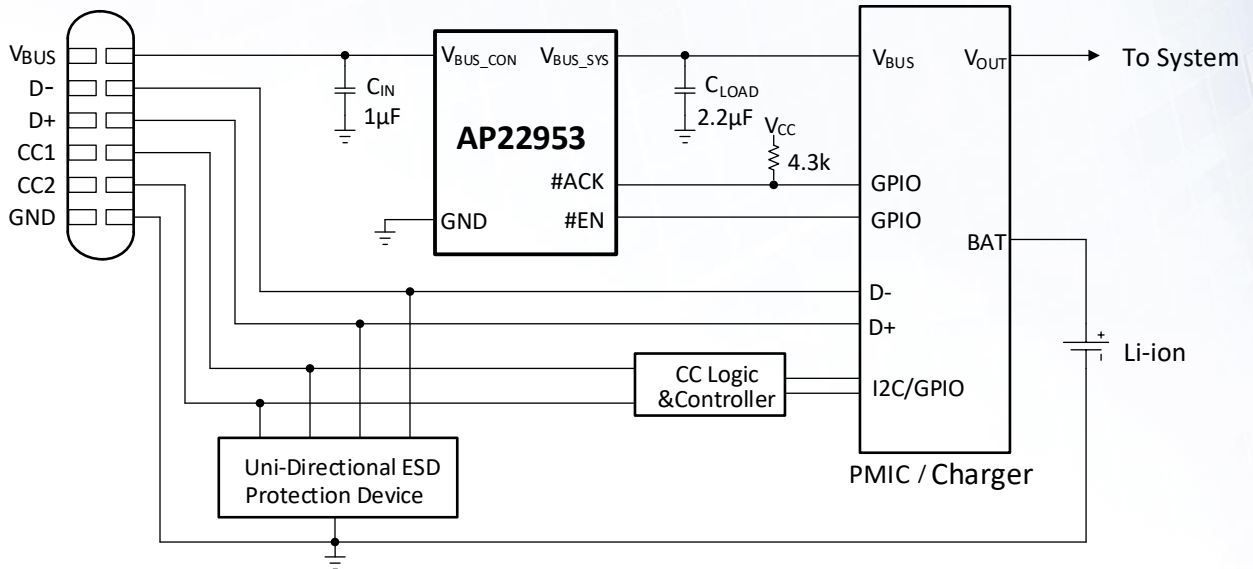
The AP22953 is an overvoltage-protected switch with integrated 100V TVS in a compact form factor

- **100V Surge Protection as per IEC-61000-4-5**
Integrated TVS provides a more robust solution
- **6.2V overvoltage trip voltage threshold**
Optimized for 5V system design for USB 2.0, USB 3.0, and USB Type-C® ports
- **Low $R_{DS(ON)}$ 39mΩ bidirectional power switch**
Reduces power dissipation for both charge and USB-OTG mode
- **Monolithic device in compact form factor**
W-WLB1320-12 package requires only a small PCB area

Applications

- Smartphones
- Notebook PCs
- Smart Speakers
- Tablet PCs
- EPOS Systems
- Internet of Things (IoT) Devices
- Power Banks

Application Diagram



Product Portfolio

Part Number	V _{VBUS_CON} Operating Range (V)	Max VBUS_CON (V)	IEC Surge Protection (V)	Overvoltage Trip Level (V)	Max Current (A)	Typ R _{ON} (mΩ)	Ambient Temperature (°C)	Package
AP22953	3.2 to 5.9	30	100	6.2 V ±0.2 V	3.5	39	-40 to 85	W-WLB2013-12

Ordering Information

Part Number	Compliance	Package Code	Package	Moisture Sensitivity	Identification Code	Reel Size	Quantity
AP22953CW12-7	Standard	CW12	W-WLB2013-12	MSL-1	HW	7 inches	3000