## 1. General description

NX20P0408 is a single chip USB data lines protection solution. D+ and D- pins in system side are protected from 28V short to VBUS, which pins are located near VBUS pins.

USB Type C allows VBUS voltage to increase up to 20V through Power delivery protocol, the concern is that these D+/D- pins can be shorted with VBUS when plugging out with mechanical twisted connector since Type C connector contact pin is 25% closer to each other than prior generation connector, micro USB which most mobile devices have been using. Another concern is that moisture or fine dust may cause short to 20V VBUS with next to pins.

NX20P0408 enables D+/D- to be robust in even abnormal conditions. NX20P0408 has 28V DC tolerant on D+/D- pin in connector side and quickly disconnects switchers if the voltage is above over voltage threshold, D+/D- in system side is protected from high voltage.

## 2. Features and benefits

- USB Type C D+/D- short protection to VBUS
  - CON_DP / CON_DN : 28$V_{DC}$
- Low Rdson switch : 4Ω
- High switch bandwidth = 1.5GHz
- 35V surge protection on CON_DP/CON_DN
- Fast OVP turn off time : 60ns
- Post-stage clamp circuit to clamp voltage until switch is off.

## 3. Applications

- Smartphone
- Tablet
- Laptop


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## 4. Ordering information

**Table 1. Ordering information**

| Type number | Temperature range | Name | Description | Version |
|---|---|---|---|---|
| NX20P0408UK | −40 °C to +85 °C | WLCSP12 | Wafer level chip-size, 12 bumps; 1.27 x 1.67 x 0.525 mm (back side coating included) | NX20P0408 |

## 5. Marking

**Table 2. Marking Codes**

| Type number | Marking code |
|---|---|
| NX20P0408UK | N08 |


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## 6. Functional Diagram

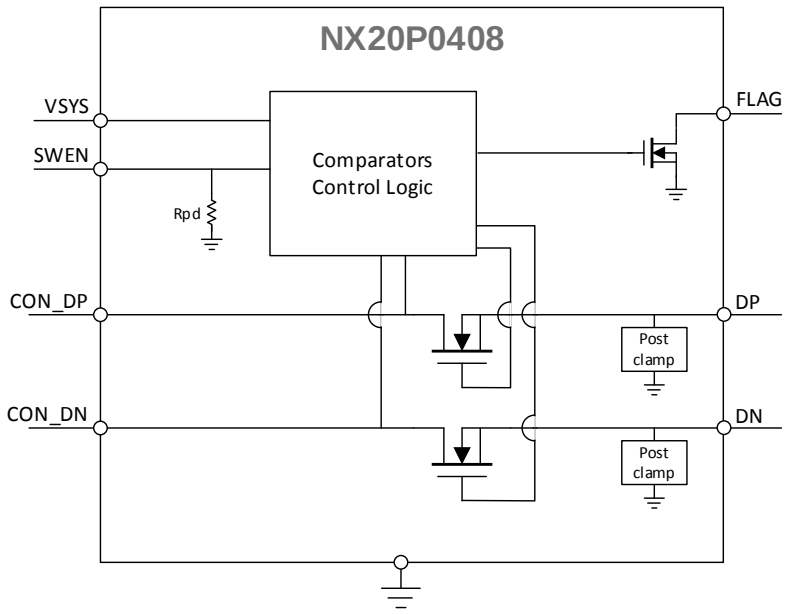


**Fig 1. Block diagram**


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