Reset IC Application Examples

Monitoring of 12V/24V input lines with large voltage fluctuations

Technical trend and challenges

- It is necessary to monitor large voltage fluctuations in the power supply line due to loads such as motors and input impedance.
  Set the detect /release voltage to suit the application.

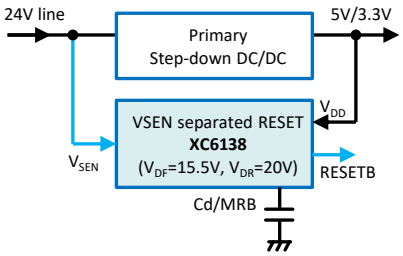
TOREX Proposal : Reset IC with high voltage tolerance and a wide range of detect/release voltages

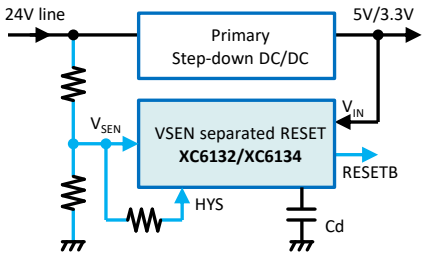
➢ **Wide range of detect/release voltage difference (hysteresis) supported**

- Separate sense pin type, monitoring 12V/24V lines.
- Select a release voltage high enough to ensure a stable rise and select a detect voltage sufficiently different from the release voltage.

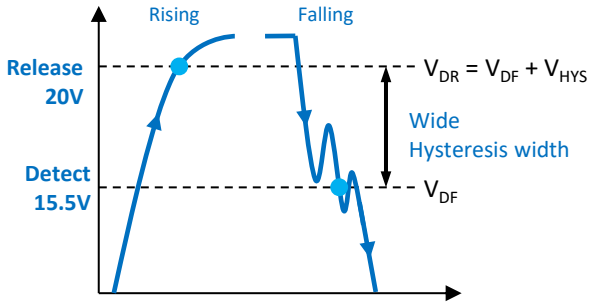
XC6138, XD6138
76V High voltage Sense pin
Wide hysteresis range selectable.

XC6132/XC6134, XD6132/XD6134
Detect and release voltages are set using external resistors.
(**XC/XD6132** has V_{SEN} pin surge protection)





Example of 24V line voltage monitoring



USB port Overvoltage protection (OVP)

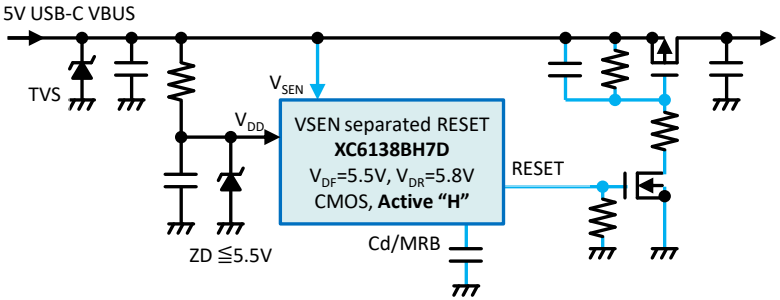
Technical trend and challenges

- The proliferation of low-cost USB-PD adapters poses a challenge, as overshoot on 5V USB or the application of voltages exceeding specifications can damage downstream systems.

TOREX Proposal : Overvoltage protection with a reset IC suitable for 5V USB

➢ **Simple implementation with XC6138BH7D + external Pch FETs.**

- **XC6138BH7D : Outputs 'L' at 5.8V, turning the Pch FET OFF**
  Outputs 'H' at 5.5V, turning the Pch FET ON
- TVS and each FET are selected to match the permissible input voltage.
- Apply <6V to the V_{DD} pin via ZD.
- To counter inrush current during start-up, implement a simple soft-start by adding capacitance between the gate and source of the Pch FET.



Block	Product	Features
RESET IC	**XC6138** FEATURED	High Voltage Sense pin: 76V, Ultra-low Iq V_{DD}: 0.5µA, V_{SEN}: 0.15µA@12V Detect/Release Delay external adj., Selectable Hysteresis
	XC6118 **XC6134**	Separated Sense pin, Low Iq, Adj. Release delay, Hysteresis adj. (XC6134)