DESCRIPTION

MT7538 is an integrated protection device for USB Type-C port. It provides 24V Short-to-V_{BUS} overvoltage and IEC ESD protection.

To protect the devices, it is necessary for CC and SBU pins to be 24V tolerant even though the operating voltage of these pins are 5V or lower. For many Type C Controllers, low voltage silicon process is used for high density digital circuit. It will be very costly to achieve the high voltage capability on those pins.

MT7538 enables 24V tolerant on CC/SBU pins without interfering normal operation. During normal operation, the device is transparent to the operation of the Type-C controller.

When high voltage is applied to CC/SBU pins, MT7538 blocks the high voltage to provide a safe operating condition for Type-C controller.

MT7538 also integrates CC pin pull down resistor so that mobile devices can be powered up and charged in dead battery situation. When system power is up, the MT7538 can automatically cut out CC pin pull down resistor so that Type-C controller CC pin pull down resistor can take over without confusing the power source.

MT7538 also integrates a high voltage LDO which can generate 3.3V output from VBUS directly and a power path control circuit.

In dead battery situation when system power is down, this system can provide 3.3V power to PD controller and MT7538 to ensure a reliable startup and negotiation between portable device and power source.

MT7538 is available in a tiny 16 lead 3.0mmx3.0mm QFN-3X3-16 package.

FEATURES

- 4 channel over voltage protection (CC1, CC2, SBU1, SBU2) with 24V tolerant and IEC 61000-4-2 ESD protection
- High current capability (600mA) for CC1/CC2 over voltage protection FETs to pass V_{CONN} power
- Integrated CC1/CC2 pull down resistors for handling dead battery condition
- Automatic and transparent operation without interfere or burden Type-C controller
- Compact package size to minimize external components and solution size: QFN-3X3-16

APPLICATIONS

- USB Type-C devices
- Note book and PC
- Smart mobile phone and TVs
- Monitors

TYPICAL APPLICATIONS