

### USB Type-C Port Protector for CC and SBU Pins

#### Features

- Overvoltage Protection (OVP)
  - ▶ 24VDC Tolerance on CC1/2, SBU1/2
    - Robust 27V overshoot clamping
  - ▶ CC1/2 OVP = 5.8V
  - ▶ SBU1/2 OVP = 4.8V
  - ▶ Ultra-Fast 15ns Response Time
- IEC61000-4-5 Surge Protection
  - ▶  $\pm 80\text{V}$  Surge Tolerance on CC1/2
  - ▶  $\pm 35\text{V}$  Surge Tolerance on SBU1/2
- IEC61000-4-2 ESD Protection
  - ▶  $\pm 15\text{kV}$  air gap on CC1/2, SBU1/2
  - ▶  $\pm 8\text{kV}$  contact on CC1/2, SBU1/2
- $\pm 2\text{kV}$  HBM on all pins (JEDEC JS-001-2017)
- Moisture Detection Compatible
  - ▶ Over  $10\text{M}\Omega$  to ground on CC1/2, SBU1/2
- CC Switches:
  - ▶ 1.25A,  $330\text{m}\Omega$
  - ▶ Automatic  $5.1\text{k}\Omega$  dead battery pull-down
- SBU Switches:
  - ▶  $4\Omega$
  - ▶ Reverse current blocking when disabled
- 2.5V to 5.5V Operating Supply Voltage Range
- $-40^\circ\text{C}$  to  $85^\circ\text{C}$  Operating Temperature Range
- Pb-free 20 bump WLCSP (0.4mm pitch)

#### Brief Description

The KTU1101 provides ESD, surge, and overvoltage protection (OVP) for USB Type-C ports CC and SBU signal pins. ESD protection meets IEC61000-4-2 standards, eliminating the need for external TVS diodes. Surge protection meets IEC61000-4-5 standards, increasing immunity from power surges such as lightning strikes on the power lines while the USB cable is connected. Overvoltage protection (OVP) eliminates system damage due to physical or moisture-related shorts between the signal pins and VBUS at elevated PD voltage levels.

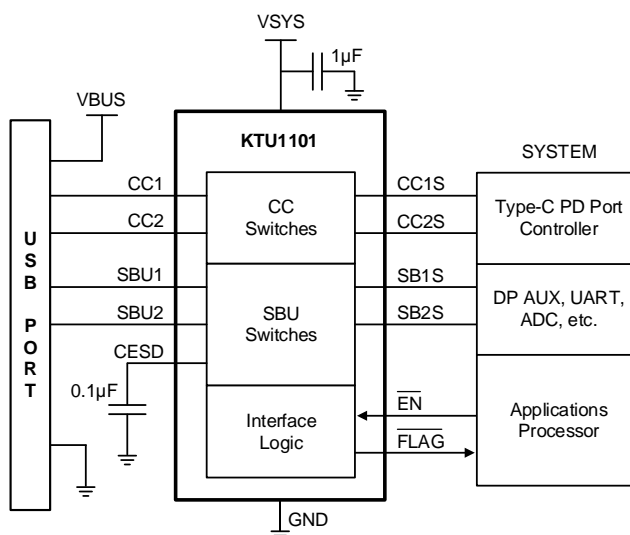
The SBU switches have low on-capacitance for passing high-speed signals. The CC1/2 switches have low on-resistance for passing  $V_{\text{CONN}}$  power up to 1.25A for CC power delivery communications. During dead battery conditions, internal  $5.1\text{k}\Omega$  resistors automatically pull down on CC1/2 to ensure that the up-stream source provides 5V to VBUS.

The KTU1101 is packaged in RoHS and Green compliant  $1.7\text{mm} \times 2.1\text{mm}$  wafer-level chip-scale package (WLCSP).

#### Applications

- Smartphones, Tablets, Notebooks, Monitors, TVs
- Accessories, AI/BT Loudspeakers, IoT
- Any USB Type-C port

#### Typical Application





### Ordering Information

Part Number	Marking <sup>1</sup>	Operating Temperature	Package
KTU1101EVF-TR	MCXXYYZZZZ	-40°C to +85°C	WLCSP45-20

1. "MC" is the device ID. "XXYY" is the date code and assembly code. "ZZZZ" is the serial number.

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