



FUSB302 — Product Brief

Programmable USB Type-C Controller w/PD

Features

- Dual-Role Functionality with Autonomous DRP Toggle
- Ability to connect as either a host or a device based on what has been attached.
- Software configurable as a dedicated host, dedicated device, or dual role.
 - Dedicated devices can operate both on a Type-C receptacle or a Type-C plug with a fixed CC and VCONN channel.
- Full Type-C 1.1 Support. Integrates the following functionality of the CC pin
 - Attach/Detach Detection as Host
 - Current Capability Indication as Host
 - Current Capability Detection as Device
 - Audio Adapter Accessory Mode
 - Debug Accessory Mode
 - Active Cable Detection
- Integrates CCx to VCONN switch with over-current limiting for powering USB3.1 Full Featured cables.
- USB Power Delivery (PD) 2.0, Version 1.1 Support
 - Automatic GoodCRC Packet Response
 - Automatic retries of sending a packet if a GoodCRC is not received
 - Automatic soft reset packet sent with retries if needed
 - Automatic Hard Reset Ordered Set Sent
- Dead Battery Support (UFP Mode Support when No Power Applied)
- Low Power Operation: $I_{CC} = 25 \mu A$ (Typical)
- Packages
 - 9-Ball WLCSP (1.215 mm x 1.260 mm)
 - 14-Lead MLP (2.5 mm x 2.5 mm)

Description

The FUSB302 targets system designers looking to implement a DRP/DFP/UFP USB Type-C connector with low amount of programmability.

The FUSB302 enables the USB Type-C detection including attach, and orientation. The FUSB302 integrates the physical layer of the USB BMC power delivery protocol to allow up to 100 W of power and role swap. The BMC PD block enables full support for alternative interfaces of the Type-C specification.

Applications

- Smartphones
- Tablets
- Laptops
- Notebooks
- Power Adapters
- Cameras
- Dongles

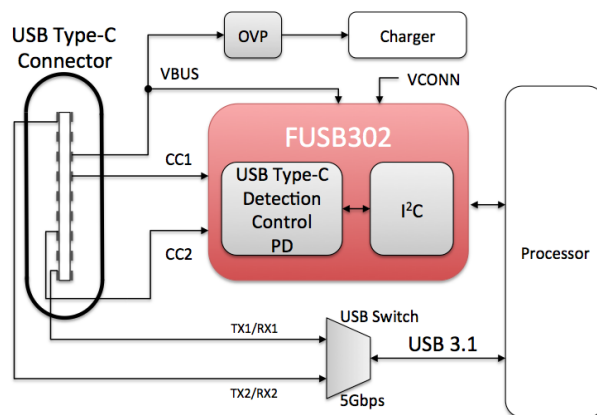


Figure 1. Block Diagram

PRELIMINARY INFORMATION

Ordering Information

Part Number	Operating Temperature Range	Package	Packing Method
FUSB302UCX	-40 to 85°C	9-Ball Wafer-Level Chip Scale Package (WLCSP), 0.4 mm Pitch	Tape and Reel
FUSB302MPX		14-lead MLP 2.5 mm x 2.5 mm, 0.5 mm Pitch	

Pin Descriptions

Name	Type	Description
USB Type-C Connector Interface		
CC1/CC2	I/O	Type-C connector Configuration Channel (CC) pins. Initially used to determine when an attach has occurred and what the orientation of the insertion is. Functionality after attach depends on mode of operation detected. Operating as a host: <ol style="list-style-type: none"> 1. Sets the allowable charging current for VBUS to be sensed by the attached device 2. Used to communicate with devices using USB BMC Power Delivery 3. Used to detect when a detach has occurred Operating as a device: <ol style="list-style-type: none"> 1. Indicates what the allowable sink current is from the attached host. -Used to communicate with devices using USB BMC Power Delivery
GND	Ground	Ground
VBUS	Input	VBUS input pin for attach and detach detection when operating as an upstream facing port (Device). Expected to be an OVP protected input.
Power Interface		
VDD	Power	Input supply voltage.
VCONN	Power Switch	Regulated input to be switched to correct CC pin as VCONN to power USB3.1 full-featured cables and other accessories
Signal Interface		
SCL	Input	I ² C serial clock signal to be connected to the phone-based I ² C master.
SDA	Open-Drain I/O	I ² C serial data signal to be connected to the phone-based I ² C master
INT_N	Open-Drain Output	Active LOW open drain interrupt output used to prompt the processor to read the I ² C register bits

PRELIMINARY INFORMATION

Physical Dimensions

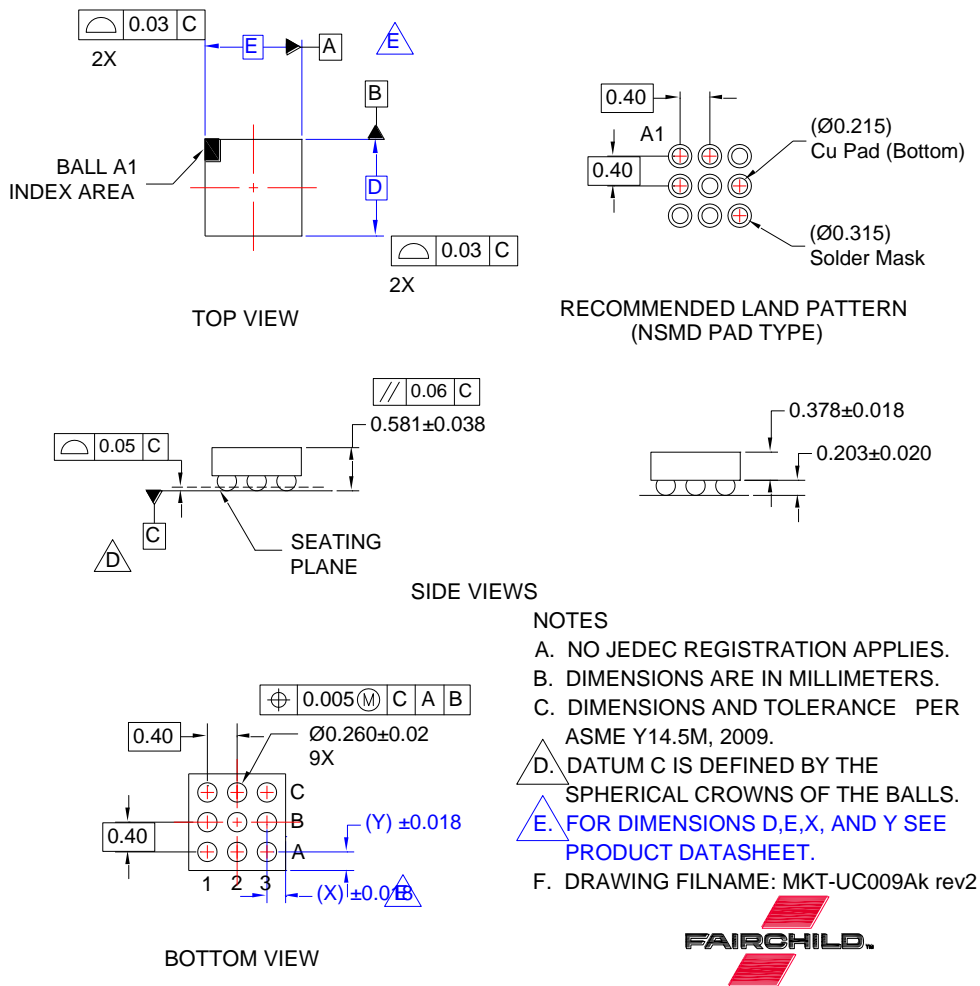


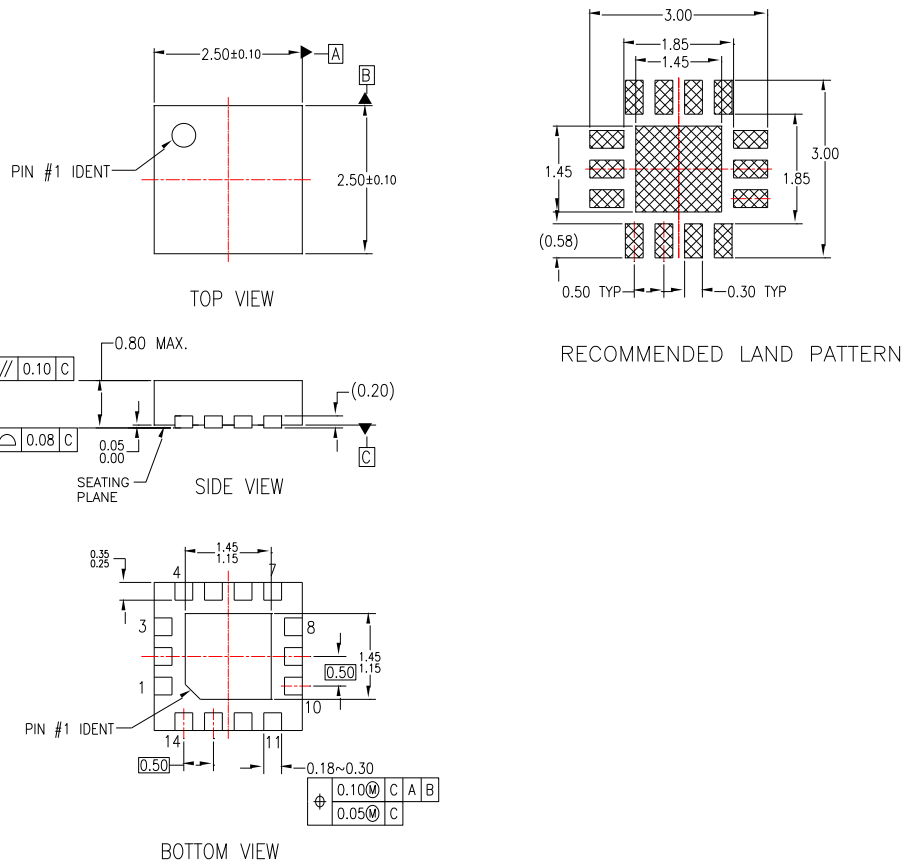
Figure 2. 9-Lead, Wafer-Level Chip-Scale Package (WLCSP)

Product-Specific Dimensions

Product	D	E	X	Y
FUSB302UCX	1.260 mm	1.215 mm	0.2075 mm	0.230 mm

PRELIMINARY INFORMATION

Physical Dimensions



NOTES:

- A. NO JEDEC REGISTRATION
- B. DIMENSIONS ARE IN MILLIMETERS.
- C. DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994

MLP14DrevA

Figure 3. 14-Lead MLP, 2.5 mm x 2.5 mm, 0.5 mm Pin Pitch



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