USB Type-C ENGINEERING CHANGE NOTICE

Title: USB 2.0 Type-C receptacle
Applied to: USB Type-C Specification Release 1.2, Draft 20160309

Brief description of the functional changes:
Define a USB 2.0 Type-C receptacle.

Benefits as a result of the changes:
The market is demanding a USB 2.0 Type-C receptacle connector. Opportunity for cost improvement versus full featured receptacle version. Lower pin count can be used to space solder tails, improving inspection, rework, and the soldering process.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
N/A

An analysis of the hardware implications:
Allows for possible cost savings in new designs. Testing by multiple manufacturers showed no detrimental effects of the USB 3.1 signal contacts being not present in the receptacle.

An analysis of the software implications:
N/A

An analysis of the compliance testing implications:
Adds receptacle pin configuration to the existing full featured version. No impact to test procedures.

USB Type-C ENGINEERING CHANGE NOTICE

Actual Change

(a). Section 2.1, Text, Page 20

From Text:

Figure 2-1 illustrates the comprehensive functional signal plan for the USB Type-C receptacle, not all signals shown are required in all platforms or devices. As shown, the receptacle signal list functionally delivers both *USB 2.0* (D+ and D−) and *USB 3.1* (TX and RX pairs) data buses, USB power (VBUS) and ground (GND), Configuration Channel signals (CC1 and CC2), and two Sideband Use (SBU) signal pins. Multiple sets of USB data bus signal locations in this layout facilitate being able to functionally map the USB signals independent of plug orientation in the receptacle. For reference, the signal pins are labeled.

To Text:

Figure 2-1 illustrates the comprehensive functional signal plan for the USB Full- Featured Type-C receptacle, not all signals shown are required in all platforms or devices. As shown, the receptacle signal list functionally delivers both *USB 2.0* (D+ and D−) and *USB 3.1* (TX and RX pairs) data buses, USB power (VBUS) and ground (GND), Configuration Channel signals (CC1 and CC2), and two Sideband Use (SBU) signal pins. Multiple sets of USB data bus signal locations in this layout facilitate being able to functionally map the USB signals independent of plug orientation in the receptacle. For reference, the signal pins are labeled. For the *USB 2.0* Type-C receptacle, the *USB 3.1* signals are not implemented.

(b). Section 2.2, Text, Page 21

From Text:

The following USB Type-C receptacles and plugs are defined.

- USB Type-C receptacle for *USB 2.0*, *USB 3.1* and full-featured platforms and devices
- USB Full-Featured Type-C plug
- *USB 2.0* Type-C plug

To Text:

The following USB Type-C receptacles and plugs are defined.

- USB Type-C Full-Featured receptacle for *USB 2.0*, *USB 3.1* and full-featured platforms and devices
- *USB 2.0* Type-C receptacle for *USB 2.0* platforms and devices
- USB Full-Featured Type-C plug
- *USB 2.0* Type-C plug

(c). Section 3.1.1, Text, Page 27

From Text:

3.1.1 Compliant Connectors

The USB Type-C™ specification defines the following standard connectors:

- USB Type-C receptacle
- USB Full-Featured Type-C plug
- USB 2.0 Type-C plug

To Text:

3.1.1 Compliant Connectors

The USB Type-C™ specification defines the following standard connectors:

- USB Type-C Full-Featured receptacle
- *USB 2.0* Type-C receptacle
- USB Full-Featured Type-C plug
- *USB 2.0* Type-C plug

(d). Section 3.2.1, Item 10, Page 30

From Text:

10. This specification does not define standard footprints. Figure 3-4 shows an example SMT (surface mount) footprint for the vertical receptacle shown in Figure 3-1. Additional reference footprints and mounting configurations are shown in Figure 3-5, Figure 3-6, Figure 3-7, and Figure 3-8.

To Text:

10. This specification does not define standard footprints. Figure 3-4 shows an example SMT (surface mount) footprint for the vertical receptacle shown in Figure 3-1. Additional reference footprints and mounting configurations are shown in Figure 3-5, Figure 3-6, Figure 3-7, ~~and~~ Figure 3-8, Figure 3-9, and Figure 3-10.

(e). Section 3.2.1, Figure 3-8, Page 42

From Figure 3-8:

No change to Figure 3-8.

To: Add additional new Figure 3-9 and Figure 3-10 after Figure 3-8:

Figure 3-9 Reference Footprint for a USB 2.0 Type-C Through Hole Right Angle Receptacle (Informative)

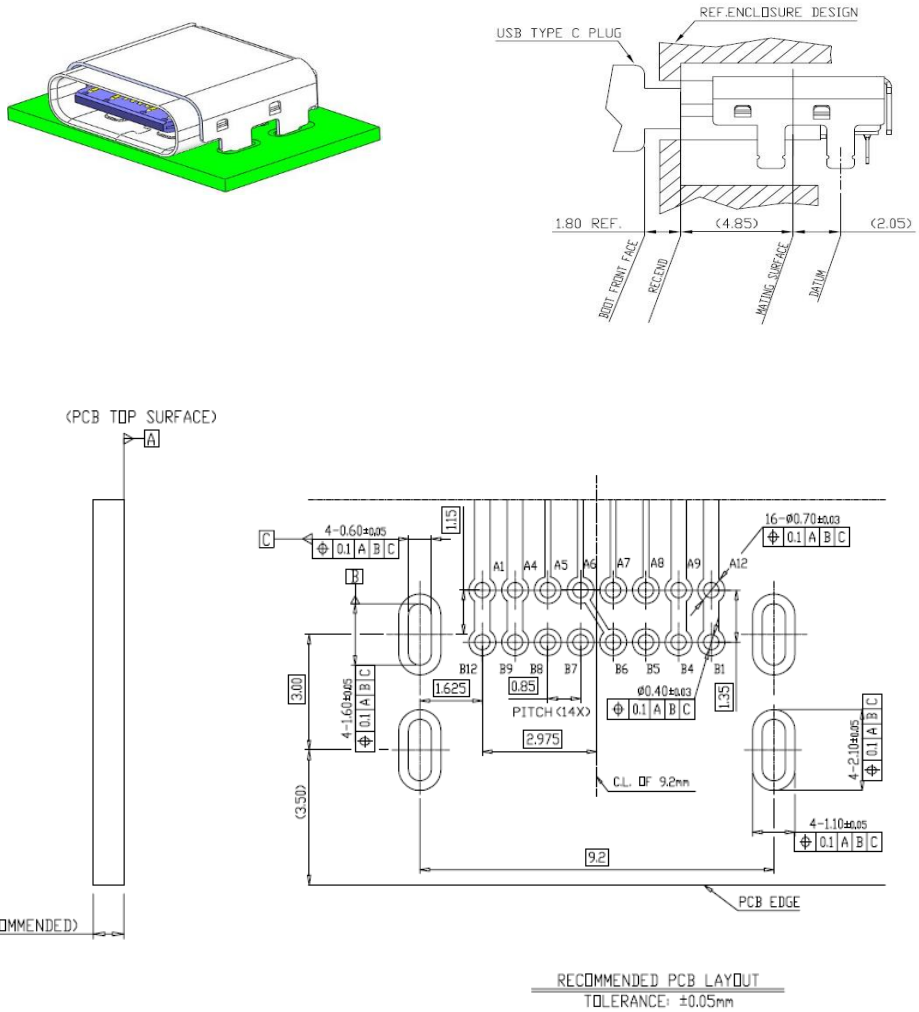
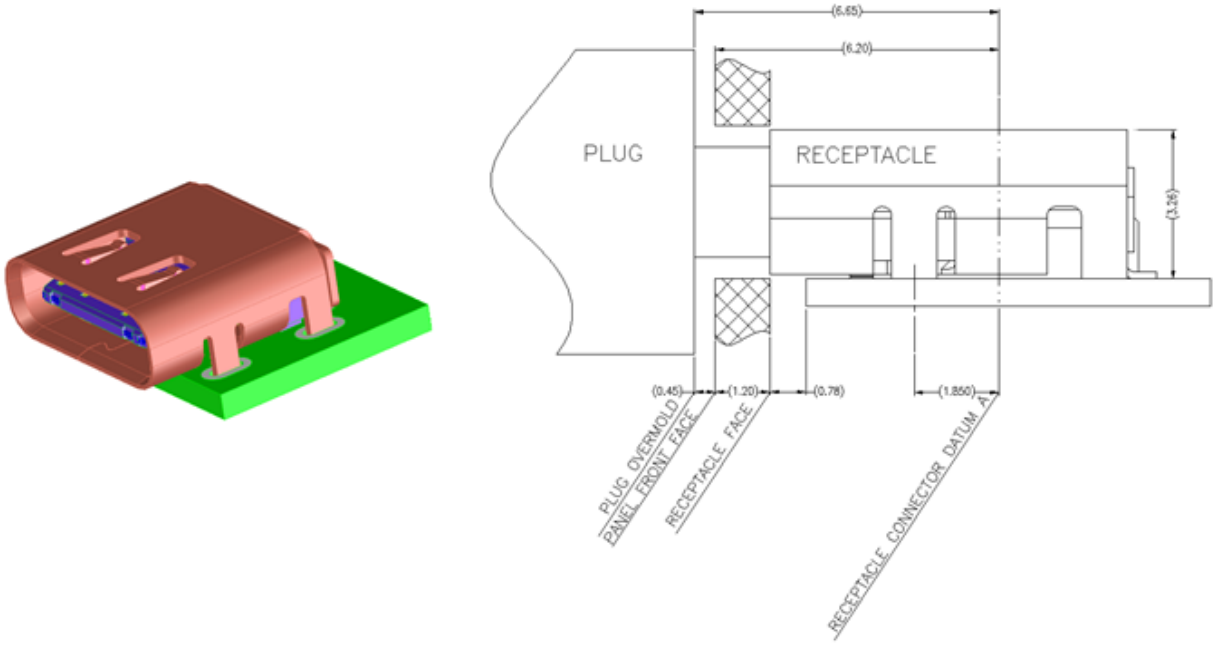
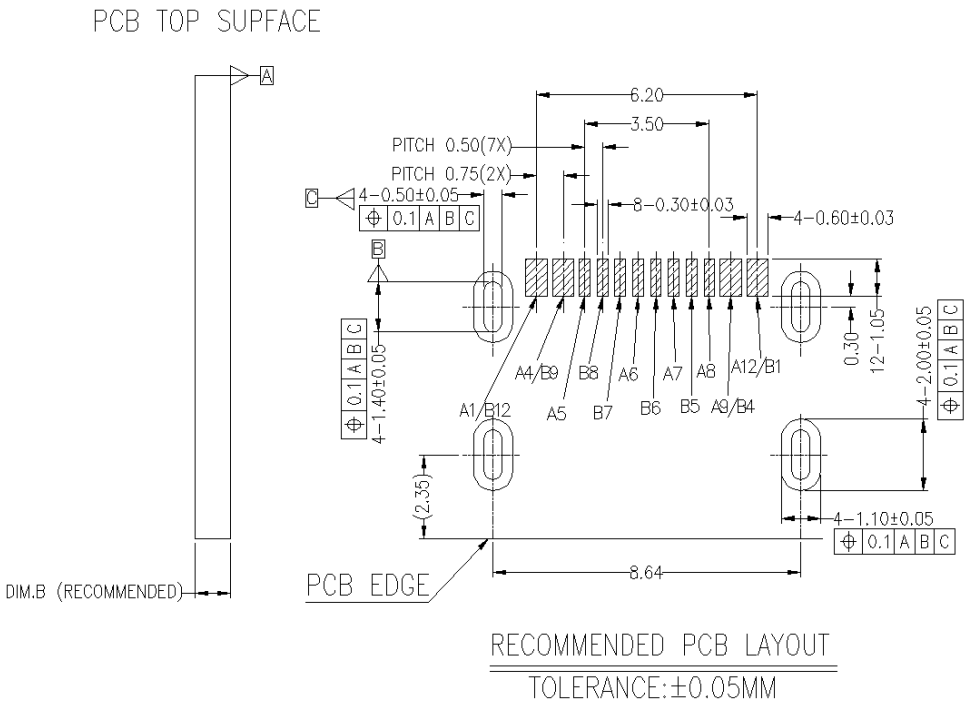


Figure 3-10 Reference Footprint for a USB 2.0 Type-C Single-Row Right Angle Receptacle (Informative)





(f). Section 3.2.1, Text, Page 43

From Text:

This specification requires that all contacts be present in the mating interface of the USB Type-C receptacle connector, but allows the plug to include only the contacts required for *USB PD* and *USB 2.0* functionality for applications that only support *USB 2.0*. ….

To Text:

This specification requires that all contacts be present in the mating interface of the USB Full Featured Type-C receptacle connector and all contacts except the *USB 3.1* signals (i.e., A2, A3, A10, A11, B2, B3, B10, and B11) be present in the mating interface of the *USB 2.0* Type-C receptacle connector, but allows the plug to include only the contacts required for *USB PD* and *USB 2.0* functionality for applications that only support *USB 2.0*. ….

(g). Section 3.2.3, Table 3-5 note 1, Page 56

From Text:

1. The unused contacts shall not be physically depopulated in the USB Type-C receptacle. Unused contact locations shall be electrically isolated from power, ground or signaling (i.e., not connected).

To Text:

1. ~~The unused contacts shall not be physically depopulated in the USB Type-C receptacle.~~ Unused contact locations shall be electrically isolated from power, ground or signaling (i.e., not connected).