

TUSB211 Schematic Checklist

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ABSTRACT

This application note for the TUSB211, a USB High-Speed (HS) signal conditioner designed to compensate for ISI signal loss in a transmission channel, lists recommended details for each device pin. This schematic checklist provides a brief explanation of each device pin and the recommended configuration of the device pin for default operation. Use this information to check the connectivity for each TUSB211 on a system schematic.

This document is intended to aid design on the system level for general applications but should not be the only resource used. In addition to this schematic checklist, customers are advised to use the TUSB211 datasheet, TUSB211 EVM user's guide and associated documents to gain a full understanding of device functionality. Project collateral discussed in this application report can be downloaded from the following URL: www.ti.com/lit/zip/SLLA389.

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1 TUSB211 Schematic Checklist

Table 1. TUSB211 Schematic Checklist

Pin Name	Pin Number	Pin Description	Recommendation
VCC	12	3.3-V power	Parallel array of 1 μ F and 0.1 μ F capacitors on VCC to GND
VREG	11	1.8-V LDO output.	Connect a 0.1 μ F capacitor between VREG and GND
GND	10	Ground	GND must be connected to GROUND
RSTN	5	Device disable/enable.	Connect a 0.1 μ F capacitor between RSTN and GND. A second option is to control this pin externally. The device should not be enabled until the power on ramp has settled to 3 V or higher to ensure a correct power on reset of the digital circuitry.
EQ	6	USB High Speed boost select via external pull down resistor. Sampled upon power up, no real time changes.	PD resistor connected to the EQ pin, the value options are 100 Ω , 1.8 K Ω , 3.9 K Ω or 9.1 K Ω for the EQ levels 0 - 3 respectively
D1P	2	USB High Speed positive port.	D1P must be shorted to D2P, Make sure the USB2 signals DP/DM polarity corresponds to the pins DxP/DxM respectively
D1M	1	USB High Speed negative port.	D1M must be shorted to D2M, Make sure the USB2 signals DP/DM polarity corresponds to the pins DxP/DxM respectively
D2P	7	USB High Speed positive port.	D1P must be shorted to D2P, Make sure the USB2 signals DP/DM polarity corresponds to the pins DxP/DxM
D2M	8	USB High Speed negative port.	D1M (pin 1) must be shorted to D2M (pin 8), Make sure the USB2 signals DP/DM polarity corresponds to the pins DxP/DxM respectively
TEST	3	No function. Leave floating.	TEST (pin 3) must be floating
ENA_HS	9	Flag indicating that channel is in High Speed mode.	Placeholder on ENA_HS (pin 9) for pull-up and pull-down resistors, with a note that this is the upgrade path to TUSB212. A connection to a LED in series with a PD resistor is optional. Customer can left this pin unconnected
CD	4	Flag indicating that a USB device is attached.	CD (pin 4) could be connected to a LED in series with a resistor connected to GND. A second option is to left this pin unconnected

Note: Common mode chokes placed as close as possible to the USB connectors. Verify the pinout of the USB connectors. Verify pin-out of TUSB211 matches datasheet. Always refer to the datasheet of this device for complete descriptions of each pin.

2 References

- [TUSB211 USB 2.0 High Speed Signal Conditioner Datasheet](#)
- [TUSB211EVM Users Guide](#)
- [Strengthening the USB Type-C signal chain through redrivers](#)

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