TUSB211 to TUSB212 Changes

ABSTRACT

This document defines pinout differences between the TUSB211 and the TUSB212 and highlights the schematic changes needed to convert existing system designs from using the TUSB211 to the TUSB212.

This document also applies to the TUSB214 which shares the same pinout and pin functions of the TUSB212.

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Trademarks

1 Pinout Comparison

Table 1 lists the changes in the pin definitions of the TUSB211 and TUSB212 devices, and highlights pin configurations that may require change when using the TUSB212 to replace the TUSB211 in an existing system.

Table 1. TUSB211 to TUSB212 Pinout Changes

Pin	TUSB211	TUSB212	TUSB211 to TUSB212 Change Notes
1	D1M	D1M	No change required
2	D1P	D1P	No change required
3	TEST	SDA	GPIO mode: no change required
			I^2C mode: add a 4.7-k pullup to VCC; connect to master SCL.
4	CD	SCL/CD	No change required
			I^2C mode: add a 4.7-k pulup to VCC; connect to master SDA.
5	RSTN	RSTN	No change required
6	EQ	EQ	No change required
7	D2P	D2P	No change required
8	D2M	D2M	No change required
9	ENA_HS	DC_BOOST/ENA_HS	43-k pullup to VCC for high boost Leave floating for mid boost 43-k pulldown to GND for low boost
10	GND	GND	No change required
11	VREG	VREG	No change required
12	VCC	VCC	No change required

2 VCC and GND

No changes are required for VCC and GND pins.

3 USB Data Pins

No changes are required for D1P, D1M, D2P, or D2M pins.

4 RSTN, EQ, and VREG Pins

No changes are required for RSTN, EQ, or VREG pins.

Table 2. TUSB212 Equalization Control Pin Settings

Pin	Description	AC Boost Level	Typical Pulldown Resistor Value
EQ	AC Boost	0	100 Ω
		1	1.7 kΩ
		2	3.8 kΩ
		3	10 kΩ

5 Test and CD Pins

The Test and CD pins have changed from the TUSB211 to the TUSB212, these pins are dual-function pins in the TUSB212 for the I^2C interface. If the TUSB212 is not configured to use I^2C, then there are no changes needed for these pins. If the TUSB212 is configured to use I^2C, the Test pin acts as the I2C SDA pin and CD acts as the I2C SCL pin. Both SDA and SCL should have a 4.7-kΩ pullup to VCC.

6 DC_BOOST/ENA_HS

The DC_BOOST pin was added to the TUSB212, this pin is muxed with the ENA_HS pin. The state of the DC_BOOST pin is sampled after Power-On Reset or de-assertion of the RSTN pin and selects the amount of DC Boost added to the differential signal. After the DC_BOOST input is sampled, the pin function changes to being the ENA_HS output signal.

Table 3. TUSB212 DC_BOOST Control Pin Settings

Pin	Description	Logic State	Boost Setting
DC_BOOST/ENA_HS	DC Boost	Low	Low boost (40 mV)
		Floating	Mid boost (60 mV)
		High	High boost (80 mV)

7 Reference Schematic

Figure 1 can be referenced for a dual design using the TUSB211 or TUSB212. Resistor REQ selects the AC Boost configuration, resistors RDC1 and RDC2 select the DC_BOOST configuration (can be left unpopulated for TUSB211). Please refer to the appropriate data sheet for complete pin configuration information.

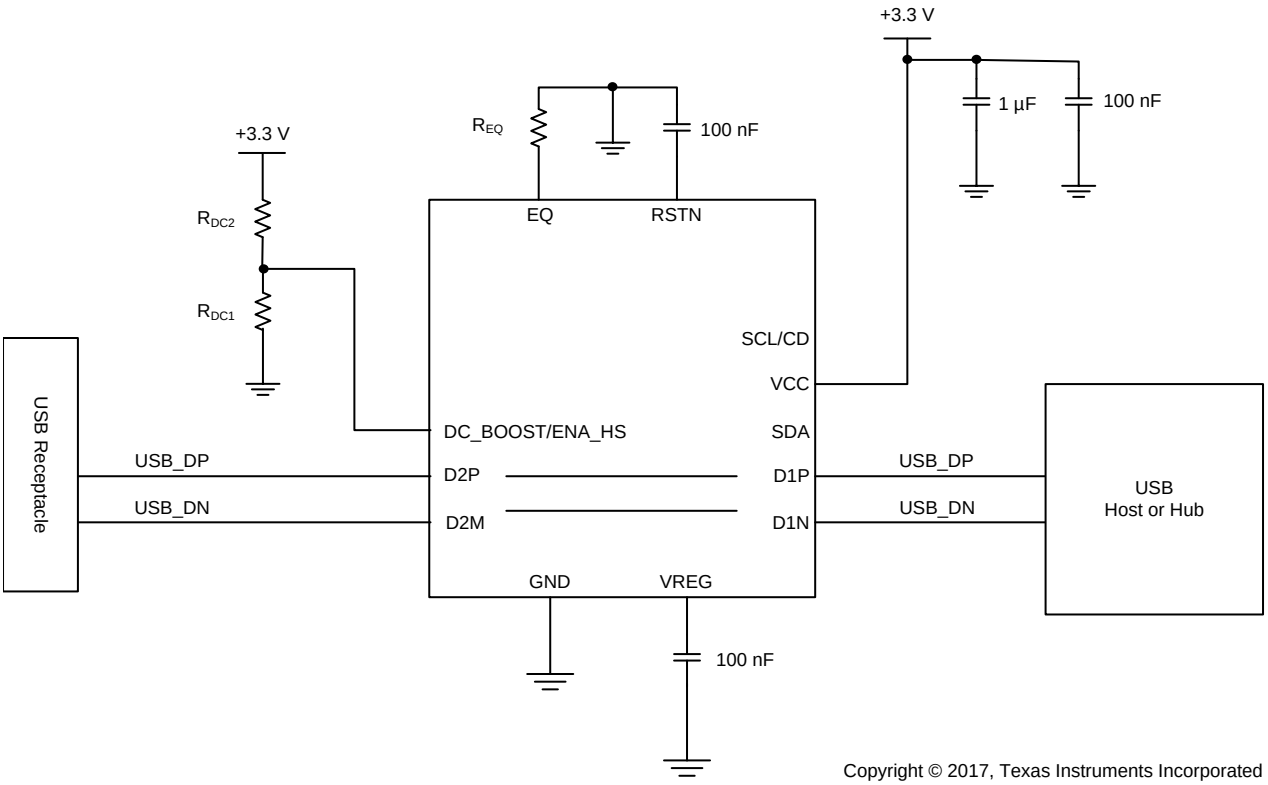

Figure 1. Reference Schematic

Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Date	Revision	Description
September 2017	*	Initial release

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