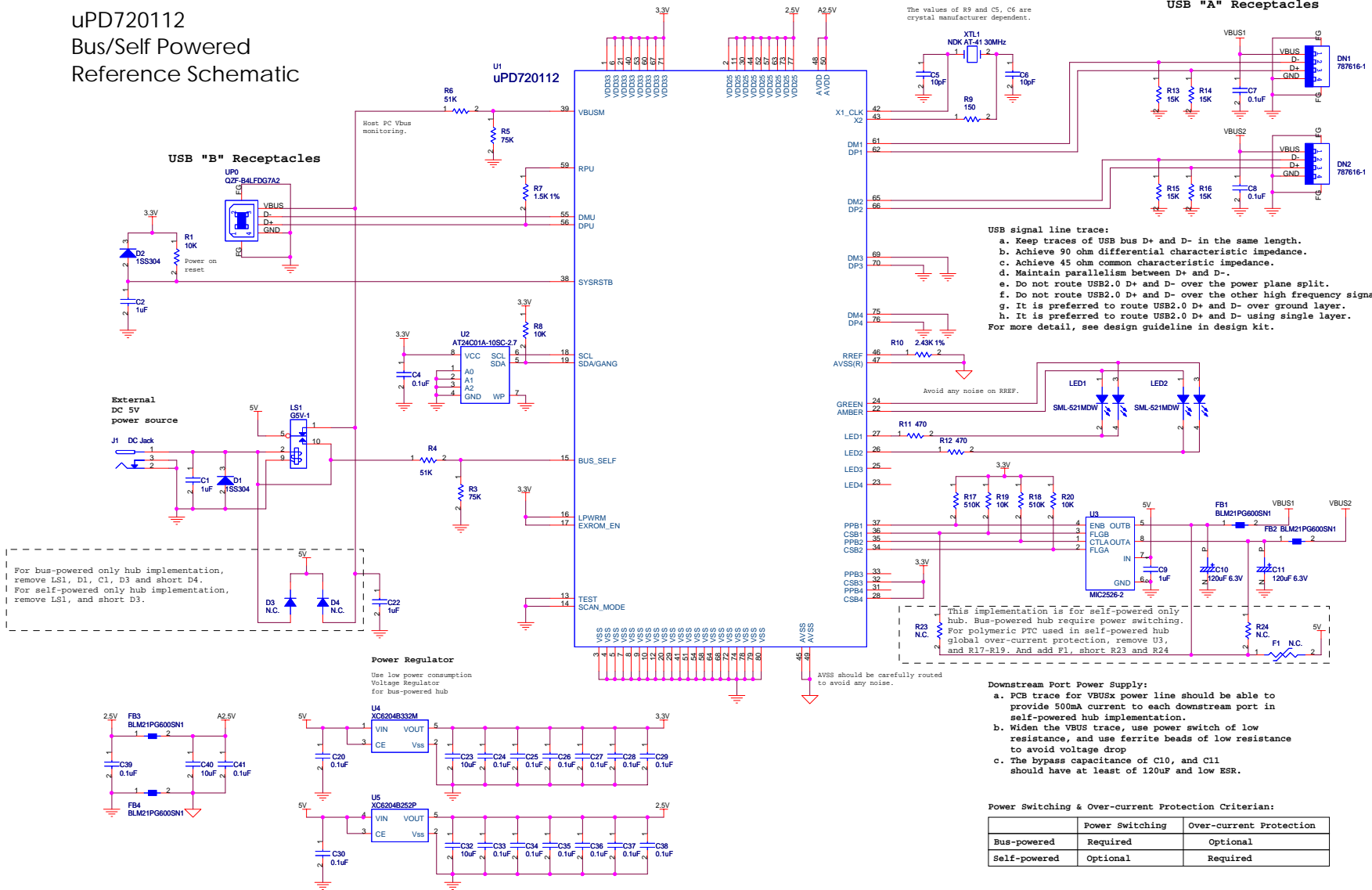


uPD720112
Bus/Self Powered
Reference Schematic



USB signal line trace:

- Keep traces of USB bus D+ and D- in the same length.
- Achieve 90 ohm differential characteristic impedance.
- Achieve 45 ohm common characteristic impedance.
- Maintain parallelism between D+ and D-.
- Do not route USB2.0 D+ and D- over the power plane split.
- Do not route USB2.0 D+ and D- over the other high frequency signals.
- It is preferred to route USB2.0 D+ and D- over ground layer.
- It is preferred to route USB2.0 D+ and D- using single layer.

For more detail, see design guideline in design kit.

Downstream Port Power Supply:

- PCB trace for VBUSx power line should be able to provide 500mA current to each downstream port in self-powered hub implementation.
- Widen the VBUS trace, use ferrite beads of low resistance, and use ferrite beads of low resistance to avoid voltage drop
- The bypass capacitance of C10, and C11 should have at least of 120uF and low ESR.

Power Switching & Over-current Protection Criterion:

	Power Switching	Over-current Protection
Bus-powered	Required	Optional
Self-powered	Optional	Required

*All resistors are 5% tolerance unless specified otherwise

The information in this document is subject to change without notice. No part of this document may be copied or reproduced in any form or by any means without the prior written consent of NEC Electronics Corporation. NEC Electronics Corporation assumes no responsibility for any errors which may appear in this document. NEC Electronics Corporation does not assume any liability for infringement of patents, copyrights or other intellectual property rights of third parties or arising from use of a device described herein or any other liability arising from use of such device. No license, either express, implied or otherwise, is granted under any patents, copyrights or other intellectual property rights of NEC Electronics Corporation or others.