

EM12 Reference Design

LTE-A Module Series

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About the Document

History

Revision	Date	Author	Description
0.8	2018-03-27	Oscar LIU	Initial

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1 Reference Design

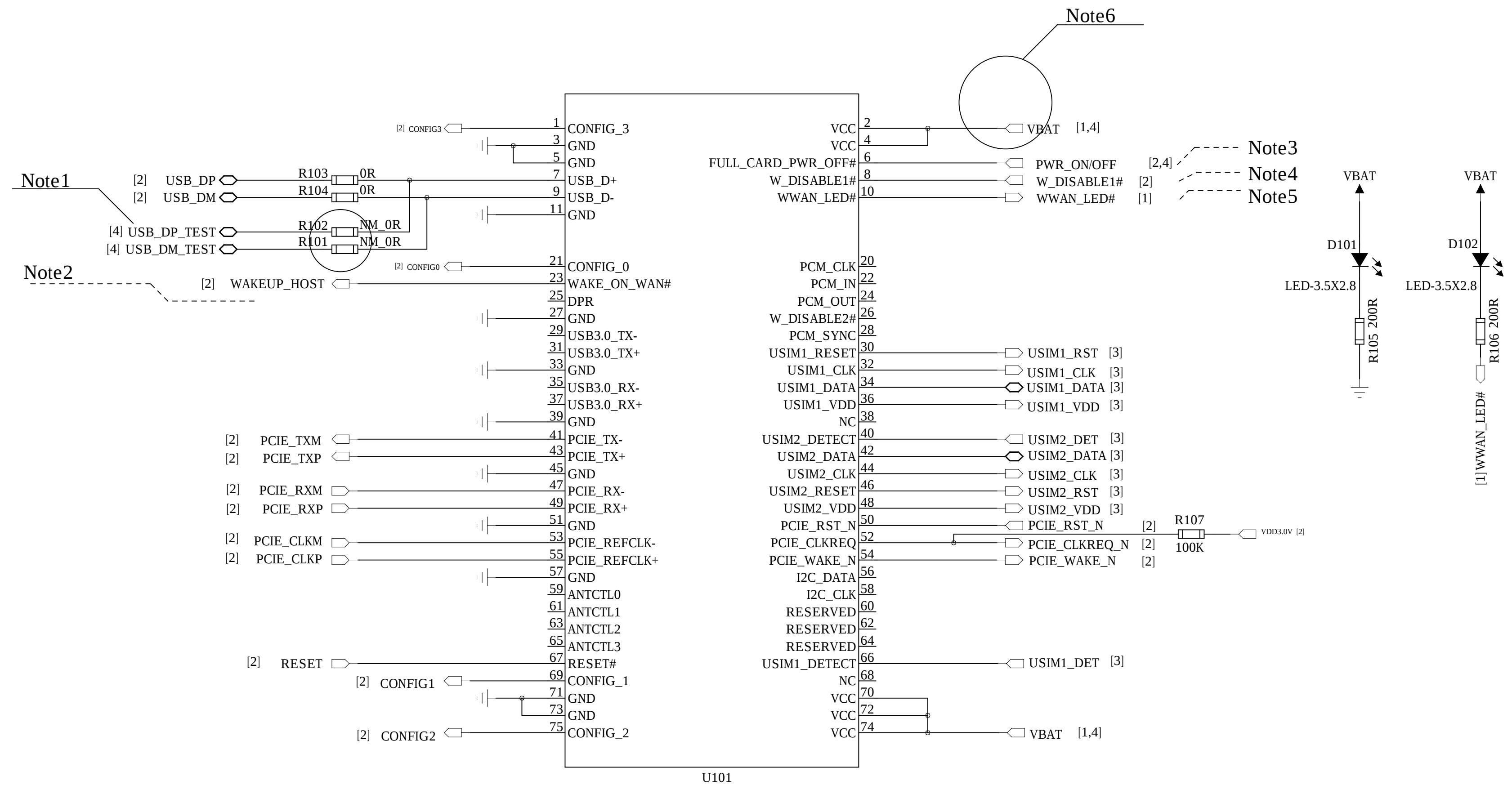
1.1. Introduction

This document provides the reference design for Quectel EM12 module.

1.2. Schematics

The schematics illustrated in the following pages are provided for your reference only.

Module Interface



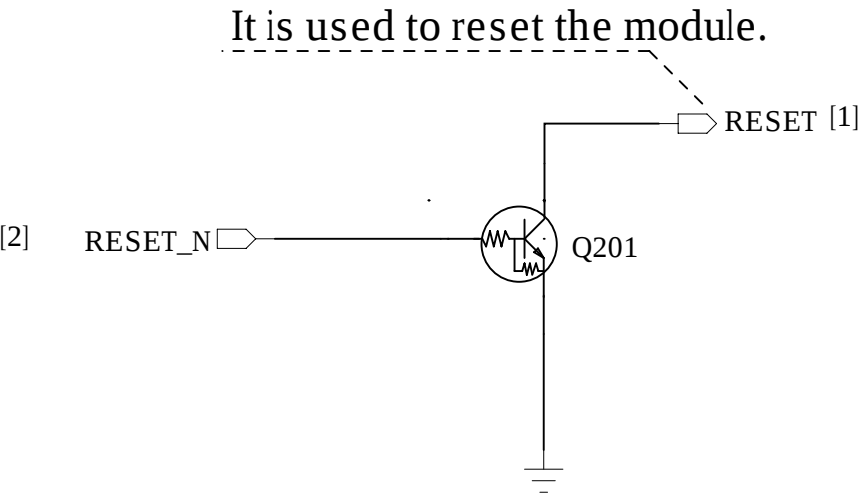
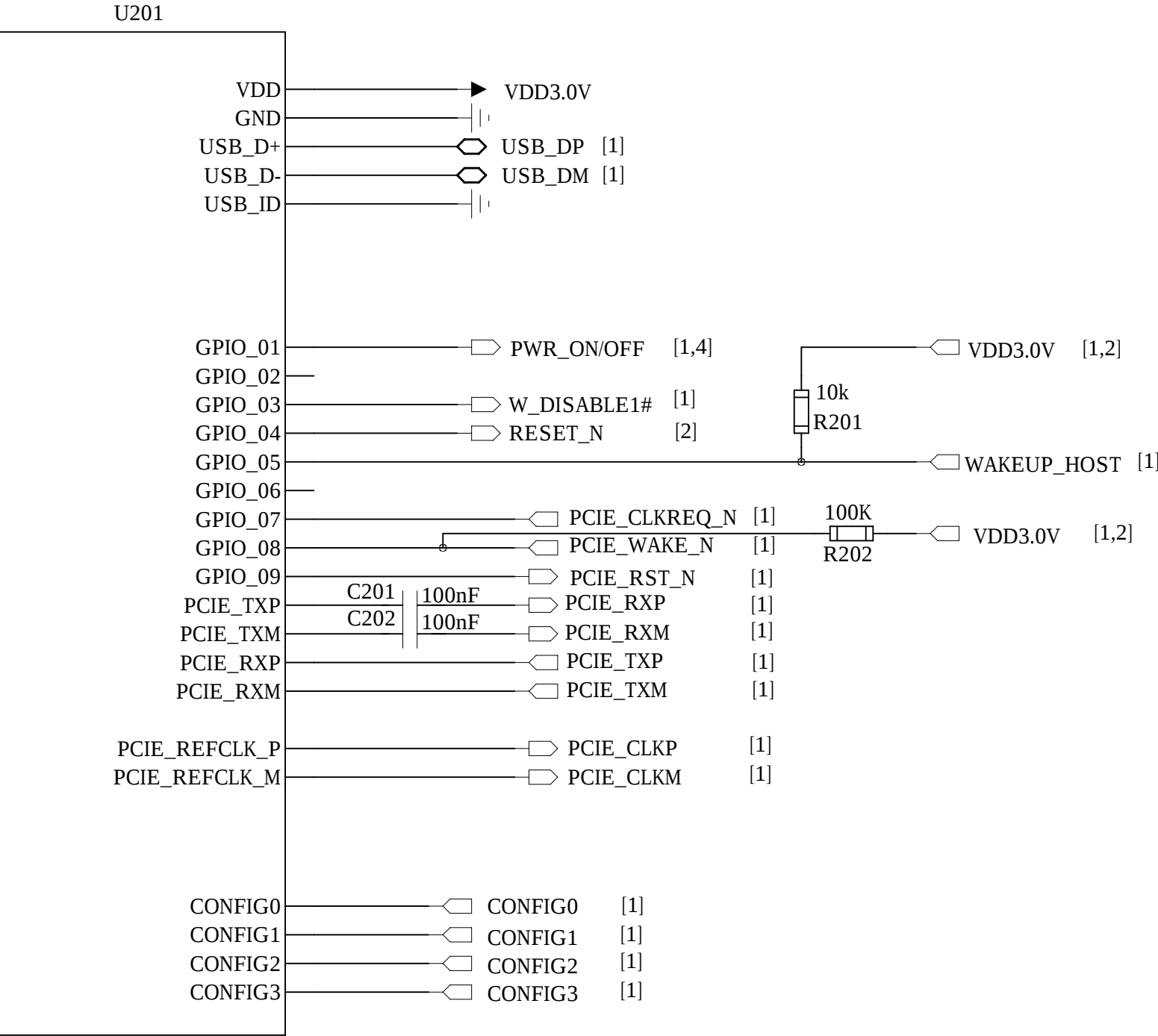
Notes:

1. It is recommended to reserve the test points for upgrading the firmware over USB interface and minimizing the stub length of USB test signals.
2. The WAKE_ON_WAN# signal is an open drain signal, and requires a pull up resistor on the host.
3. PWR_ON/OFF is controlled by MCU. And the module can be turned on when PWR_ON/OFF is driven to a high level.
The module can be turned off when PWR_ON/OFF is driven to a low level.
4. W_DISABLE1# signal is used to disable wireless communications through hardware operation.
RF function is disabled when W_DISABLE1# is at low level.
5. It is used to indicate RF status of the module, which can absorb the current up to 40mA.
RF function is turned on when WWAN_LED# is at low level, and RF function will be turned off when WWAN_LED# is at high level.

CONFIG_0	CONFIG_1	CONFIG_2	CONFIG_3

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AP Interface



Notes:

- 1. U201 represents customers' MCU.
- 2. The USB2.0 of EM12 Suport Host mode and Slave mode. it supports Low Speed,Full Speed and High Speed as a host.
While it is not capable of supporting USB low speed as a peripheral.
- 3. Keep C201 and C202 to the MCU as close as possible.
- 4. The differential impedance of USB 2.0 signal lines needs to be controlled as 90 ohm.
- 5. The differential impedance of PCIE signal lines needs to be controlled as 85~105 ohm.

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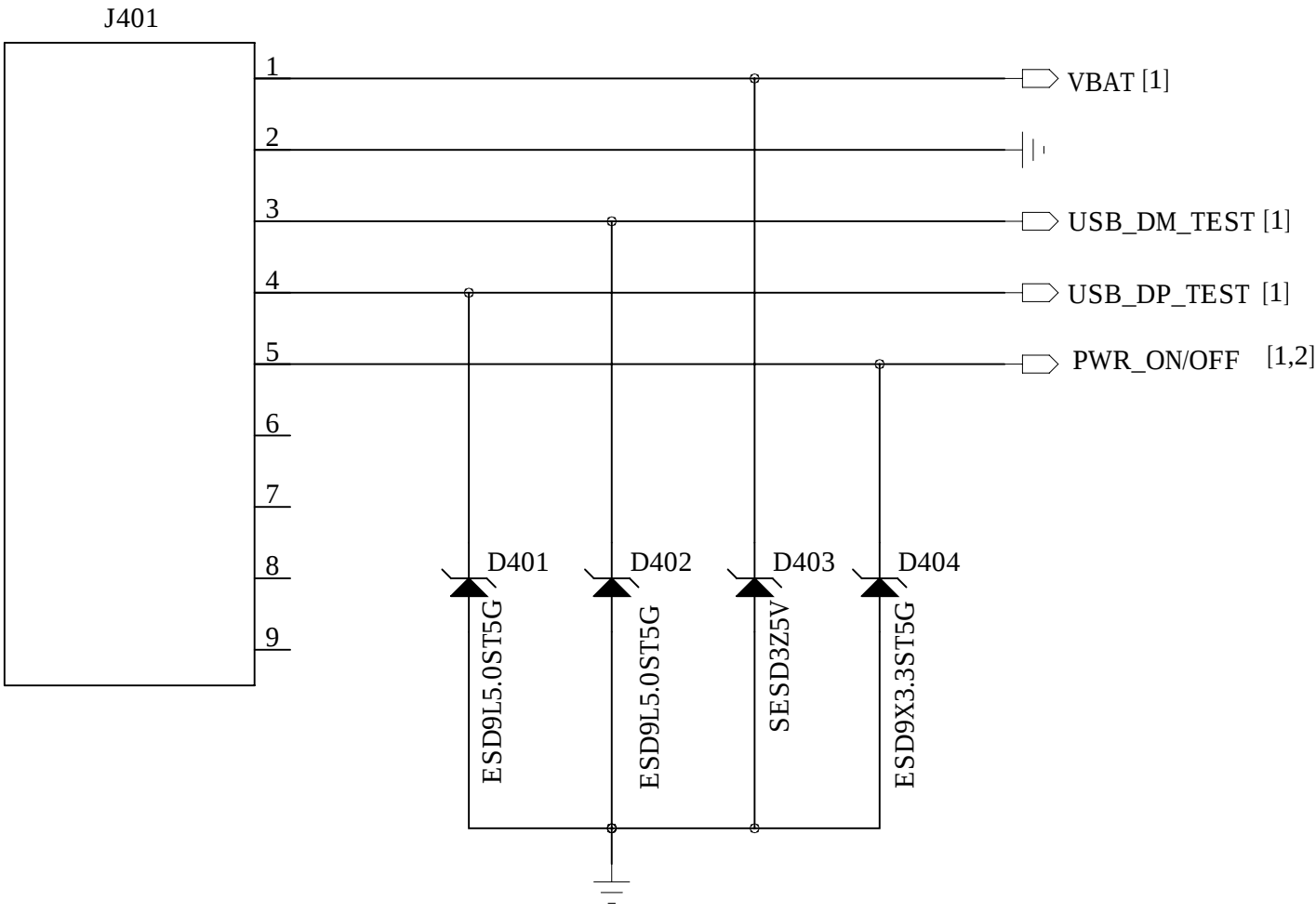


B

- A

A

Test Points Design



- Notes:
- 1. USB interface can also be used to upgrade firmware.
 - 2. Keep USB test points as close as possible to USB pins.
Please pay attention that junction capacitance of ESD component on USB data lines might influence the signal.
Typically, the capacitance should be less than 1pF.

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