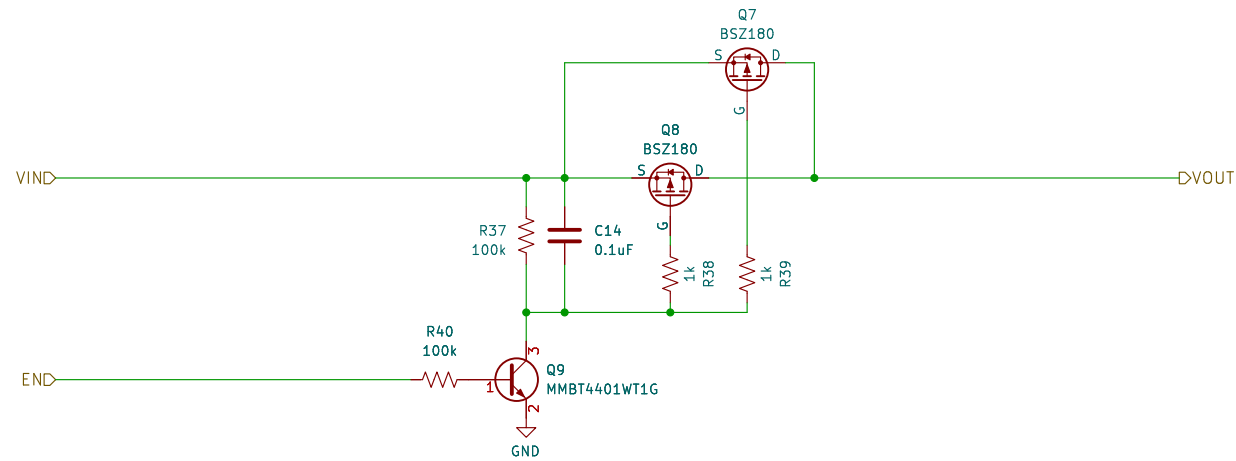


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# TITLE Foras Promineo Payload Interface

SIZE <b>B</b>	DWG NO.			REV <b>B</b>
DRAWN BY	CH	ENGINEER	CH	
FILE NAME	load_sw.kicad_sch	KICad E.D.A. kicad 7.0.1		SHEET 6 OF 4



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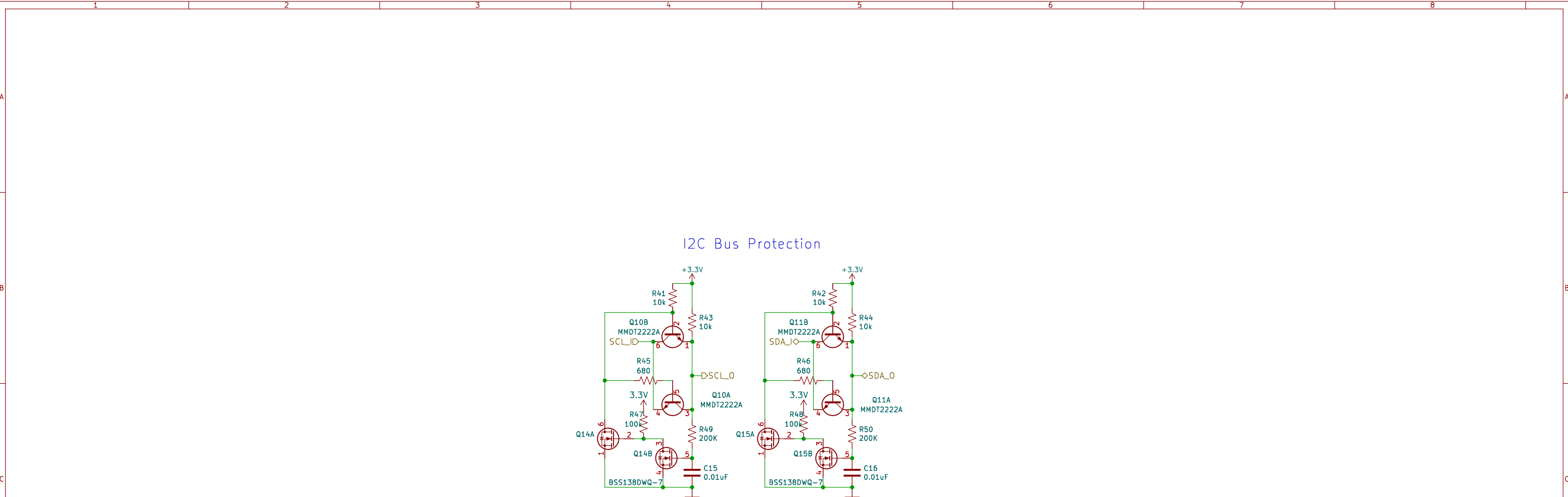
The diagram illustrates an I2C Bus Protection circuit for two lines: SCL (Serial Clock Line) and SDA (Serial Data Line). The circuit is powered by a +3.3V supply and includes several components for protection and signal conditioning.

**SCL Line Protection:**

- Q10B (MMDT2222A):** A PNP transistor that pulls the SCL line up to +3.3V when the SCL line is pulled down by the SCL\_I/O pin.
- Q10A (MMDT2222A):** An NPN transistor that pulls the SCL line down to ground when the SCL\_I/O pin is pulled up by the SCL\_O pin.
- Q14A and Q14B (BSS138DWQ-7):** Small signal diodes connected in series to the SCL line to provide protection against electrostatic discharge (ESD).
- Resistors:** R41 (10k) and R43 (10k) are pull-up resistors for the SCL line. R45 (680) and R47 (100k) are pull-down resistors for the SCL\_I/O pin.
- Capacitor:** C15 (0.01uF) is a decoupling capacitor connected to the SCL line.

**SDA Line Protection:**

- Q11B (MMDT2222A):** A PNP transistor that pulls the SDA line up to +3.3V when the SDA line is pulled down by the SDA\_I/O pin.
- Q11A (MMDT2222A):** An NPN transistor that pulls the SDA line down to ground when the SDA\_I/O pin is pulled up by the SDA\_O pin.
- Q15A and Q15B (BSS138DWQ-7):** Small signal diodes connected in series to the SDA line to provide protection against electrostatic discharge (ESD).
- Resistors:** R42 (10k) and R44 (10k) are pull-up resistors for the SDA line. R46 (680) and R48 (100k) are pull-down resistors for the SDA\_I/O pin.
- Capacitor:** C16 (0.01uF) is a decoupling capacitor connected to the SDA line.



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## Foras Promineo Payload Interface

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DRAWN BY	CH	ENGINEER	CH	
FILE NAME	I2C-Protection.kicad_sch		KiCad E.D.A. kicad 7.0.1	SHEET 11 OF 4