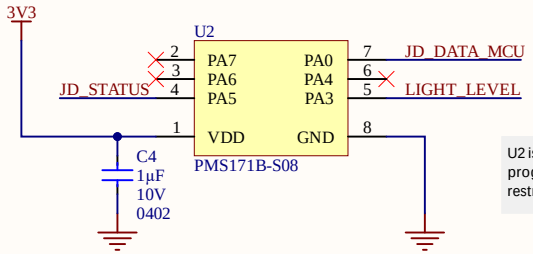
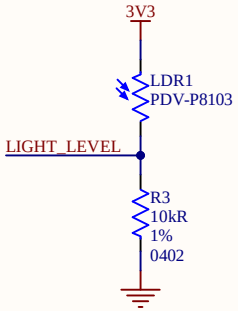
MCU

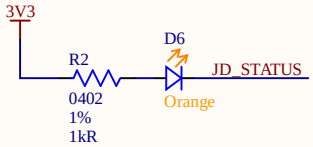


U2 is one-time programmable and must be programmed before being soldered down due to restrictive in-circuit programming requirements.

Light sensor



Status LED



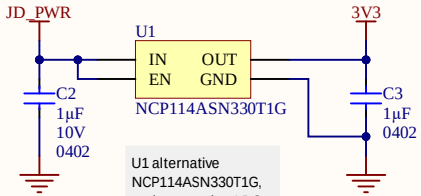
D6 alternative part
SML-D12D
E6C0603SEAC1UDA
NCD0603O1

Jacdac modules require a status LED. Can be monochrome or multicolor depending on GPIO availability. If using alternative part recalculate the resistor value R2.

3V3 regulator

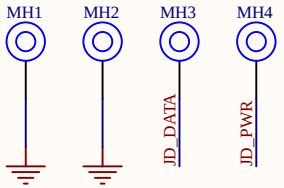
Recommendation: consider replacing NCP114 with an LDO that is robust to repeated spikes of 8V or more on its input in case there is noise on the Jacdac bus.

This component is a power-consumer.



U1 alternative NCP114ASN330T1G, and many other LDOs.

Mounting holes

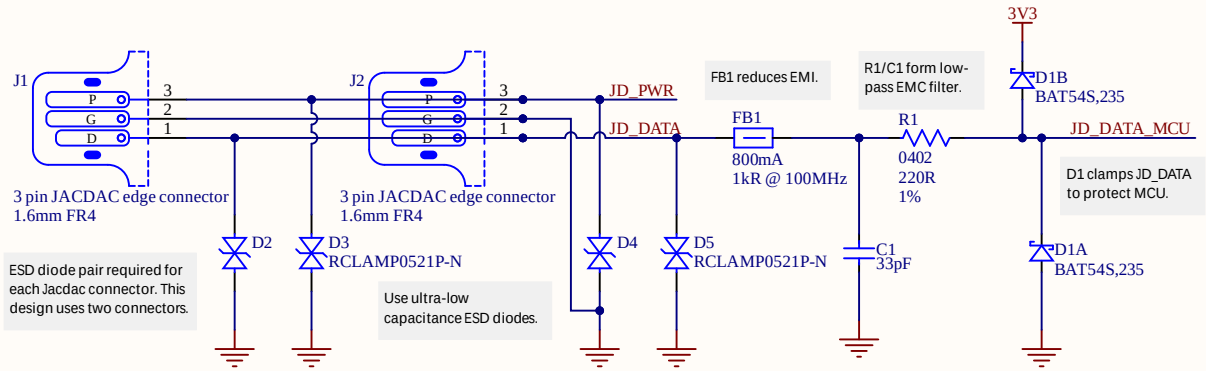


Mounting holes are electrically connected to the Jacdac bus nets so they can be used as an alternative to the PCB edge connector. Please use the following reference designators and net mapping:

MH1 & MH2: GND
MH3: JD_DATA
MH4: JD_PWR

This design uses Jacdac 'small' mounting holes: PTH with finished diameter of 2.1mm, annular copper ring of 3.0mm diameter & copper/component keepout of 5.0mm. The mounting holes must be on 2.5mm pitch. Mounting holes should have appropriate silkscreen marker, and MH1 should have a pin 1 marker on the top side.

Jacdac connector



FB1 reduces EMI.

R1/C1 form low-pass EMC filter.

D1 clamps JD_DATA to protect MCU.

ESD diode pair required for each Jacdac connector. This design uses two connectors.

Use ultra-low capacitance ESD diodes.

This reference design is a guideline. Please refer to the Jacdac docs online at https://aka.ms/jacdac for the definitive and most up-to-date information.

Silkscreen should include text to identify the module type and revision, and optionally a QR code.

This design uses a 'cute' board shape.

Silkscreen & layout notes

Block name

Design notes

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When this PDF is viewed with Adobe Reader, clicking on components shows part numbers and other details.

PROJECT FILENAME JacdacLightLevel 55.PrjPCB	PROJECT CODENAME JacdacLightLevel	Microsoft	PROJECT DESCRIPTION Light level sensor based on low-cost OTP PADAUK MCU
SHEET FILENAME JacdacLightLevel 55.SchDoc	LICENCE Attribution 4.0 International (CC BY 4.0)	LAST MODIFIED 20/12/2021	PAGE 1 OF 1
		DRAWN BY DG, JD & SH	SHEET DESCRIPTION Complete design
			REVISION 0.2 PCB ID 55-0.2