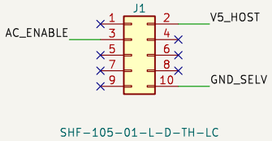
SELV / HOST SIDE (reinforced barrier to mains >= 8 mm)

MAINS SIDE — HAZARDOUS LIVE (100–264 V rms) — hot–line series switch, no neutral, no PE on board

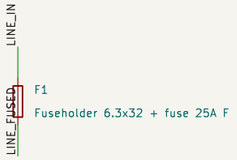
ISOLATION BARRIER

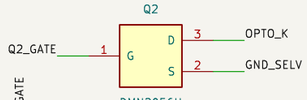


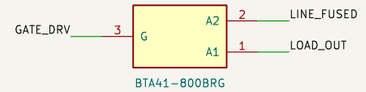




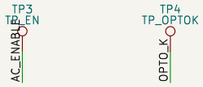


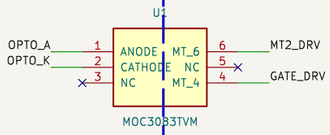








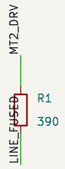




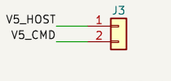


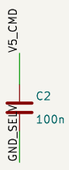






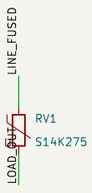












STUDY v12 — NOT FOR FABRICATION OR MAINS USE. No physical or energized qualification.

DMN2056U Q2: R4 1k series and single localR7 10k gate–source bias. UpstreamR3 removed.

Conditional hostVOH>=2V at0.25mA; worst–case DCgate>=1.782V against1.5V RDSon characterization. No transient/temp qualification.

J3 keyed JST XH cable requires external normally–closed SELV thermostat loop; no factory bypass shunt.

V5_CMD –> R5 330R –> U1 optotriac; independent R6 1k –> D1 commandLED. C2 100nF can briefly retain commandcurrent.

No guaranteed safety cutoff or optical–off timing. D1 does not indicate mains isolation or safety.

ST DS2111 Rev13: insulated BTA41 Rthjc0.9K/W. Existing2K/Wsink+0.3interface fails110C target at20A/50C.

Mains1.9mmneck fails5mm rule. Fusecoordination, PEbond, enclosure and physicalfit unresolved; no released load or heatsink rating.

CERN–OHL–S–2.0; blackmask/whitesilk; own–source conditional CADstudy.

NOT FOR FABRICATION OR MAINS USE
Consolidated local gate bias; one fewer resistor
Smoothieware / CERN–OHL–S–2.0

Sheet: /
File: ac–ssr–board.kicad_sch

Title: Smoothie AC SSR board (study)

Size: A3	Date: 2026–10–01	**Rev: v12**
KiCad E.D.A. 9.0.8		Id: 1/1