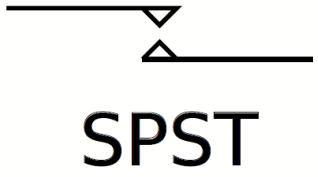
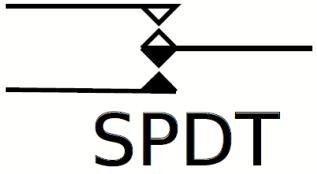
Relay Contact Nomenclature



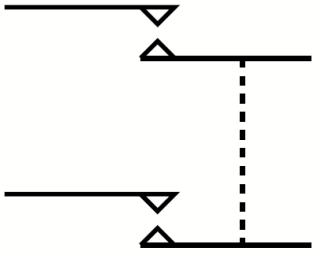
SPST

Single Pole Single Throw



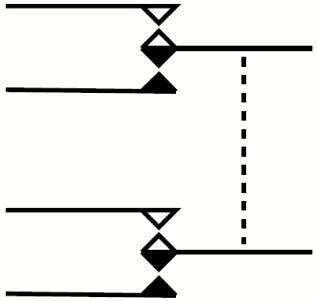
SPDT

Single Pole Double Throw



DPST

Double Pole Single Throw



DPDT

Double Pole Double Throw

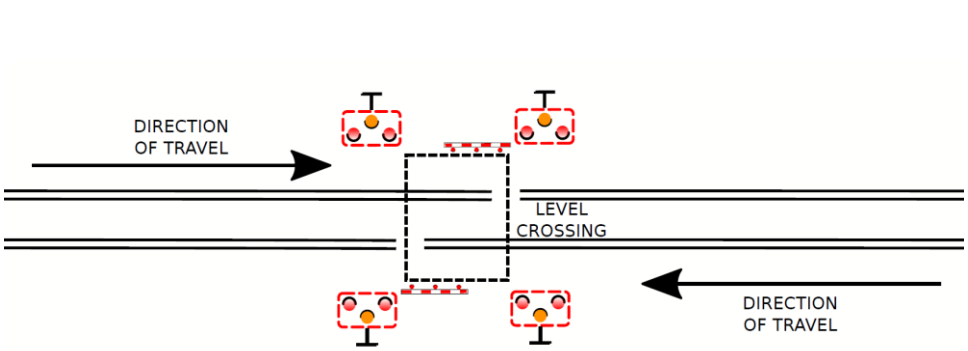
Solid State Relay 5
(SSR5)

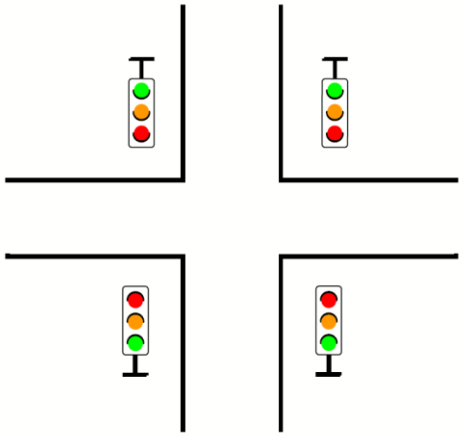
Solid State Relay 5 (SSR5)

- Initially designed as a power booster for SD3.
- Supports Common Anode (CA) and Common Cathode (CC) signals.
- Also configurable as a general purpose, 5 channel, SPST, solid state relay module (32V, 2A each channel).
- All inputs Active Low (MERG standard).
- Inputs isolated from outputs.
- Suitable for bidirectional DC, AC or DCC switching.
- Screw terminations (optional plug in).

Why would SD3 need a power booster.

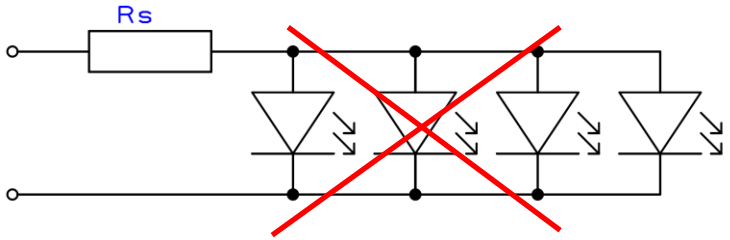
- SD3 supports signals requiring up to 5mA current from a 5V supply.
- For railway signals, SD3 only needs to drive a single signal.
  - Current adequate unless LEDs very low efficiency or particularly bright signals require (Garden Railways).
- SD3 can also drive signals such as road traffic signals when there may be a need to drive multiple clusters.





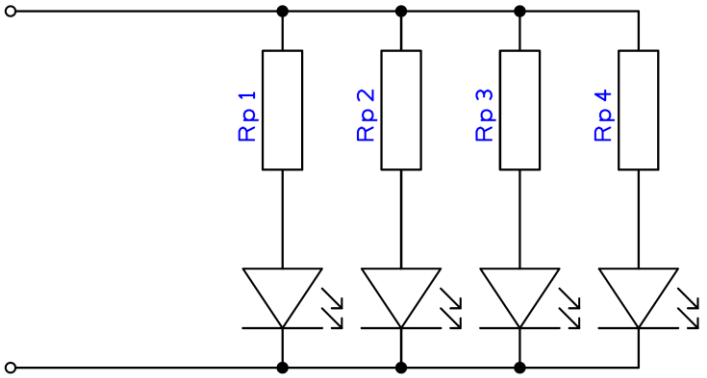
Driving Multiple LEDs

Common Anode, Parallel LEDs



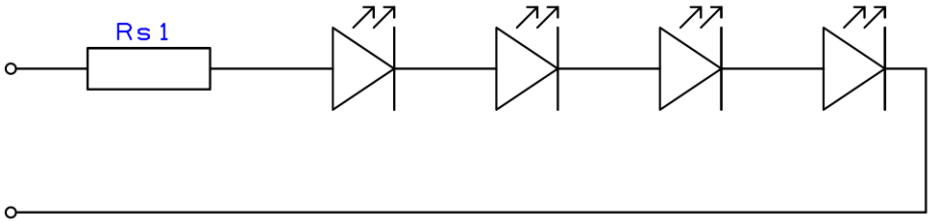
NOT good practice!

Common Anode, Parallel LEDs



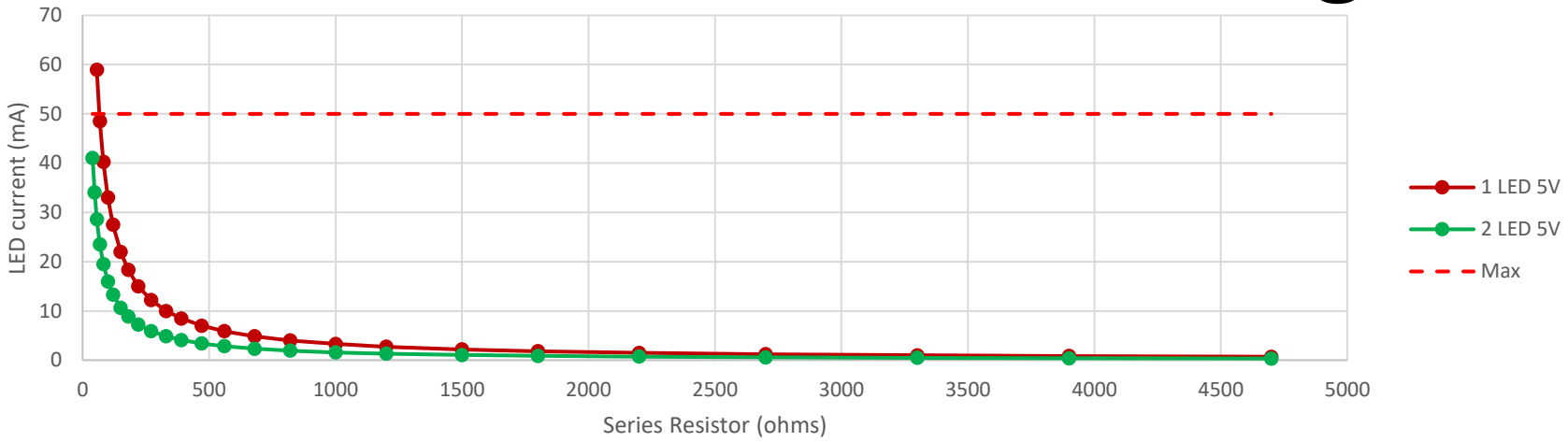
Implications for drive current.
Need somewhere for the extra resistors.

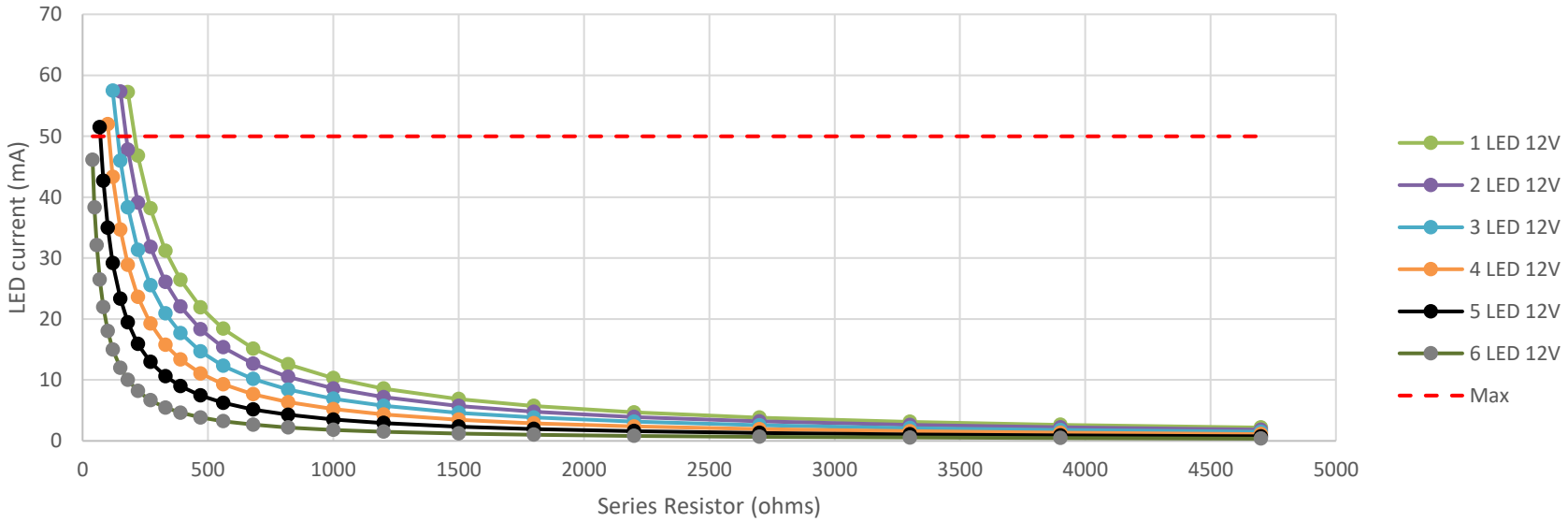
Common Anode, Series LEDs



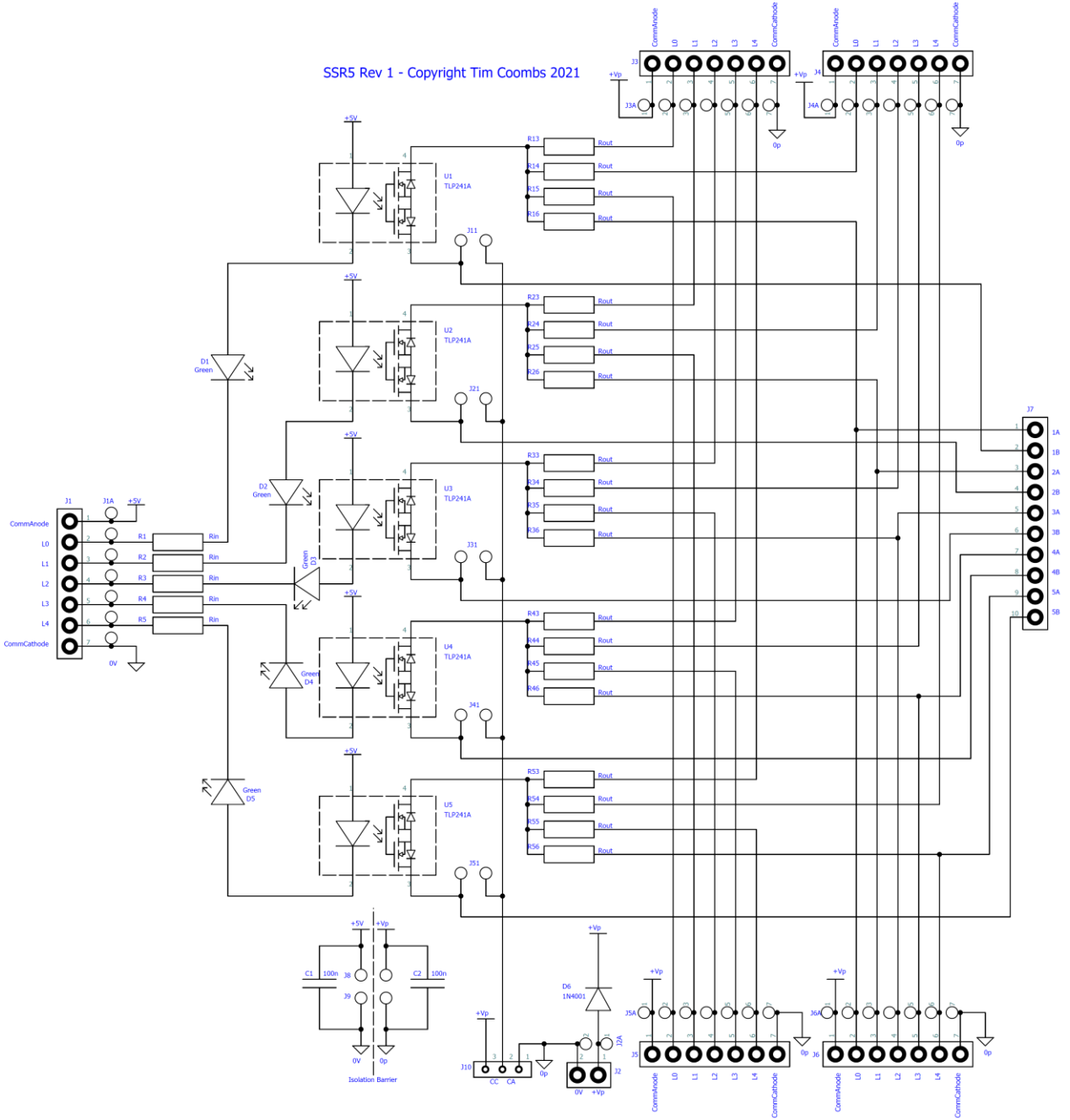
Implications for drive voltage.
Cannot use with CA or CC clusters.

Series LEDs Current Setting.

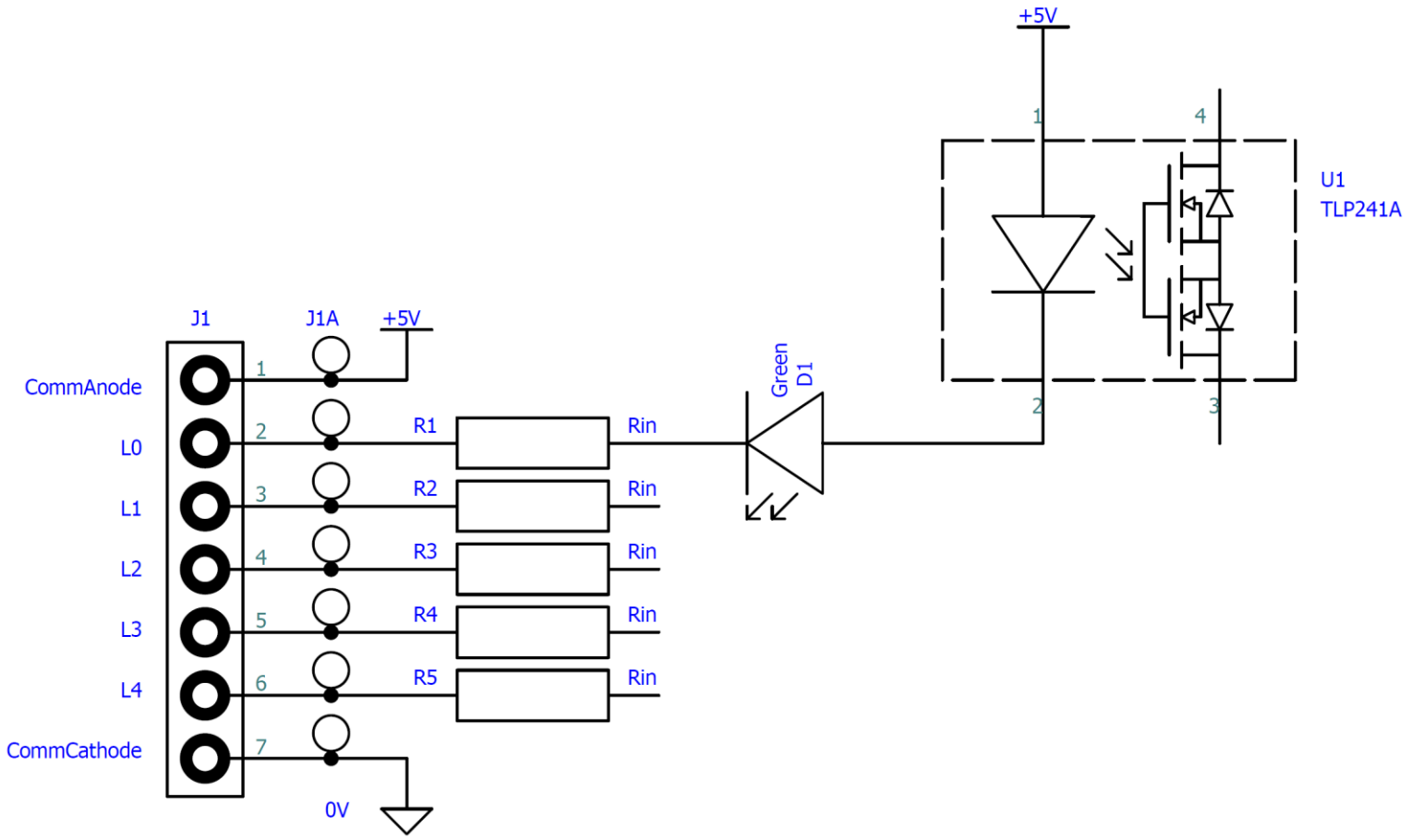




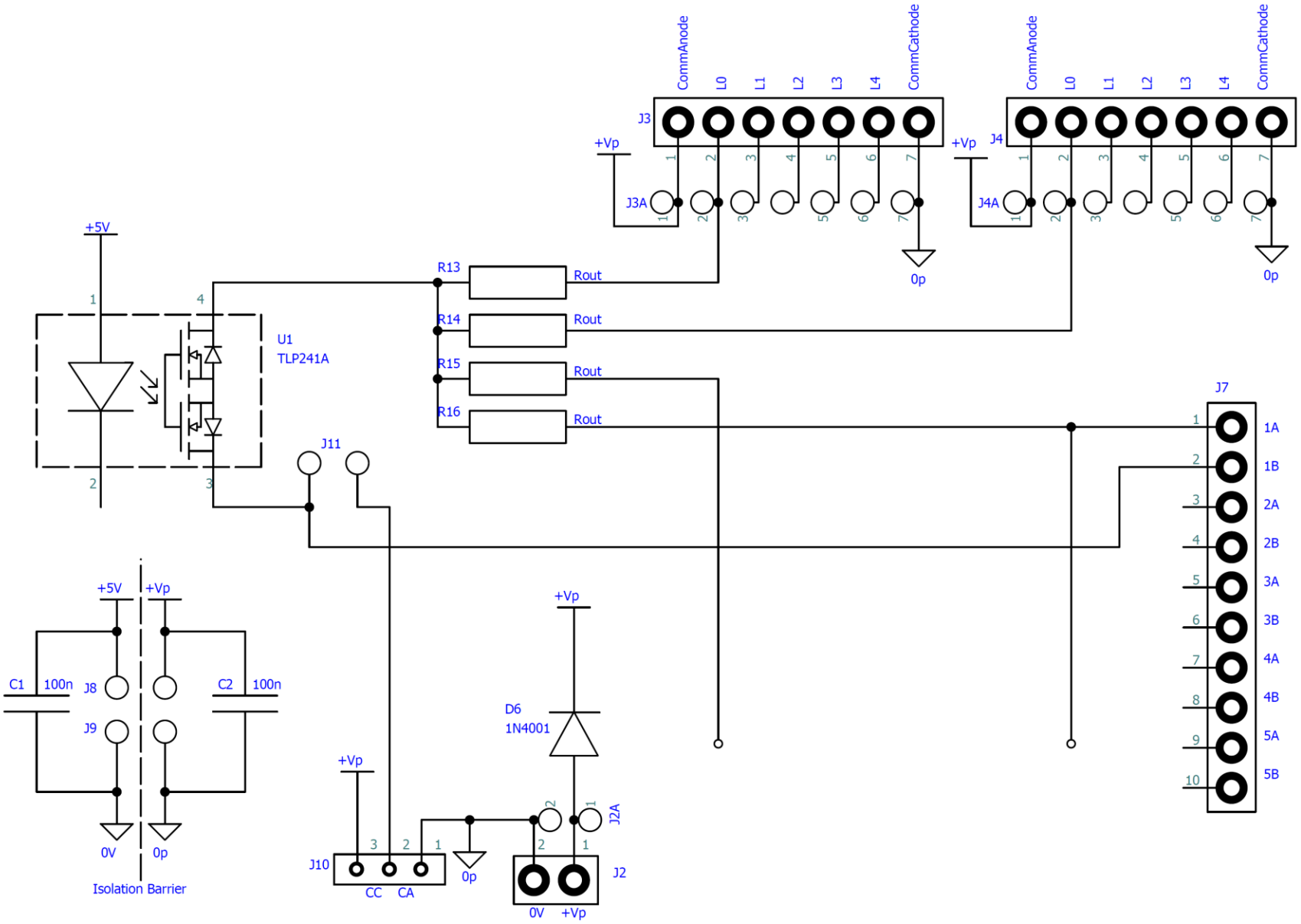
SSR5 Schematic



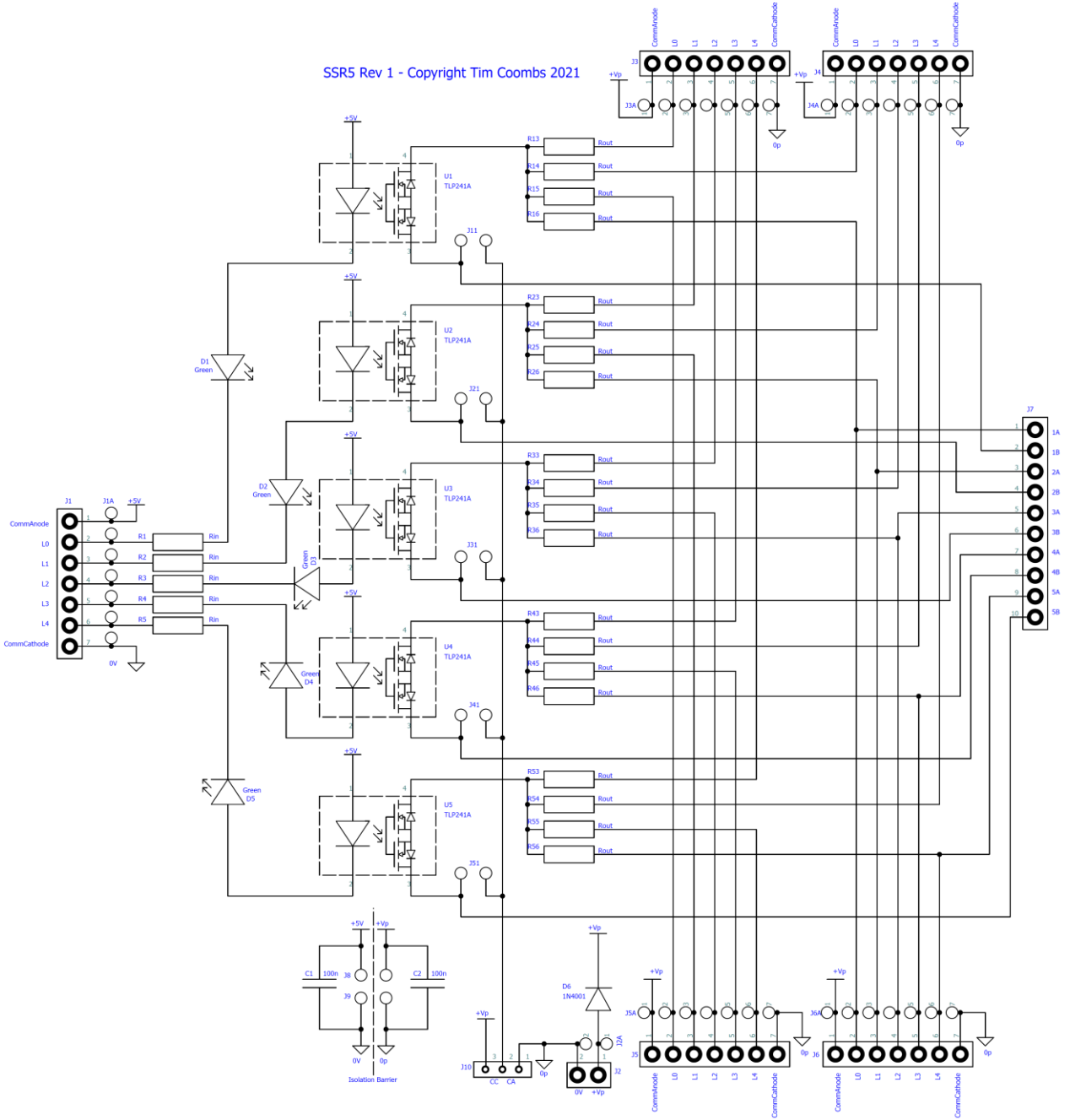
SSR5 Schematic – Input Circuit



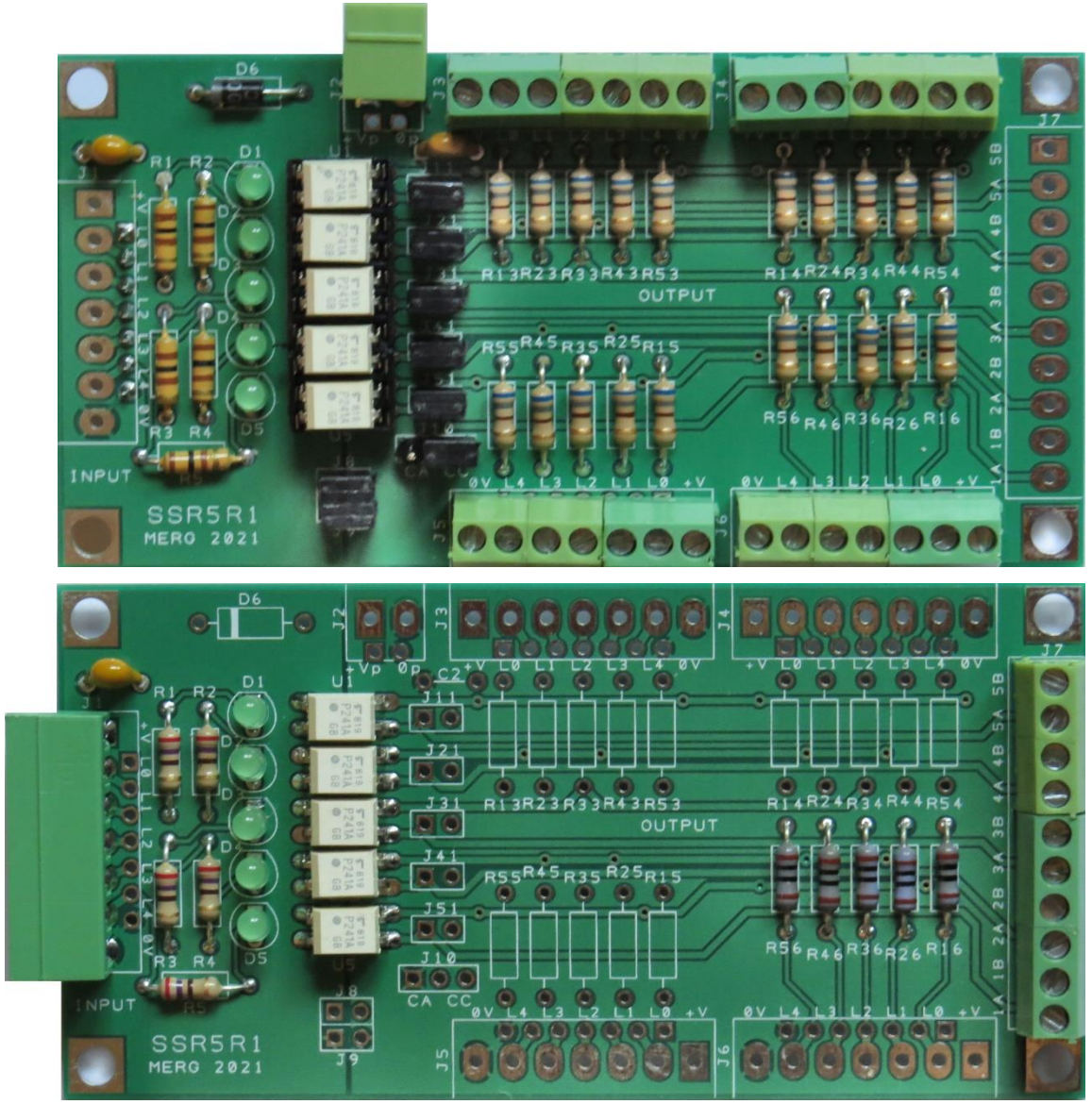
SSR5 Schematic – Output Circuit



SSR5 Schematic



SSR5 Module



SD3 Booster Configuration

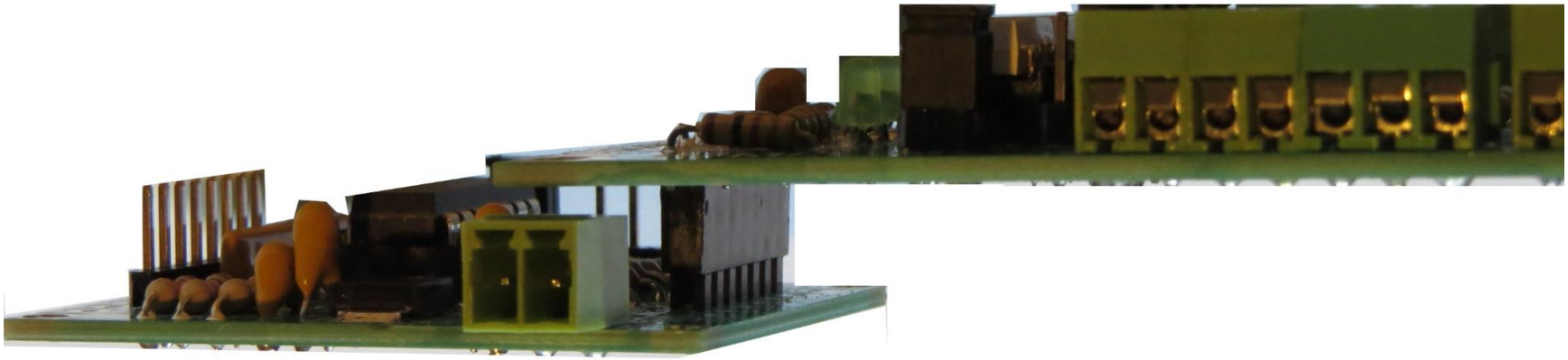
Solid State Relay Configuration

50mm (1.95”)

100mm (3.95”)

Build Options – SD3 Booster

- Fit only those components required and use wire links…
- … or fit all components except J7 for a fully configurable booster.
- If driving LEDs from 5V up to 250mA can be drawn from SD3 otherwise use external supply.
- Choice of connector types – 3.5mm screw terminal or 2-part, 0.1” pitch.
- Fitting J1 with 0.1” pitch, female header allows SD3 and SRR5 to be stacked.



Build Options – Solid State Relay

- Omit J2-6, Rn3, Rn4, Rn5, J10-51, D6, C1, C2.
- Fit only those components required.
- Select R1-5 depending on input.
- Choice of connector types for J1 – 3.5mm screw terminal or 2-part, 0.1” pitch.
- Choice of connector types for J7 – 3.5mm screw terminal or 2-part.
- Options for resistor positions Rn6 are:
  - Current setting resistors.
  - Safe current limit resistors.
  - Wire-ended Fuses.
  - Self-resetting Fuses.
  - Short circuit wire links (not recommended).

Build Options – Mix and Match

- Channels not required for signal driving can be configured as solid state relays.
- Select R1-5 depending on input.

Any Questions

Feedback Required

- Mounting holes are M4 rather than M3.
  - Fix next revision?
- J2 connections opposite to MERG standard.
  - Fix next revision?
- Provide optional 3-terminal +5V regulator for input?
- Does SSR5 have a worthwhile use?