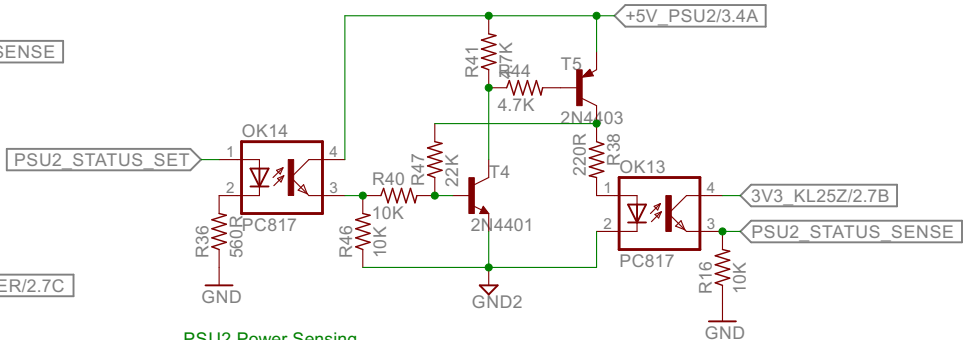


JP9 - TV Power Switch
1-2 - TV #1 power switch
3-4 - TV #2 power switch

Connect leads from first TV's soft power push-button switch to pins 1 and 2. Connect leads from 2nd TV's power button to pins 3 and 4. The order of the leads doesn't matter - these are mechanical relay switches.



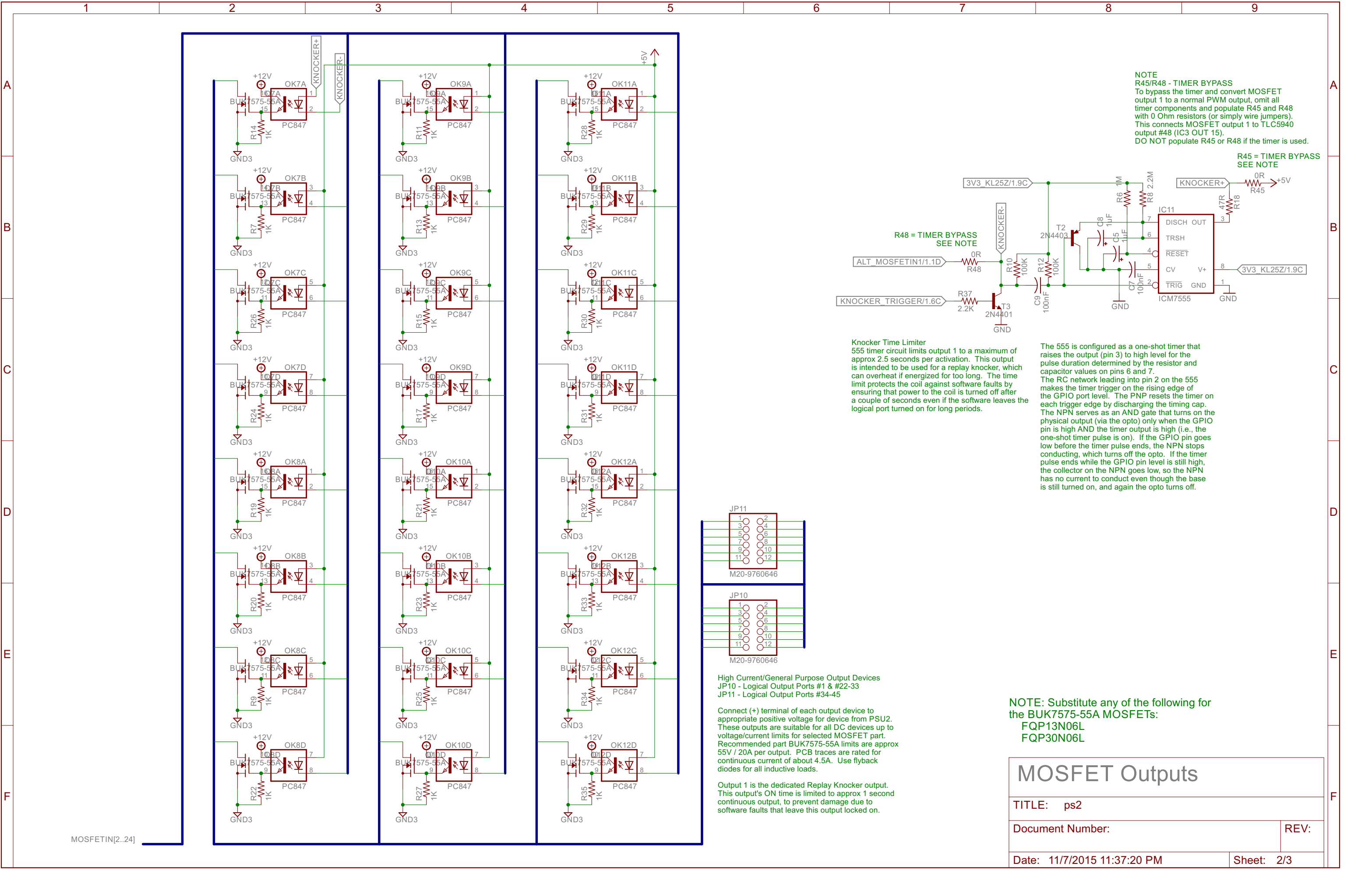
PSU2 Power Sensing
This is a transistor latch circuit that senses the status of the secondary power supply. When PSU2 is powered off, the latch resets and PSU2_STATUS_SENSE reads low (0V). The latch will stay off as long as PSU2 is off. When PSU2 is powered on, the latch remains off until PSU2_STATUS_SET is asserted, at which point the latch turns on and stays on until the next reset. When SENSE is low, the software will attempt to set the latch by pulsing SET; if the latch remains low, power is still off, so the software will simply try again later. When SENSE goes high, the software knows that PSU2 was just turned on, so it can start a timer for performing power-on activities.

NOTES:

- 100nF decoupling capacitor between TLC5940 Pins 21-22 should be as close to the IC leads as possible.
- PSU2 is a separate PSU dedicated to feedback devices. DO NOT CONNECT GROUNDS of primary PC PSU and secondary PSU. Secondary PSU should be electrically isolated from PC PSU to minimize logic signal interference from inductive and high power devices.
- Use a flyback diode (1N4007 or similar) on every inductive output device. Attach the diode close to the device's power terminals, with the "bar" side attached to the positive (+) power terminal.
- Fuses are recommended for all high-power outputs (the MOSFET output group). Fuse each output individually.

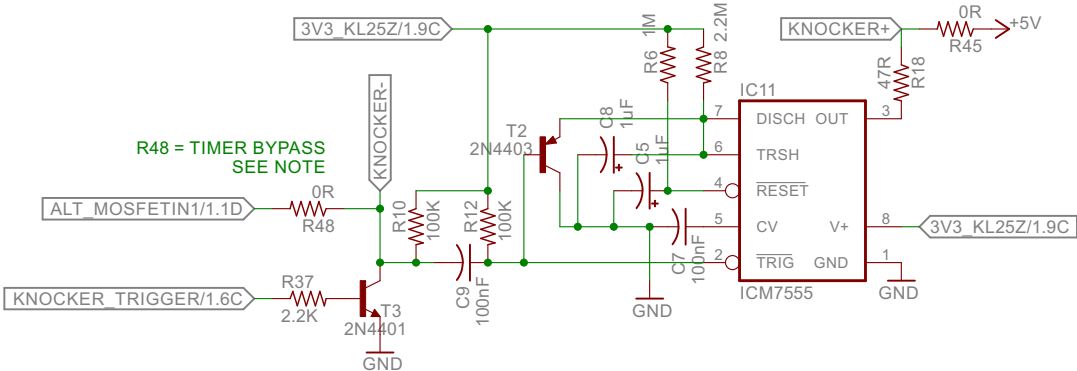
KL25Z Interface & PWM Array

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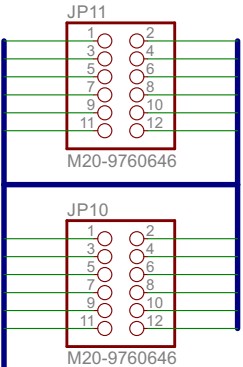
NOTE
R45/R48 - TIMER BYPASS
To bypass the timer and convert MOSFET output 1 to a normal PWM output, omit all timer components and populate R45 and R48 with 0 Ohm resistors (or simply wire jumpers). This connects MOSFET output 1 to TLC5940 output #48 (IC3 OUT 15). DO NOT populate R45 or R48 if the timer is used.

R45 = TIMER BYPASS
SEE NOTE



Knocker Time Limiter
555 timer circuit limits output 1 to a maximum of approx 2.5 seconds per activation. This output is intended to be used for a replay knocker, which can overheat if energized for too long. The time limit protects the coil against software faults by ensuring that power to the coil is turned off after a couple of seconds even if the software leaves the logical port turned on for long periods.

The 555 is configured as a one-shot timer that raises the output (pin 3) to high level for the pulse duration determined by the resistor and capacitor values on pins 6 and 7. The RC network leading into pin 2 on the 555 makes the timer trigger on the rising edge of the GPIO port level. The PNP resets the timer on each trigger edge by discharging the timing cap. The NPN serves as an AND gate that turns on the physical output (via the opto) only when the GPIO pin is high AND the timer output is high (i.e., the one-shot timer pulse is on). If the GPIO pin goes low before the timer pulse ends, the NPN stops conducting, which turns off the opto. If the timer pulse ends while the GPIO pin level is still high, the collector on the NPN goes low, so the NPN has no current to conduct even though the base is still turned on, and again the opto turns off.



High Current/General Purpose Output Devices
JP10 - Logical Output Ports #1 & #22-33
JP11 - Logical Output Ports #34-45

Connect (+) terminal of each output device to appropriate positive voltage for device from PSU2. These outputs are suitable for all DC devices up to voltage/current limits for selected MOSFET part. Recommended part BUK7575-55A limits are approx 55V / 20A per output. PCB traces are rated for continuous current of about 4.5A. Use flyback diodes for all inductive loads.

Output 1 is the dedicated Replay Knocker output. This output's ON time is limited to approx 1 second continuous output, to prevent damage due to software faults that leave this output locked on.

NOTE: Substitute any of the following for the BUK7575-55A MOSFETs:
FQP13N06L
FQP30N06L

MOSFET Outputs

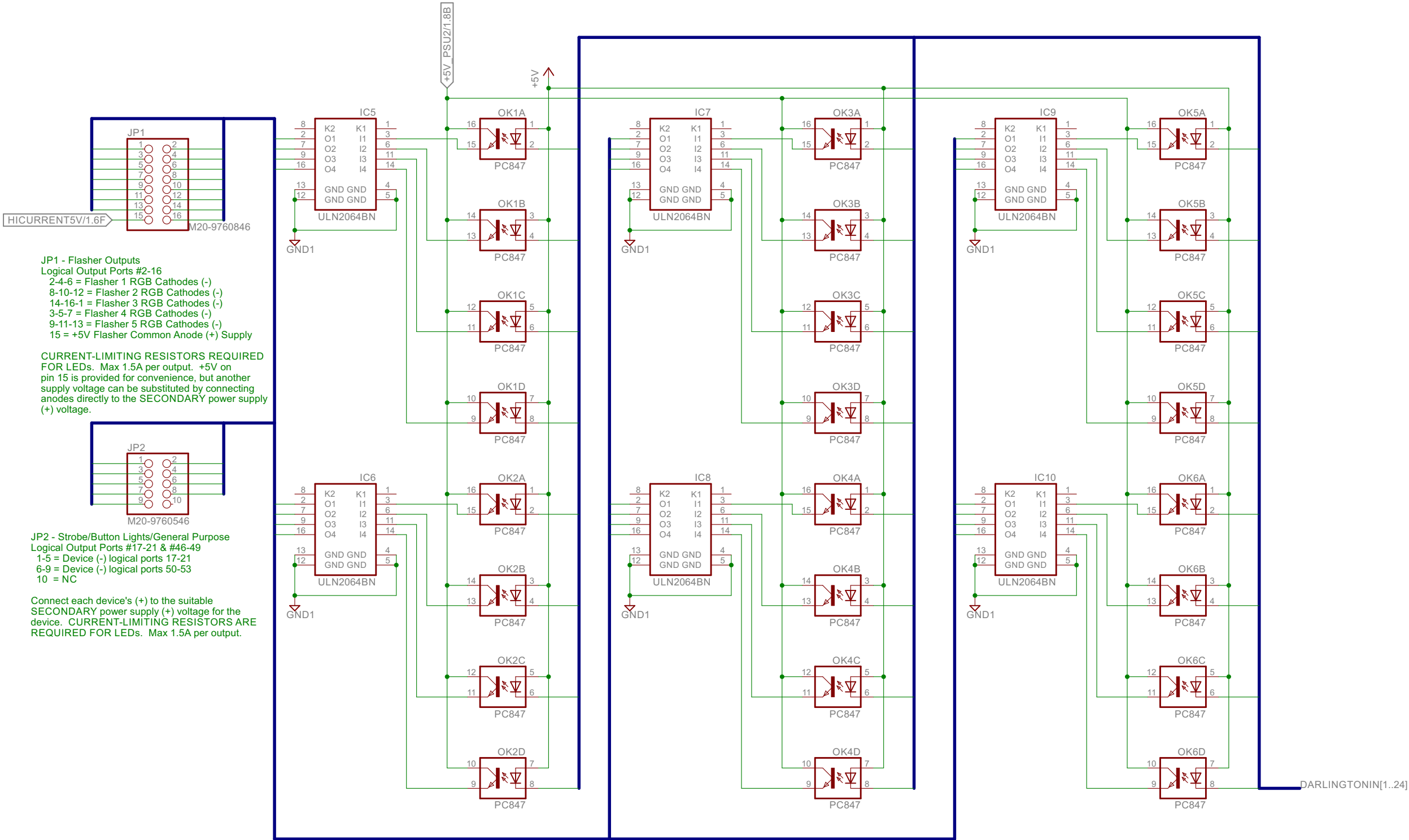
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Darlington Outputs

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