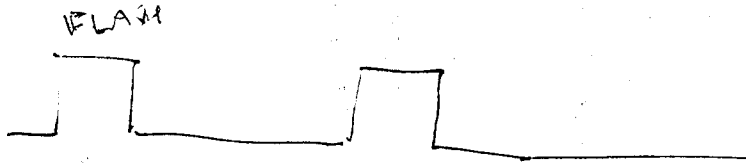


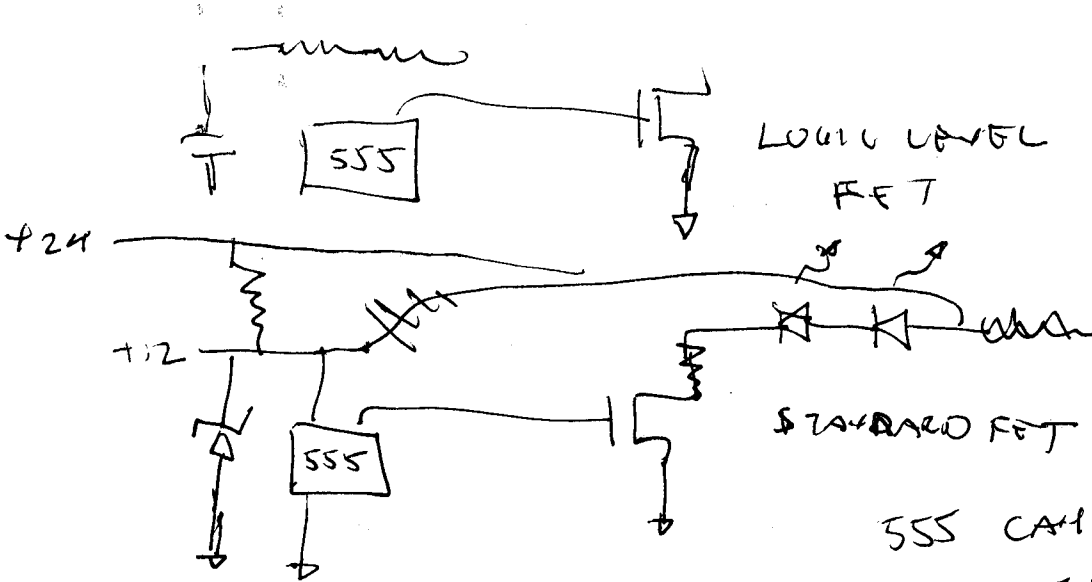
28 MAY 13

Roderick

INDEPENDENT FLASHER FOR TRAILER LIGHTS



TUNE TO MIMIC CAR WARNING FLASHER



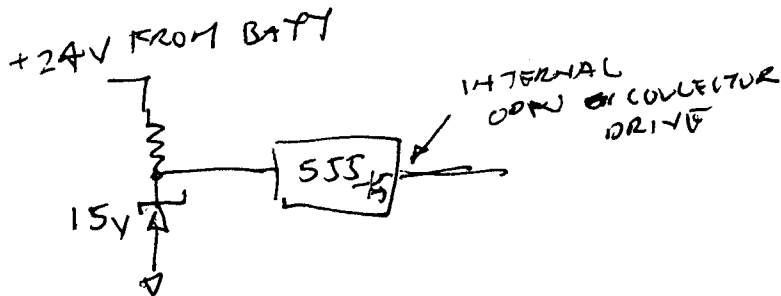
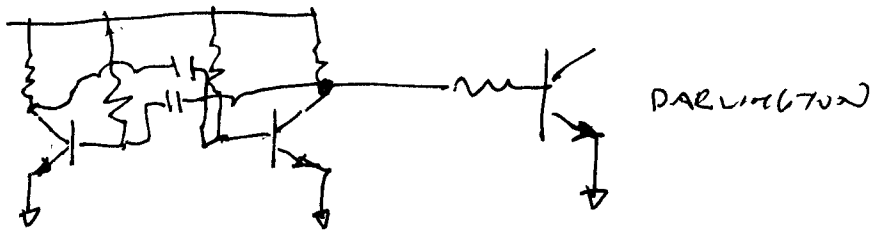
555 CAN SINK > 100mA
OR 175 OHM

101 — Design Guidance (3 of 4)

- Do not forget the economics
- Strive for N+1 or 1.xN solutions (2N is expensive, N isn't enough)
- Actively use all paths/resource copies where practical — can improve parallelism/performance
- Process pairs are not 2N resource cost, backup generally uses few resources
- Processors are a good example (except in 2-processor systems)

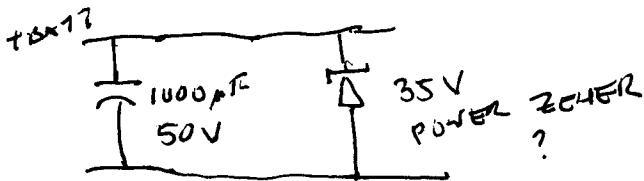
11 JUN 13

MAYBE SHOULD GO WITH PLAIN 2-TRANSISTOR
 ASTABLE MULTIVIBRATOR FOR TAIL LIGHT
 FLASHER, TOLERANT OF WIDE VOLTAGE RANGE,



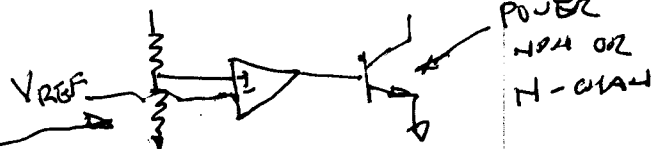
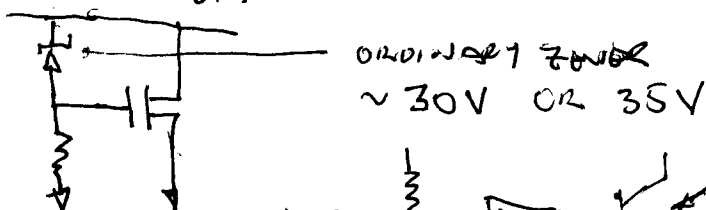
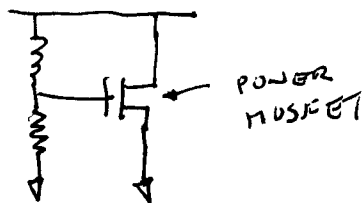
SIMPLE ON-OFF SWITCH. NO FANCY BUNK MOVES
 TO COMPLICATE

WHEN RUNNING W/O BATTERY, JUST ONE PULSE OF
 PTC CAN DRIVE ATTACHED 1000µF CAP UP BY
 4 VOLTS. GRAVE DANGER OF VOLTAGE OVERSHOOT
 BEYOND ABILITY RESPONSE TIME OF CONTROL LOOP.
 NEED ANALOG MEANS OF OVERVOLTAGE PROTECTION



SOLUTION MUST
 DISSIPATE $\approx 240W$
 FOR $\frac{1}{2}$ SECOND MAX

WHILE PROCESSOR CATCHES
 UP.

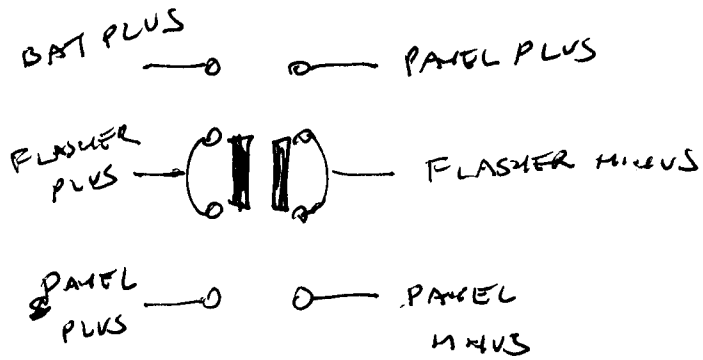


X NG-OP AMP
 NEEDS SUPPLY

14 JUN 2013; Roderick.

WITH HEYCO STRAIN RELIEFS, WILL THERE BE ENOUGH ROOM IN THE SMALL CHASSIS FOR THE BOARD?

CAN USE DARLINGTONS FOR ASTABLE MULTIVIBRATOR?

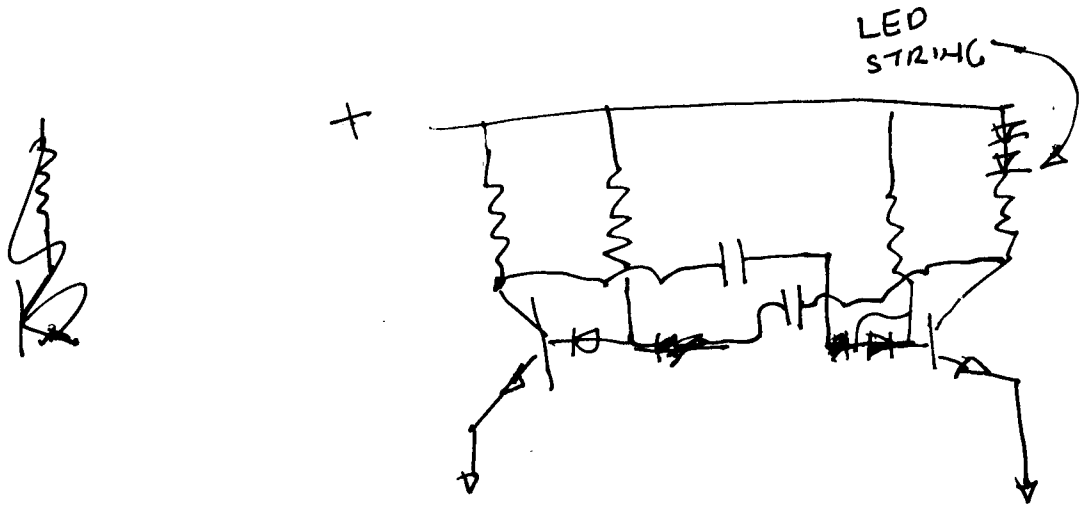


MULTIPLE POWER SOURCES FOR FLASHER

16 AUG 13

TAIL LIGHT FLASHER

- ADD TO REFERENCE SPEC
- MUST HAVE FLEXIBLE INPUT VOLTAGE,
BECAUSE MUST RUN FROM SOLAR PANEL
IF NECESSARY
- SAFETY IS PARAMOUNT, MUST OPERATE
WITHOUT SOLAR PANEL, OR AT NIGHT



CAN'T USE MOSEPTS WITHOUT MODIFYING CIRCUIT -
VOLTAGE CONTROLLED SWITCHES, COULD USE
DARLINGTONS, IF WILLING TO LIVE W/ HIGH
SATURATION VOLTAGE. SUPPOSE 25 MA THRU LED
STRING. IF SATURATION VOLTAGE IS 1 VOLT, THAT'S
STILL ONLY $\frac{1}{40}$ WATT IN TRANSISTOR.

HIGH GAIN DESIRABLE - THEY CAN USE HIGH BASE RESISTOR,
SMALL CAPACITOR TO MAKE 1 HZ. FLASH.

DIODE IN SERIES WITH BASE BECAUSE $V_{EBO} = 12V$
OR LESS, CAP WILL GO NEGATIVE AS FAR AS SUPPLY VOLTAGE,
POSSIBLY.