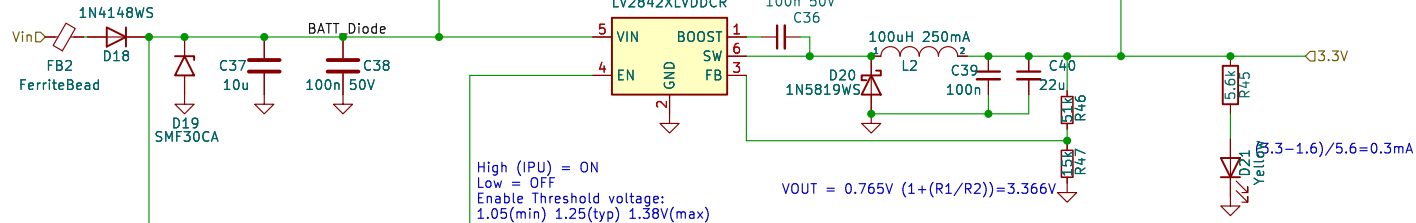
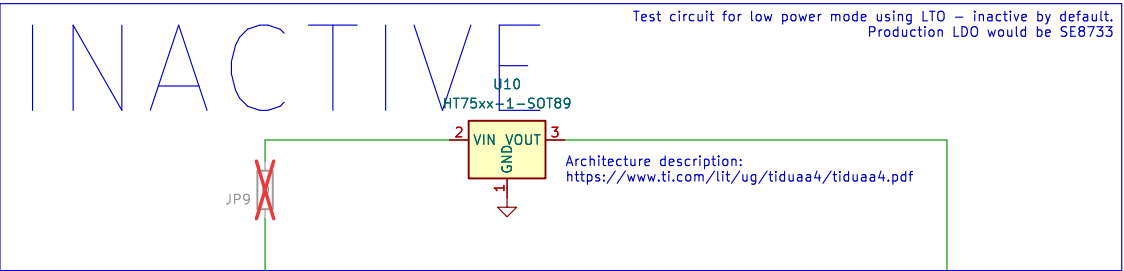


- H1 Nema23
- H2 Nema23
- H3 Nema23
- H4 Nema23
- H5 Nema17
- H6 Nema17

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RetroPilot
 Sheet: /
 File: StepperServoCAN.kicad_sch
Title: StepperServoCAN
 Size: A4 Date:
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 Rev: 0.2
 Id: 1/2



$I_1 = 1\mu A$
 $I_{hyst} = 3\mu A$
 $V_{Ena} = 1.25V (1.05...1.38)$

Assume max $V_{Ena} 1.38$:
 $R1 = (V_{start} - V_{stop}) / I_{hyst}$
 $R1 = (10-9) / 3\mu A = 0.333M\Omega$
 $R2 = V_{Ena} / ((V_{start} - V_{Ena}) / R1 + I_1)$
 $R2 (max) = 1.38 / ((9-1.38) / 0.333M + 1\mu) \approx 56k\Omega$

Assume typical $V_{Ena} 1.2$ – from volt div:
 $V_{start_typ} = 8.2V$
 $V_{stop_typ} = 8.2 - 1 = 7.2$

$V_{stop_real} = V_{stop_typ} + D1_V\{F\}_ON$
 $V_{start_real} = V_{start_typ} + D1_V\{F\}_OFF$
 $V_{stop_real} = 7.2 + 0.6 = 7.8V$
 $V_{start_real} = 8.2 + 0.4 = 8.6V$

Cap_time_const:
 12V -> 7V 60ms
 0V -> 0n: -150ms

$I_0 = 0.1A$ (minimum typical)
 $L_0 = (30-3) / (0.1*3) * 3 / 30 / 1.1 = 82\mu H$
 $I_{ripple} = 3 * (30-3) / 30 / 82 / 1.1 = 0.03A$
 $I_{L-rms} = \sqrt{(82*10^{-6})^2 * 2 + 1 / 12 * 0.03^2} = 0.0086A$
 $I_{L-peak} = 0.2 + 0.061 / 2 = 0.23$

Sheet: /DCDC 3.3V/
File: DCDC_3.3.kicad_sch

Title:

Size: A4 Date:
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Rev:
Id: 2/2