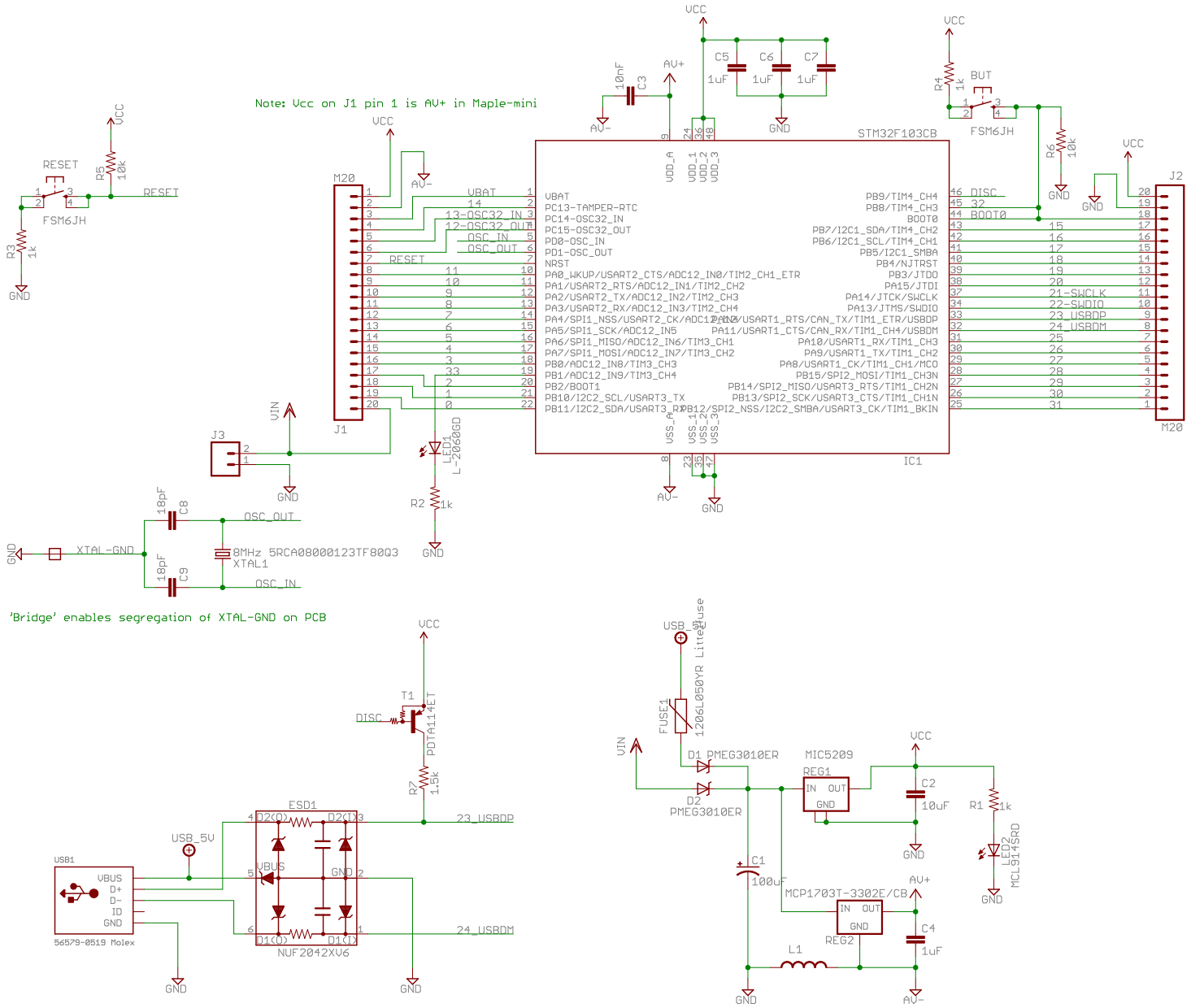

NOTES

+ Replaced MCP1700T 'digital power' regulator. Orone-mini-Sn-A uses MIC5209 to increase power capacity & voltage tolerance IFX25001ME may be lower cost, lower power alternative.

+ Improved 7-component USB "rup" resistor control with two component 'digital' PNP + pull-up (siy's mini48 inspired)

+ Improved discrete component USB termination & filter with NUF2042 integrated USB upstream ESD & filter Unlike mini48, NUF2042 ESD protection does not require USB Rup to be active, hence should be an improvement

Improved 'DIY-ability':

= Replaced SMD USB socket, buttons & LED with through-hole So only single-sided SMD assembly required

= Changed 0402 capacitors & resistors to easier to use 1206
= Replaced 0603 Ferrite Bead with 1206

+ Added Polyfuse to protect Host PC Vusb from overcurrent
+ Added power-on LED2
+ Added 2-pin Molex socket for easier external Power input

+ Isolated Crystal ground (XTAL_GND) for lower noise

= Retained (vs mini48) BUT/BOOT0 1k pull-up (R2) This protects external device pins from accidental BUT button push

= Retained (vs mini48) RESET 1k pull-down (R4) This protects external device pins from accidental RESET button push

- Did not add mini48's capacitor across RESET button ST documentation says NRST has 2.5ms time delay. I assUme that debounces RESET button (confirm?) Ref: RM0008 7.1.2 Power Reset STM32F103x8 STM32FxB Datasheet (CD00161566 rev 14)

- Did not add 32.76kHz RTC Crystal+caps

? Replace AV+ pin with Vcc connection, retain MCP170x
? Retain AV- (AGND) MCP170x likely okay at higher voltages when only driving ADC. However drawing more than a few mA current when Vin > 7V may damage it. This removes value of AV+

Orone-mini-S8A-v0r001	
Inspired by Maple mini by okie and Mini48 by siy at https://github.com/siy/openstm32hw	Copyright 2013 G Bulmer
Significantly improved for DIY-ness See Notes on Maple-mini impovements	11/04/2013 17:26
	Sheet: 1/1

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