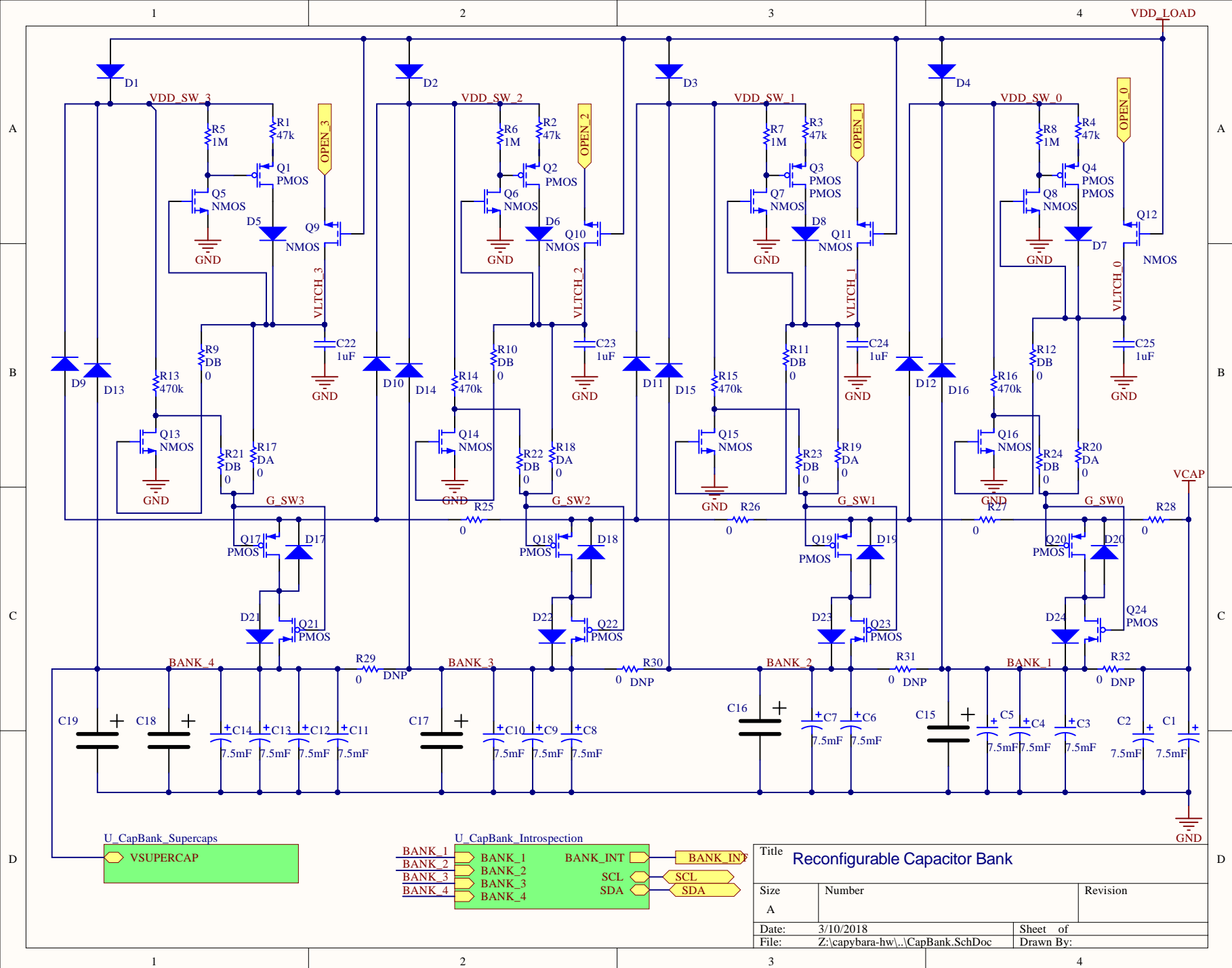


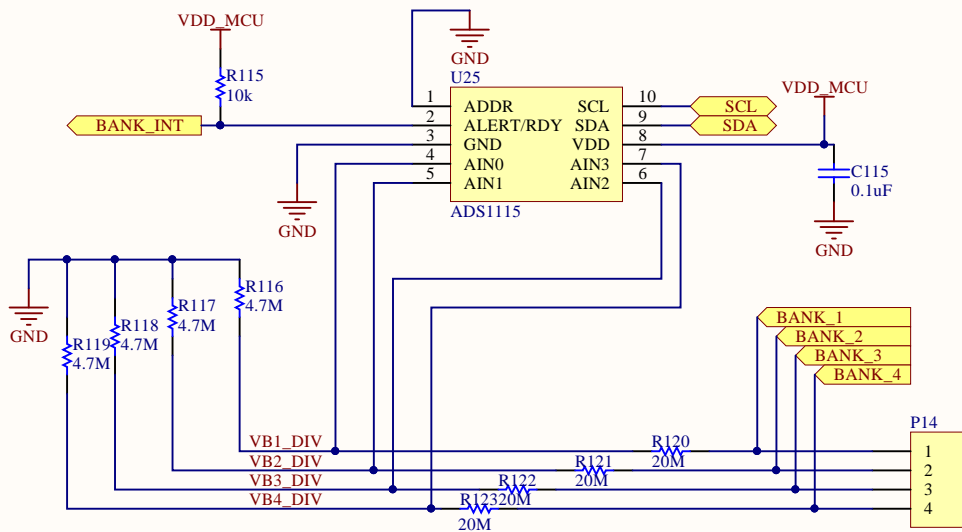
Title: **Capybara Energy-Harvesting Platform**

Designed by: A. Colin, E. Ruppel, B. Lucia

Data: 3/11/2017

Version: **Capybara v2**





Title		
Size	Number	Revision
A		
Date:	3/10/2018	Sheet of
File:	Z:\capybara-hw\...\CapBank_Introspection_SchDoc	By:

VSUPERCAP

C20

R33 top
0 DNPR34 *,series
0 DNPR35 bottom,series
0 DNPR36 parallel
0R37 parallel
0

C21B

R38 DNP
10kR39 DNP
10kR40 DNP
0

U3A

ALD900xx

U3B

ALD900xx

GND

Some dual supercaps expose 2*2 terminals, others expose only 2+common. For the former, the SERIES and PARALLEL jumpers select the nets.

Zero-ohm bridge to disconnect active balancing without removing the IC, when using a parallel configuration (or a single supercap). ----->

▲ To save space, footprints are overlapped, and three pairs of pads overlap. Two of the overlapping pairs have the same net name, but one does not. So, the TOP and BOTTOM jumpers connect the overlapping pad to one of two nets: either for using the top supercap or the bottom supercap, respectively.

▲ <---- Option A: Passive balancing using resistors.

▲ <---- Option B: Active balancing using special-purpose SAB FETs.

U3C

ALD900xx
ICV- V+
1

GND

Title

Size

Number

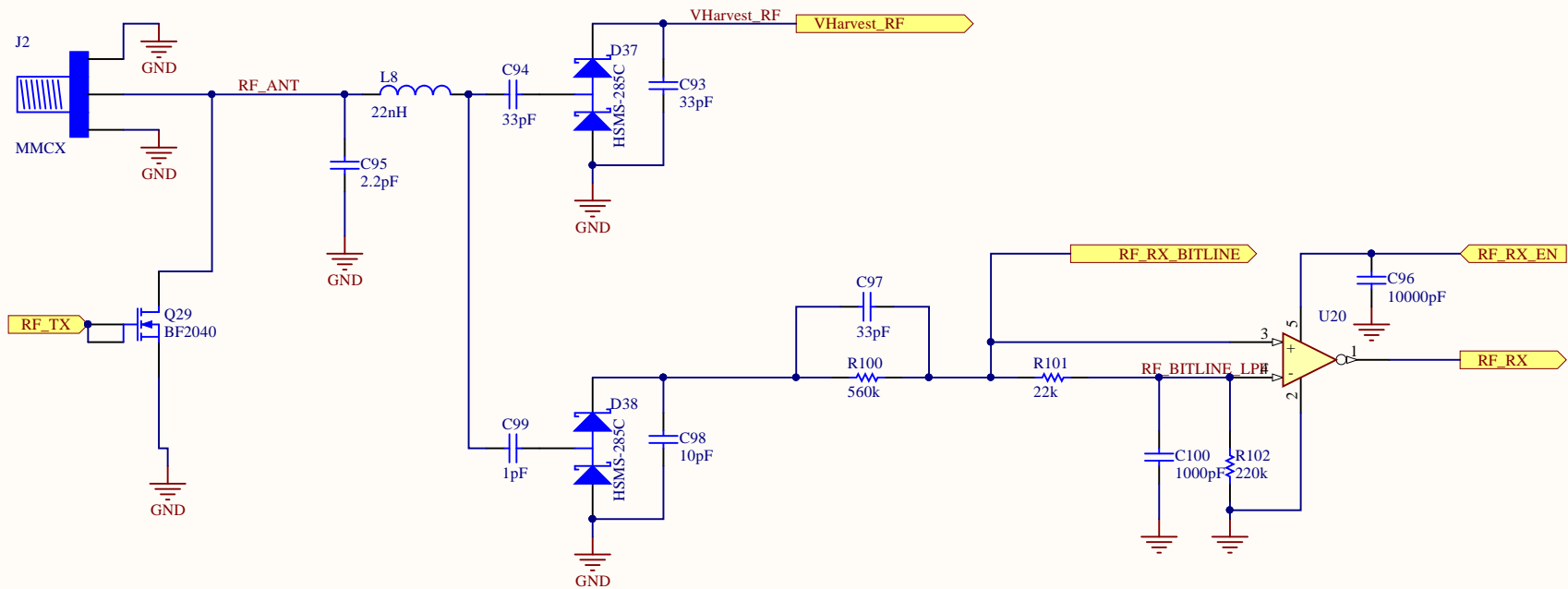
Revision

Date: 3/10/2018

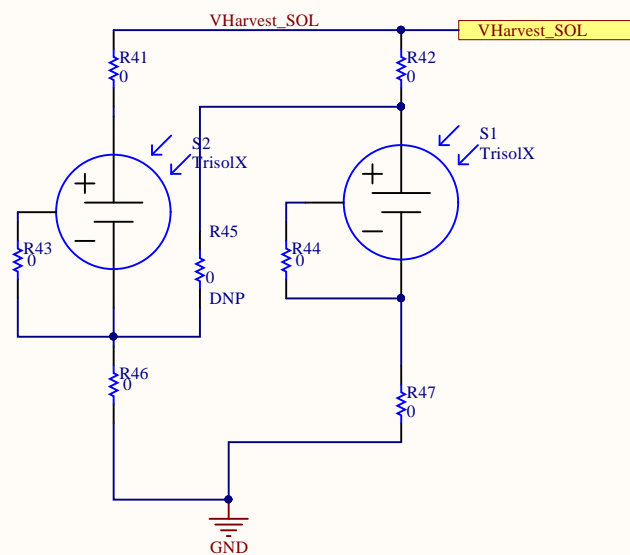
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File: Z:\capybara-hw\CapBank_Supercaps.SchDoc

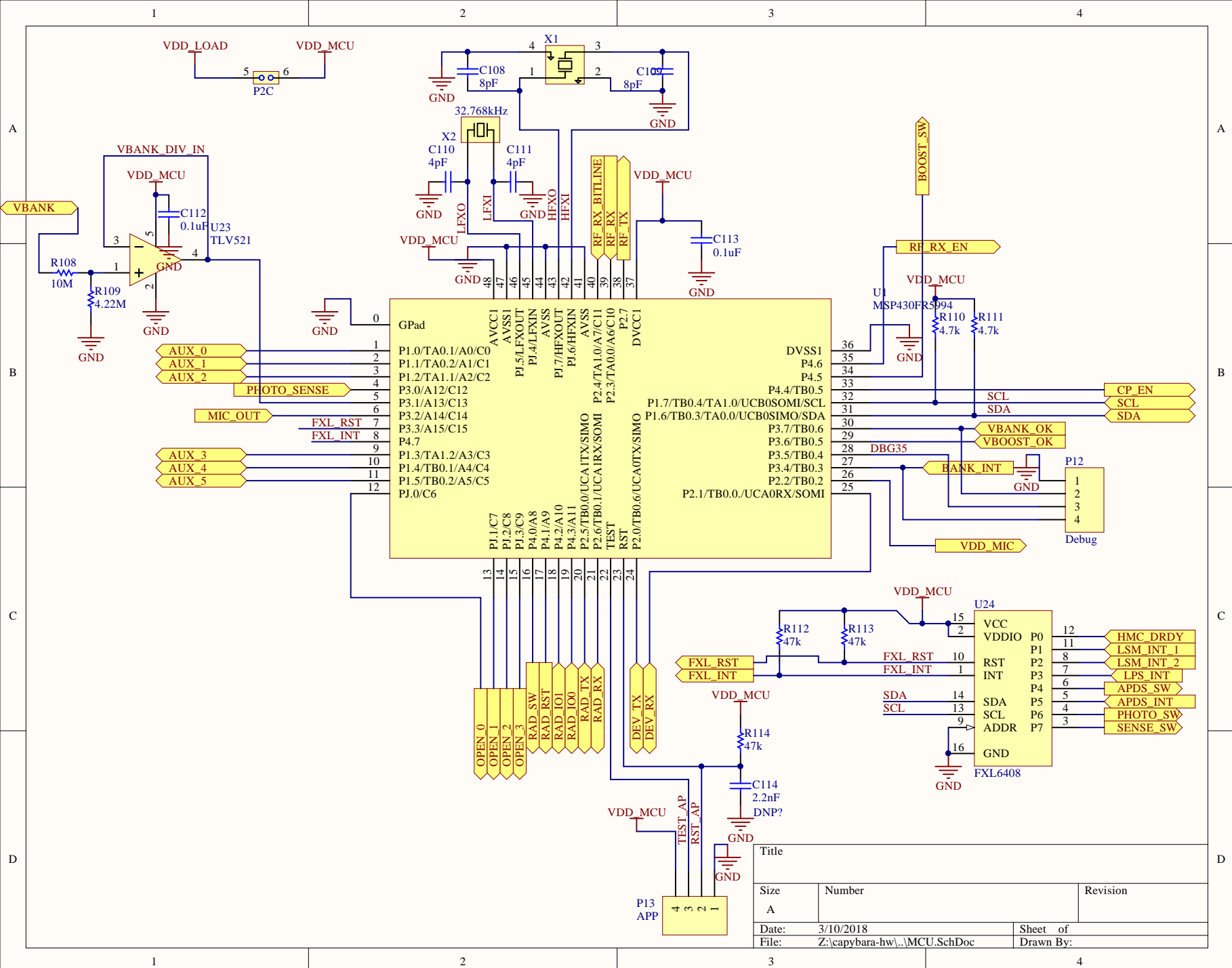
Drawn By:

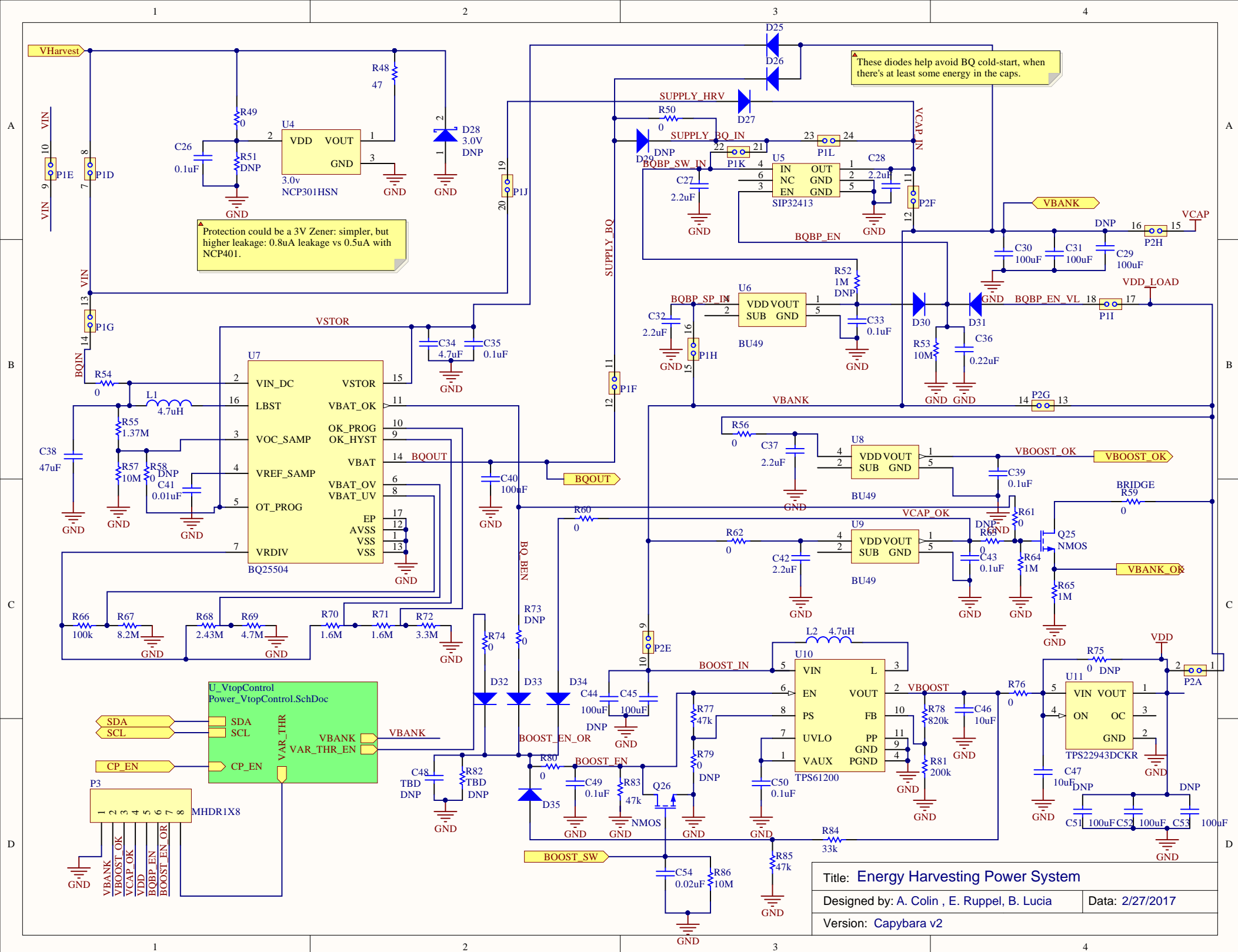


Title			
RF Energy Harvester and Backscatter Comms			
From WISP5 by A. Parks, A. Sample, et. al.			
Size	Number	Revision	
A	Capybara	2.0	
Date:	3/10/2018	Sheet	of
File:	Z:\capybara-hw\...\Harvester_RF.SchDoc	Drawn By:	

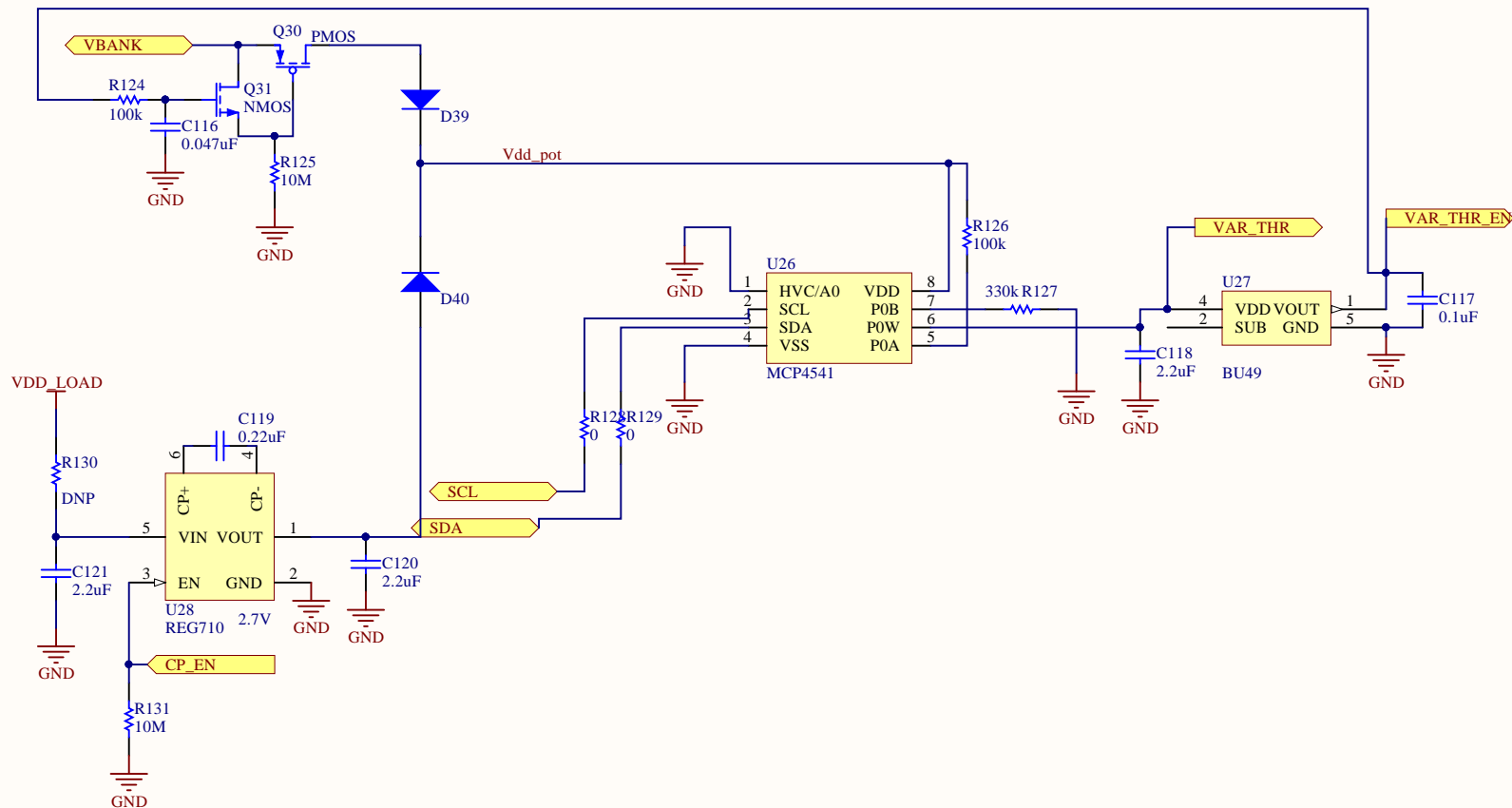


Title			Solar Panel Energy Harvester A. Colin , E. Ruppel, B. Lucia
Size	Number	Revision	
A	Capybara	2.0	
Date:	3/10/2018	Sheet of	
File:	Z:\capybara-hw\...\Harvester_Solar.SchDoc	Drawn By:	



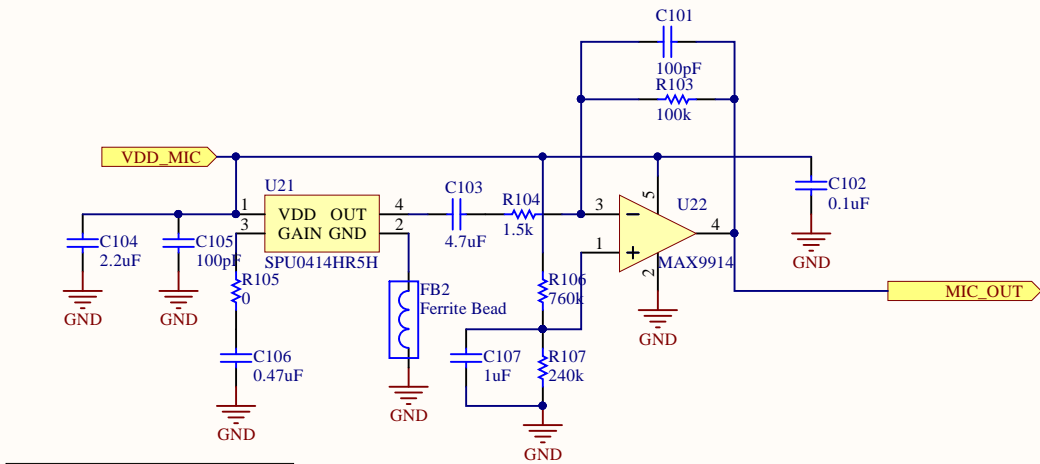


▲ TODO: add zero-ohm between VBANK



TODO: Remove this charge-pump once the variable Vout feature is added to the power system.

Title			Variable Threshold Circuit		
Size	Number			Revision	
A				Capybara v2	
Date:	3/10/2018			Sheet	of
File:	Z:\capybara-hw\...\Power_VtopControl.SchDoc			Drawn By:	



$G = 1 + (22k / (2.4k + R105))$
 R=0 for max gain
 High-pass corner freq:
 $1 / (2 * \pi * (2.4k + R105) * C106)$

Title		
Size	Number	Revision
A		
Date:	3/10/2018	Sheet of
File:	Z:\capybara-hw\...\Sensors_Mic.SchDoc	Drawn By: