

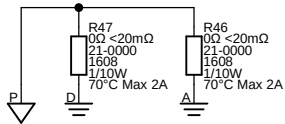
Umbilical  
Charging

Solar  
Panels

PV\_IN-0  
PV\_IN-1  
PV\_IN-2  
PV\_IN-3  
PV\_IN-4  
PV\_IN-5  
PV\_IN-6  
PV\_IN-7

Note: Each cell is 1W  
MPPT ICs output (PV\_IN):  
CV 4.1V  
CC 300mA

Note: Umbilical charger output (UMB\_IN):  
CV 4.1V  
CC 1A



Solar Panel 0 < PV 3.3V-0: 1mA  
Solar Panel 1 < PV 3.3V-1: 1mA  
Solar Panel 2 < PV 3.3V-2: 1mA  
Solar Panel 3 < PV 3.3V-3: 1mA  
EPS Heater 0 < PR BH-0: 250mA  
EPS Heater 1 < PR BH-1: 250mA  
Deployables Release < PR DEPLOY: 2A

Switching

Switching

Battery  
A

Battery  
B

Note: Each battery  
can output 4A  
continuously

Note: Each SMPS  
can output 3A  
continuously

3.3V  
SMPS  
A

3.3V  
SMPS  
B

Power  
ORing

EPS

Switching

PR 3.3V-0: 20mA > IHU  
PR 3.3V-1: 60mA > IHU: SD Card  
PR 3.3V-2: 20mA > ADCS  
PR 3.3V-3: 45mA > ADCS: IMUs  
PR 3.3V-4: 55mA > ADCS: GPS  
PR 3.3V-5: 90mA > IFJR & SD Card  
PR 3.3V-6: 105mA > Comms & Radios  
PR BATT-5: 300mA > ADCS: Magnetorquers  
PR BATT-6: 400mA > Comms: TX Amplifier  
PR 3.3V-7: 50mA > Payload: 0  
PR 3.3V-8: 390mA > Payload: 1  
PR 3.3V-9: 25mA > Payload: 2  
PR 3.3V-10: 15mA > Payload: 4  
PR 3.3V-11: 390mA > Payload: 5  
PR 3.3V-12: 0mA > Payload: 6  
PR BATT-0: 250mA > Payload: 7  
PR BATT-1: 0mA > Payload: 8  
PR BATT-2: 0mA > Payload: 9  
PR BATT-3: 0mA > Payload: 10  
PR BATT-4: 0mA > Payload: 11

Note: Each power rail channel (PR\_) is rated for 1A  
PR\_DEPLOY is rated for 2A  
Currents shown are the expected consumption



Title:	Power Rails	Size:	A
Project:	CougSat-1: EPS	SKU:	68-0002
Designer:	Bradley L. Davis	Rev:	2.1.5
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1

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4

5

6

A

B

C

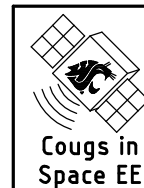
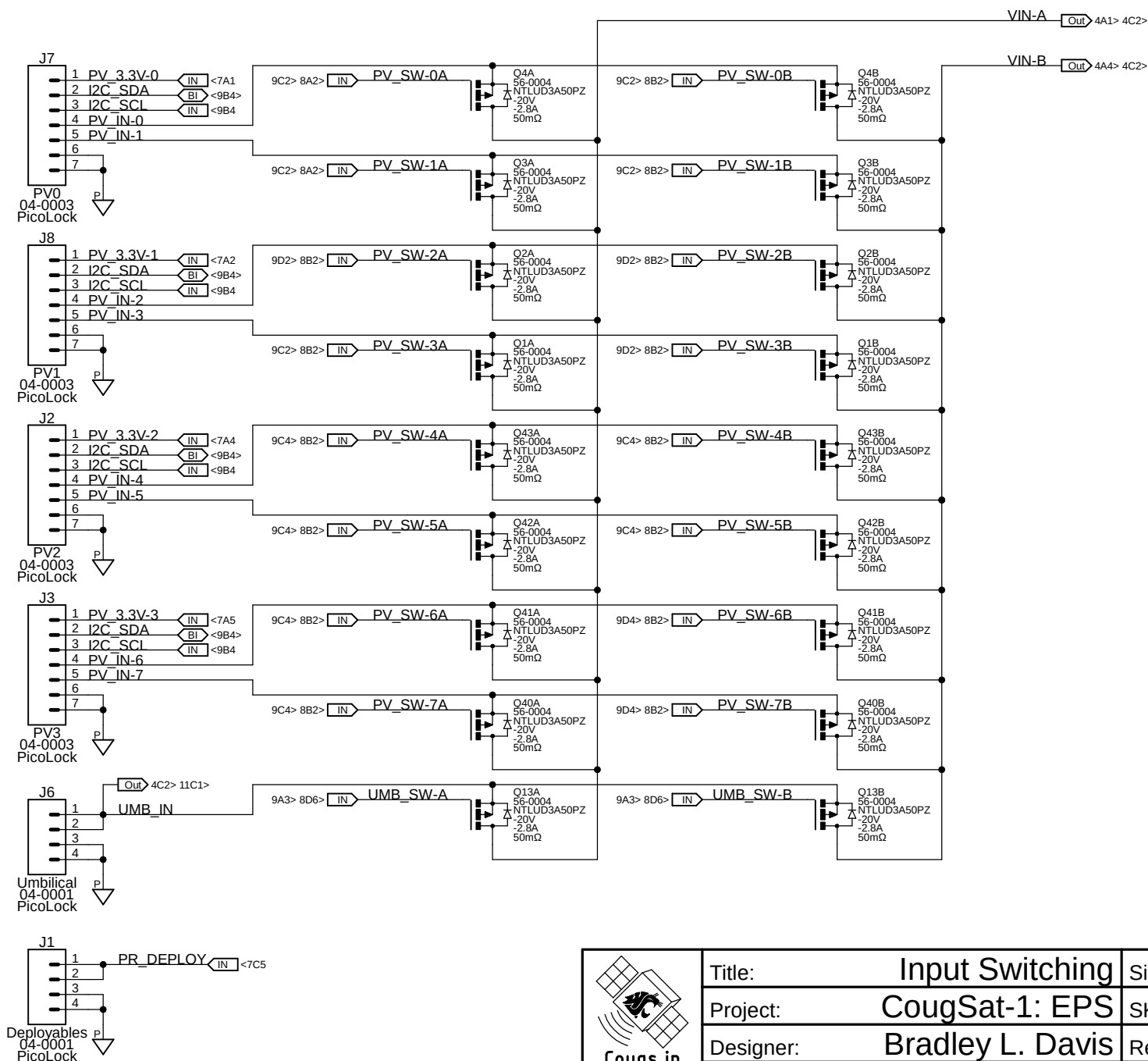
D

A

B

C

D



Title:	Input Switching	Size:	A
Project:	CougSat-1: EPS	SKU:	68-0002
Designer:	Bradley L. Davis	Rev:	2.1.5
Date:	10/5/2018 11:53 AM	Page:	3/12



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A

A

B

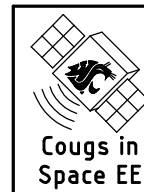
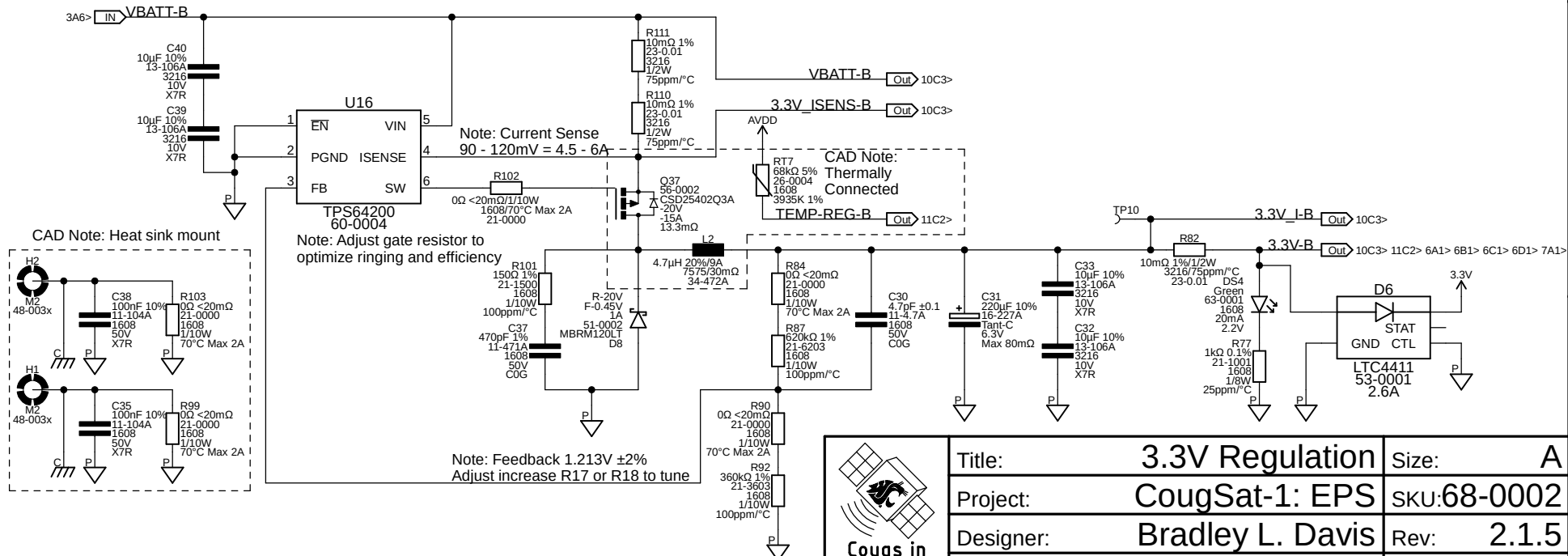
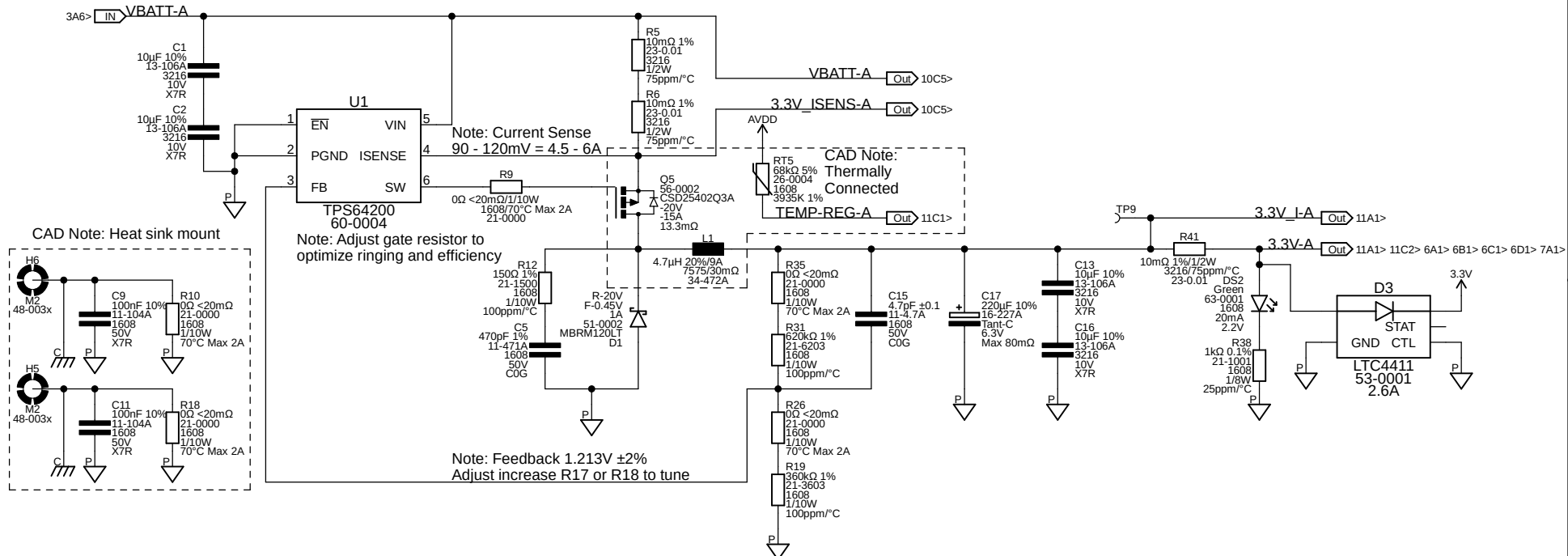
B

C

C

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D



Title:	3.3V Regulation	Size:	A
Project:	CougSat-1: EPS	SKU:	68-0002
Designer:	Bradley L. Davis	Rev:	2.1.5
Date:	10/5/2018 11:53 AM	Page:	5/12

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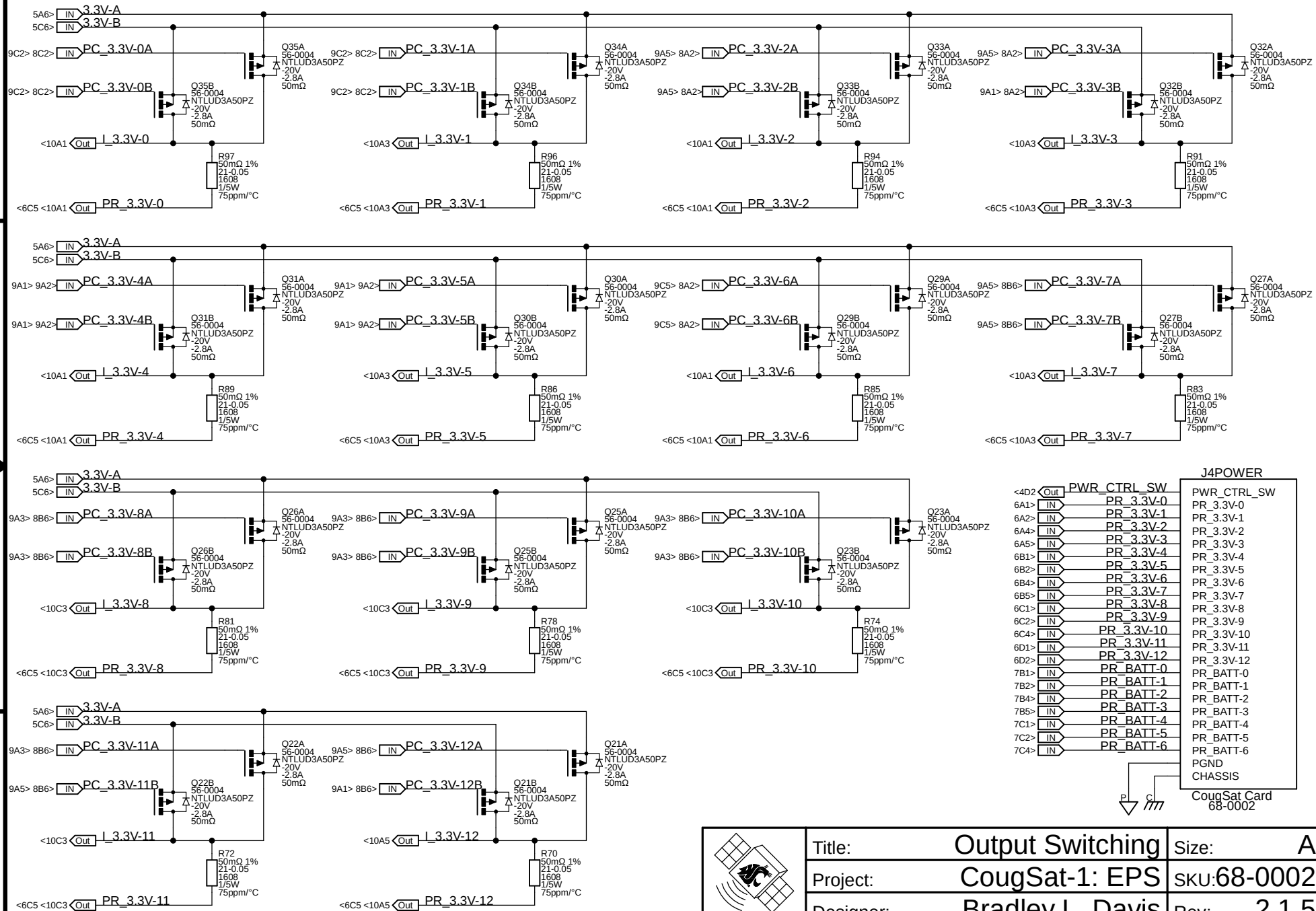
D

A

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A

A

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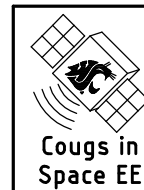
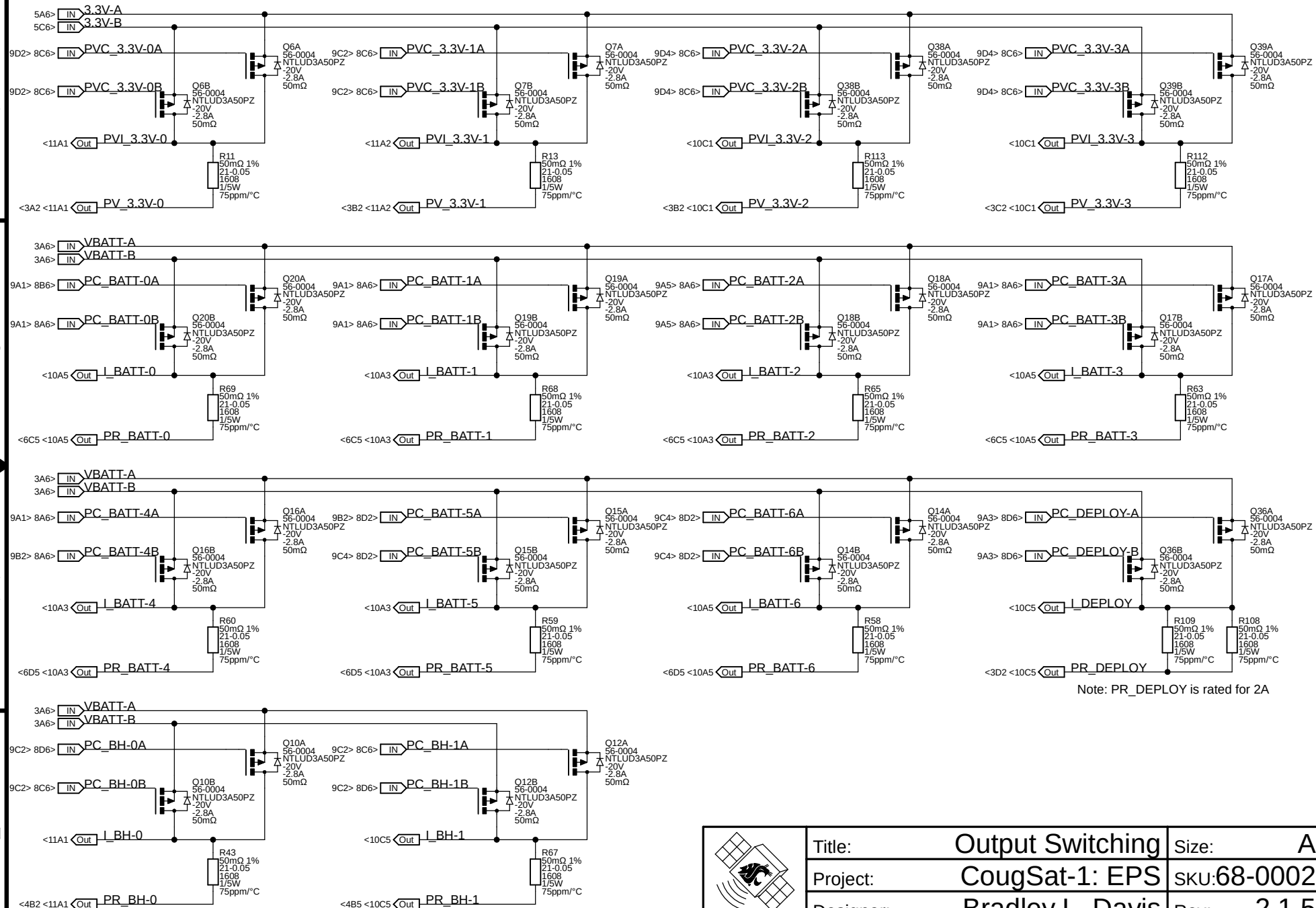
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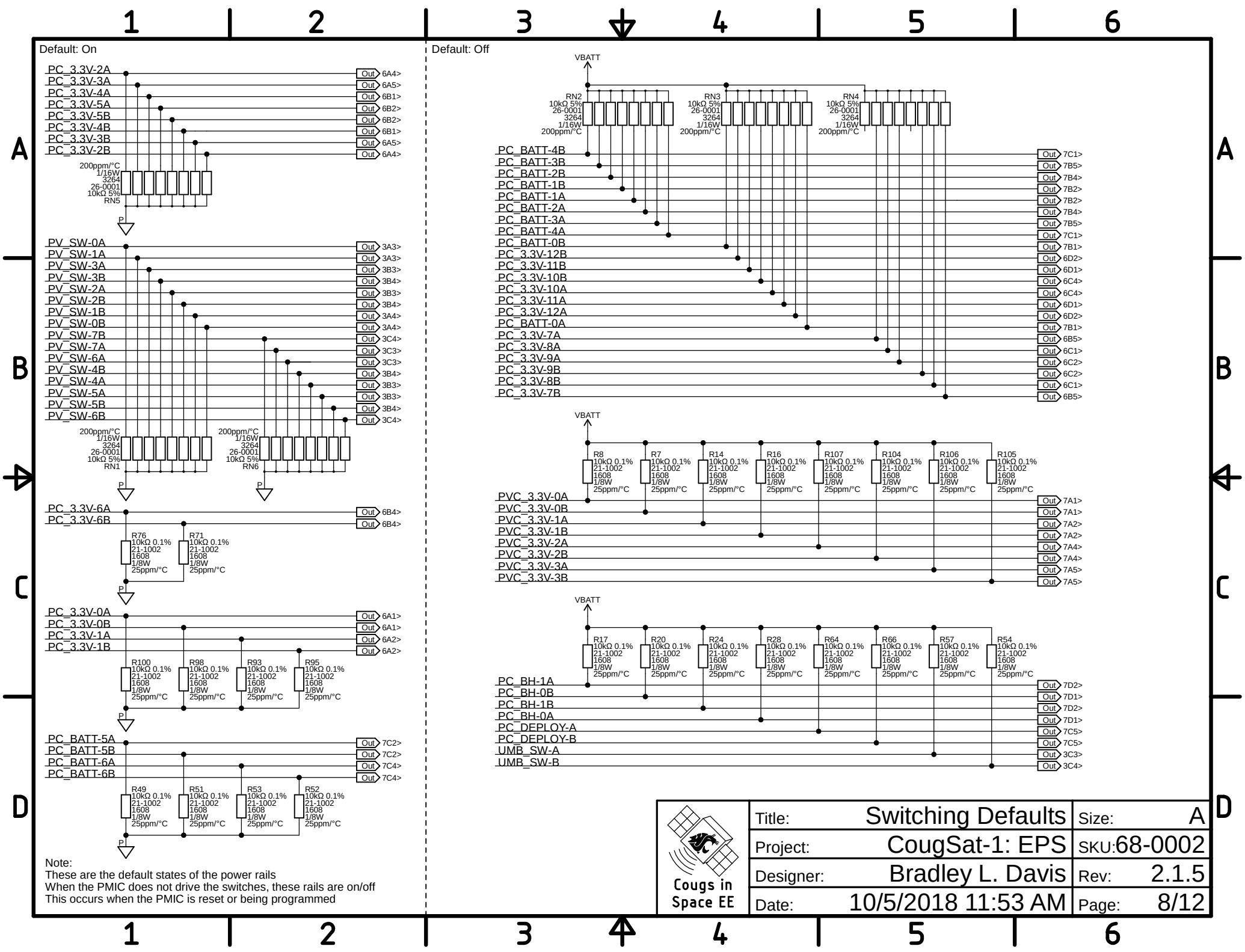
C


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D

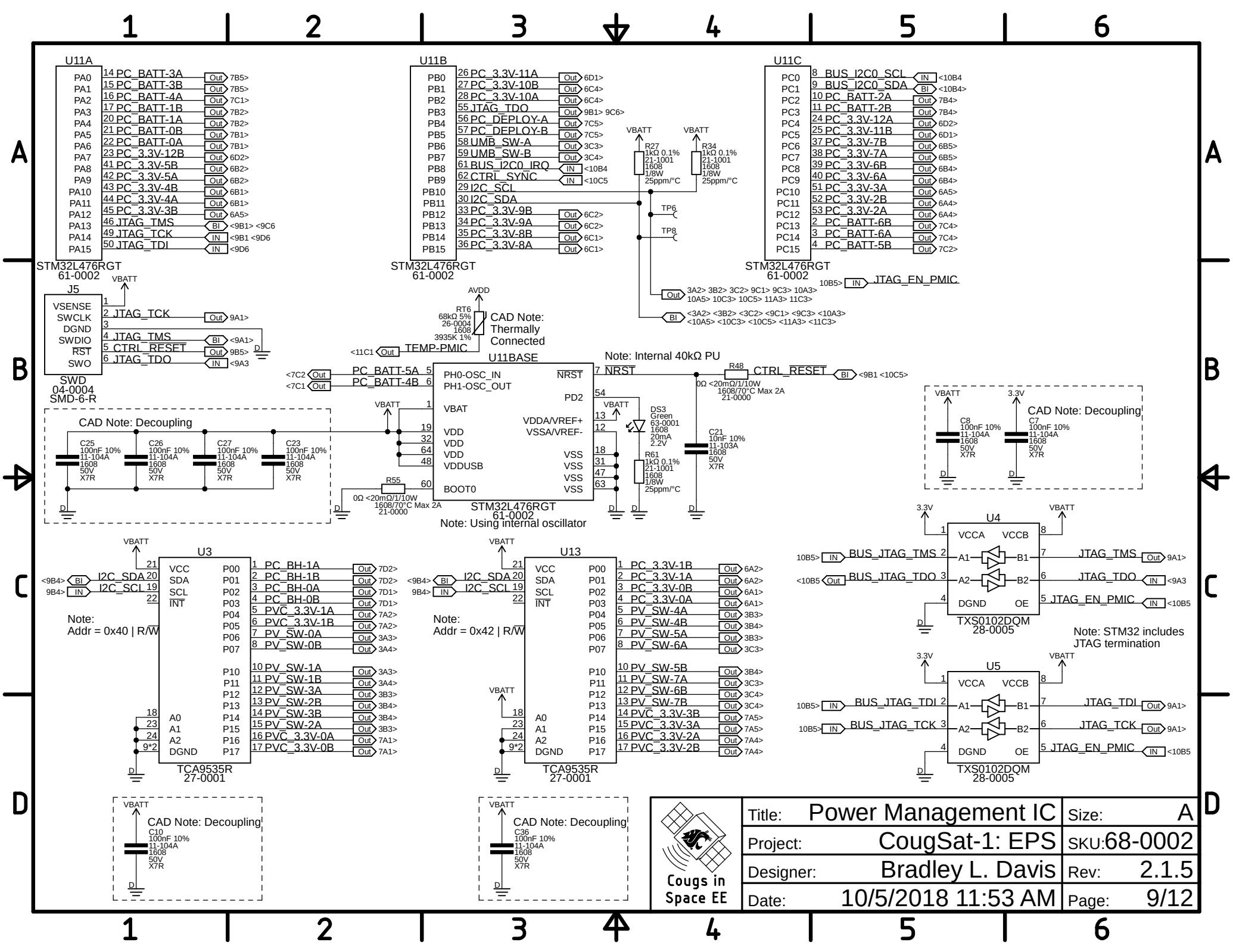


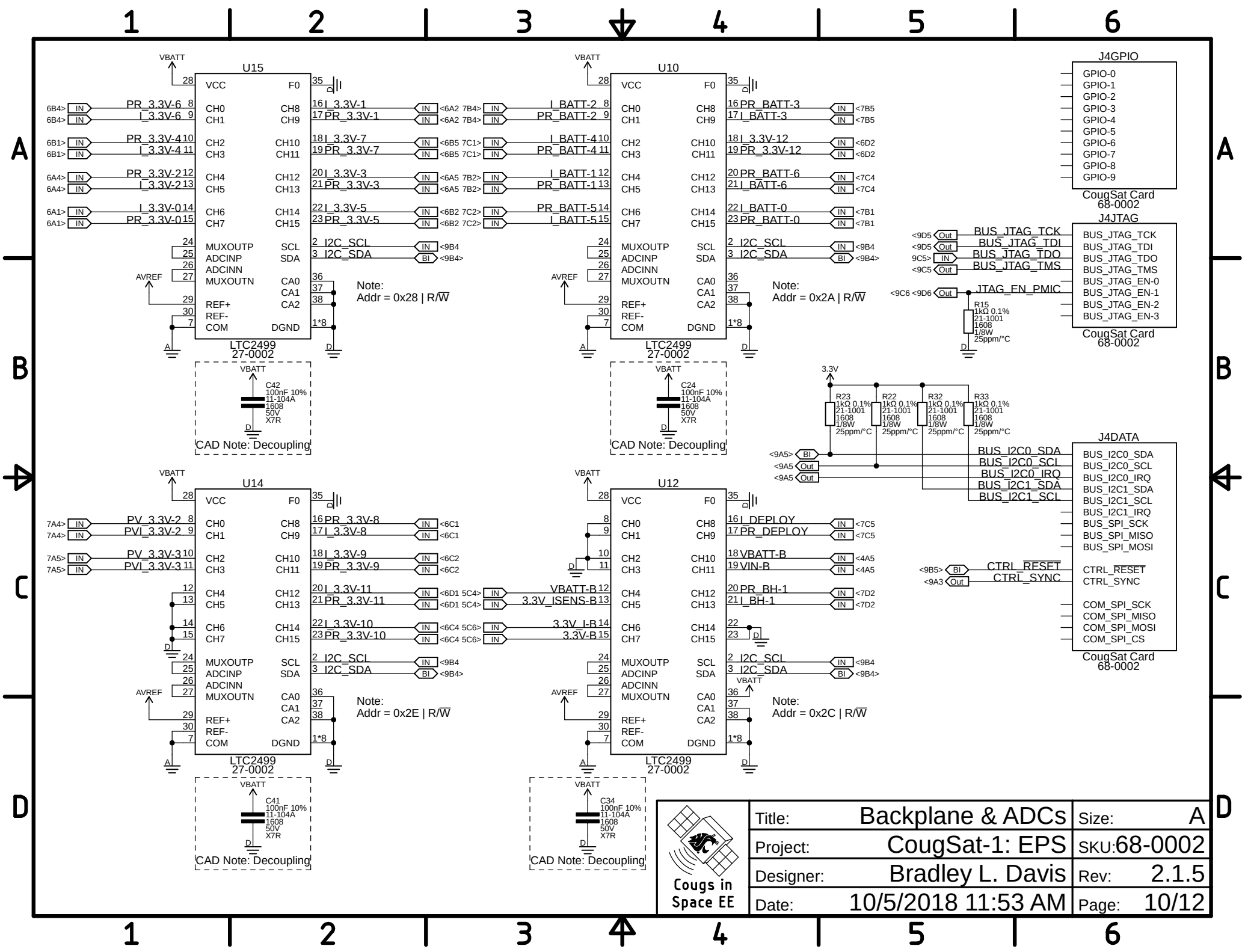
Title:	Output Switching	Size:	A
Project:	CougSat-1: EPS	SKU:	68-0002
Designer:	Bradley L. Davis	Rev:	2.1.5
Date:	10/5/2018 11:53 AM	Page:	7/12




 CougSat in Space EE	Title: Switching Defaults	Size: A
	Project: CougSat-1: EPS	SKU:68-0002
	Designer: Bradley L. Davis	Rev: 2.1.5
	Date: 10/5/2018 11:53 AM	Page: 8/12







 CougSat in Space EE	Title:	Backplane & ADCs	Size:	A
	Project:	CougSat-1: EPS	SKU:	68-0002
	Designer:	Bradley L. Davis	Rev:	2.1.5
	Date:	10/5/2018 11:53 AM	Page:	10/12

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A

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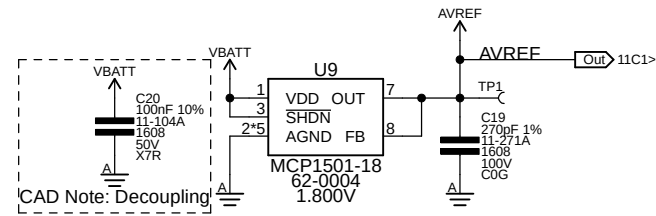
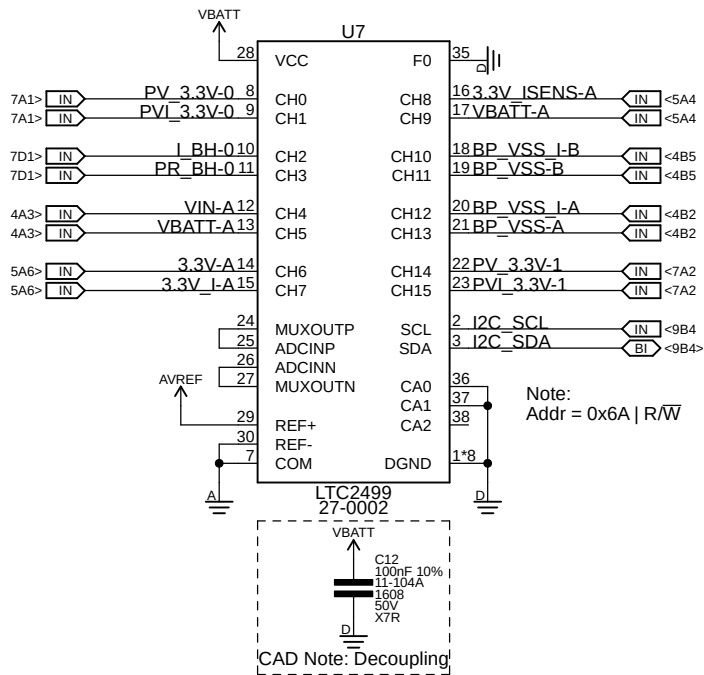
B

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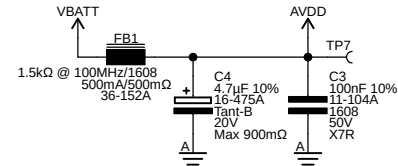
C

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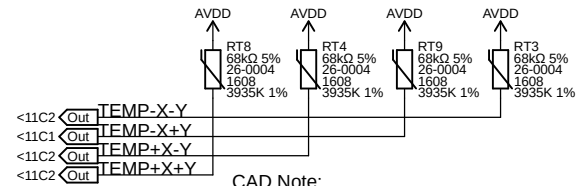
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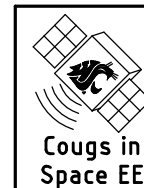
Note:  
Differential ADC voltage reference is 1.800V  
At 16b, 13.73μV/LSB  
Maximum input is ±900mV



Note:  
Single-Ended ADC voltage reference is 3.3V  
At 16b, 25.18μV/LSB  
Maximum input is ±1.65V



CAD Note:  
Place in the corner of the PCB  
that matches the connected  
signal name, bottom side



Title:	ADCs	Size:	A
Project:	CougsSat-1: EPS	SKU:	68-0002
Designer:	Bradley L. Davis	Rev:	2.1.5
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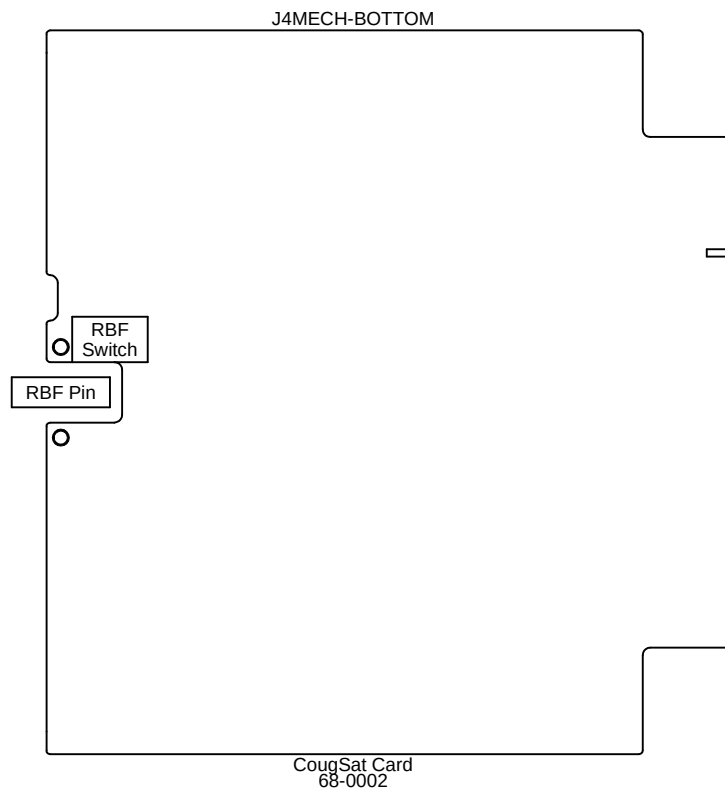
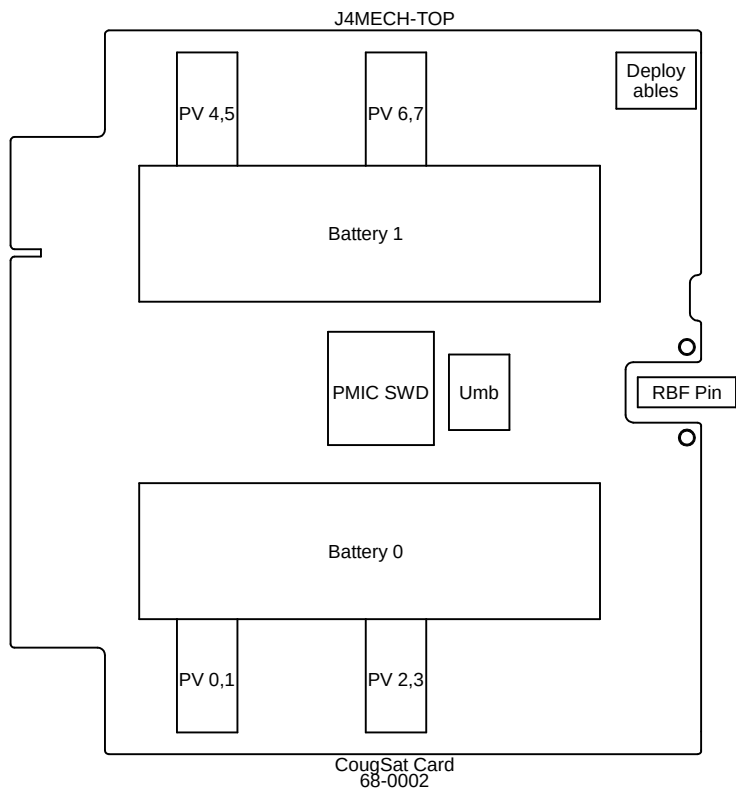
B

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C

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D

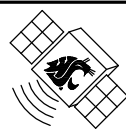


LOGO1  
Satellite 16mm

Cougs in  
Space

LOGO2

Signature



Cougs in  
Space EE

Title:	Mechanical	Size:	A
Project:	CougSat-1: EPS	SKU:	68-0002
Designer:	Bradley L. Davis	Rev:	2.1.5
Date:	10/5/2018 11:53 AM	Page:	12/12

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