Power Analyzer Results Report for
Final_PayloadPCB

Power Analyzer Version: 1.0.19.243
Report Time / Date: 25/05/2024 8:02:57 PM
Project Name: Final_PayloadPCB
Used Simulation Engine: Keysight

Power Analizer Global Settings

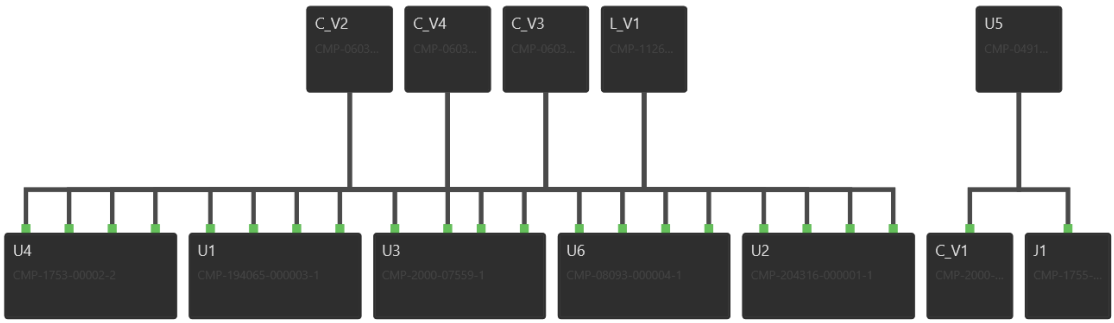
Parameter	Value
Metal conductivity	46964.8562300319 S/mm
Metal base conductivity	58800 S/mm
Metal base temperature	25°C
Metal work temperature	60°C
Metal temperature coefficient	0.4 %/°C
Conductor Max Current Density for Surfase Layers	100 A/mm^2
Conductor Max Current Density for Internal Layers	100 A/mm^2
Via wall thickness	0.01778mm
Max Via Current Density	0 A/mm^2
Skip ground	False

Design Stackup

#	Name	Material	Type	Thickness
	Top Overlay		Overlay	
	Top Solder	Solder Resist	Solder Mask	0.01016mm
1	Top Layer		Signal	0.21mm
	Dielectric 2	PP-006	Prepreg	0.196mm

#	Name	Material	Type	Thickness
2	GND	CF-004	Signal	0.035mm
	Dielectric 1	FR-4	Isolation	1.03mm
3	VDD	CF-004	Signal	0.035mm
	Dielectric 3	PP-006	Prepreg	0.196mm
4	Bottom Layer		Signal	0.21mm
	Bottom Solder	Solder Resist	Solder Mask	0.01016mm
	Bottom Overlay		Overlay	

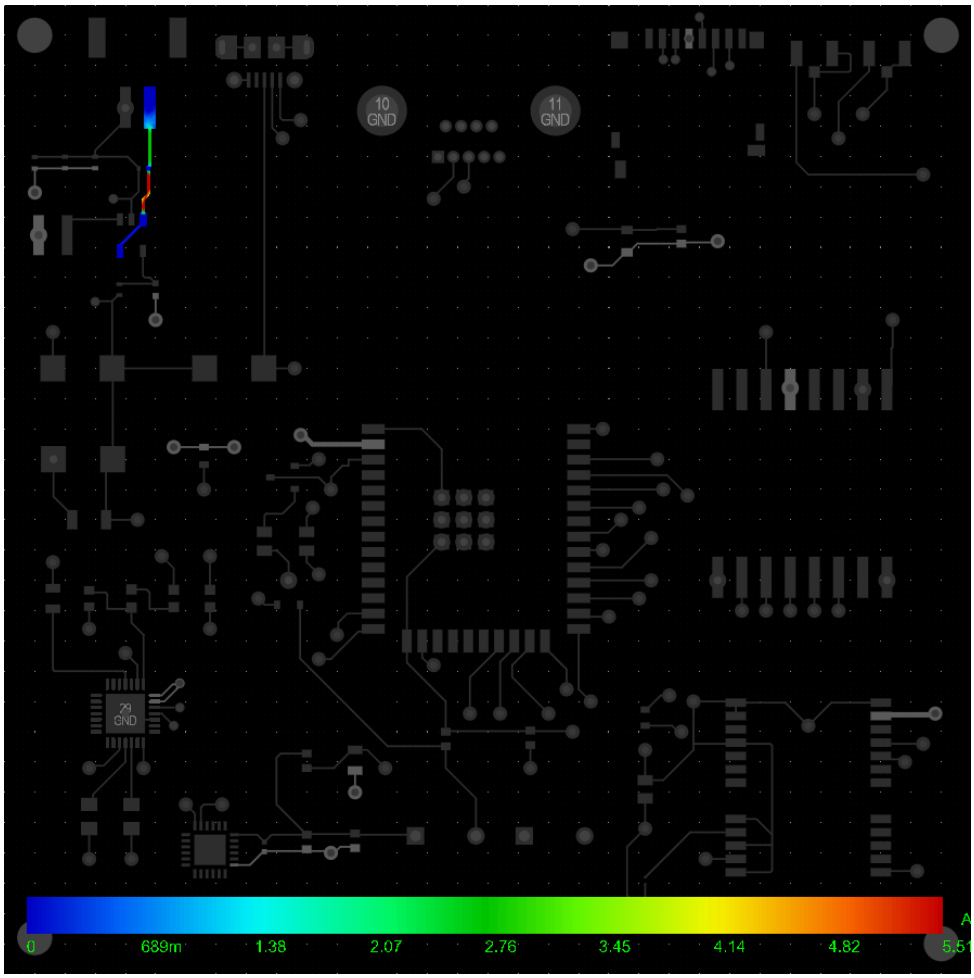
Full Report −



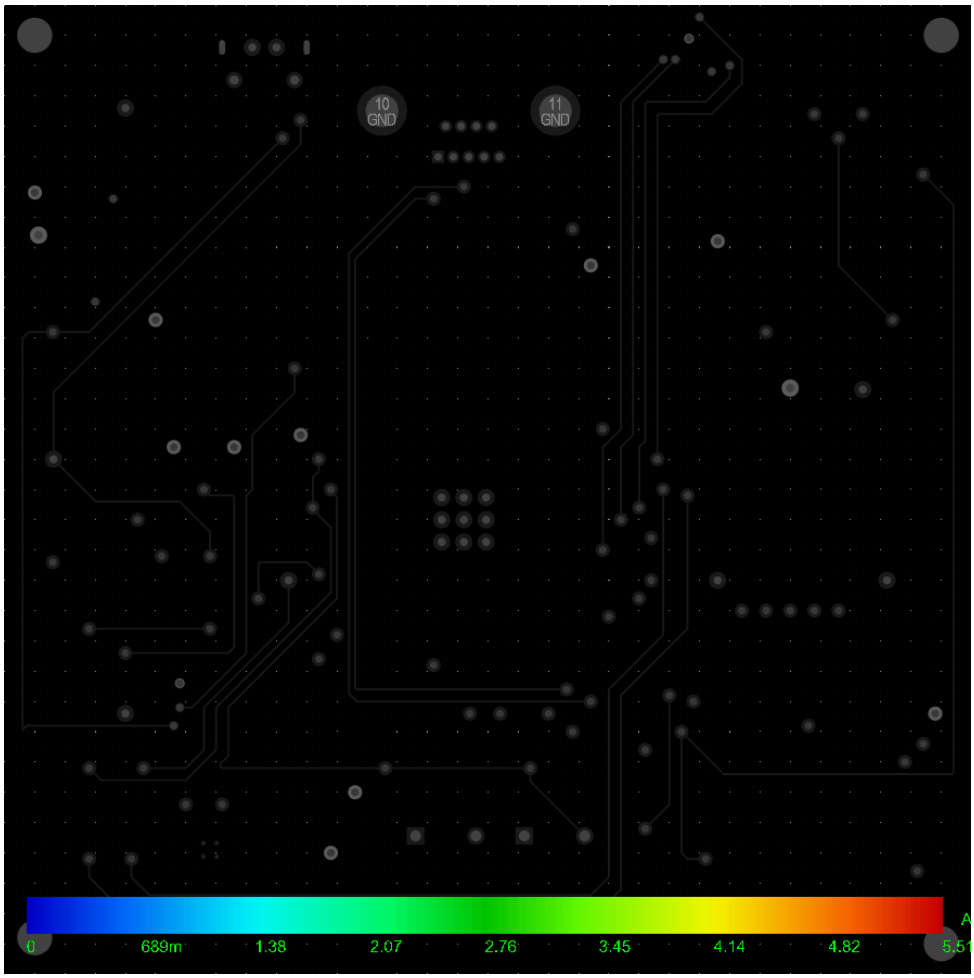
3V7 −

Heatmap For Current Density −

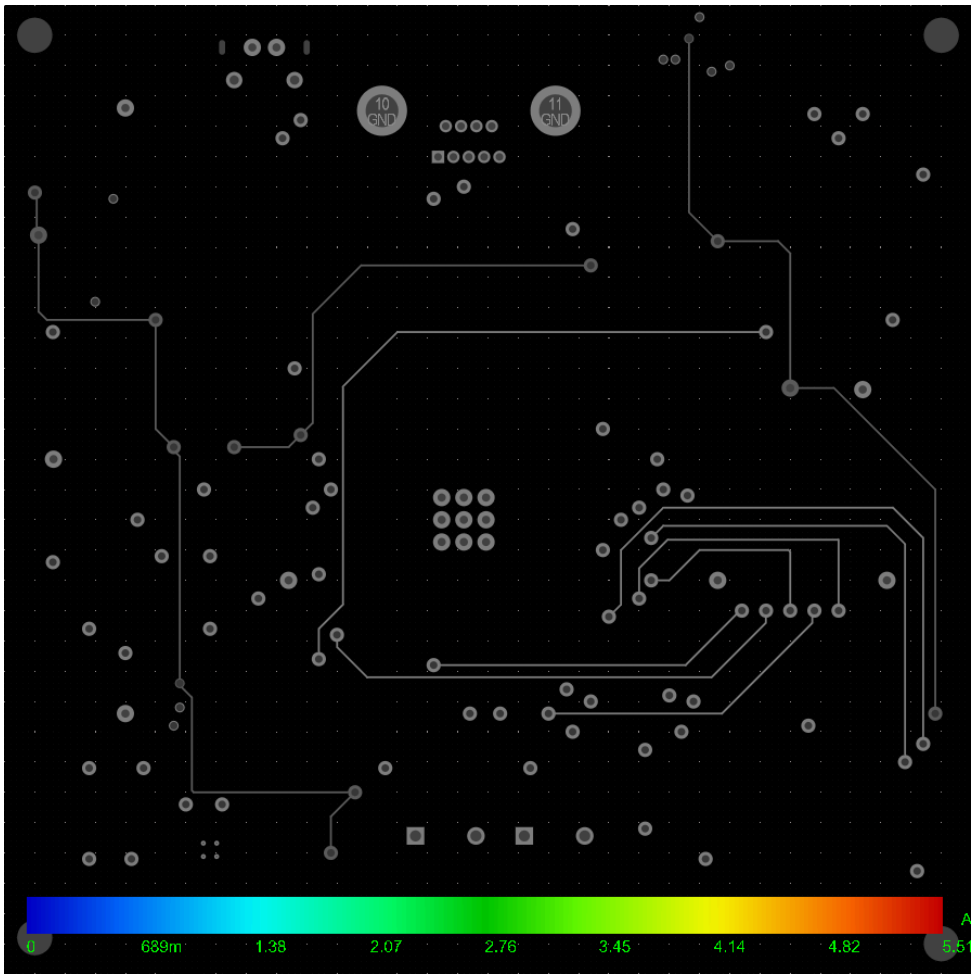
Layer: Top Layer



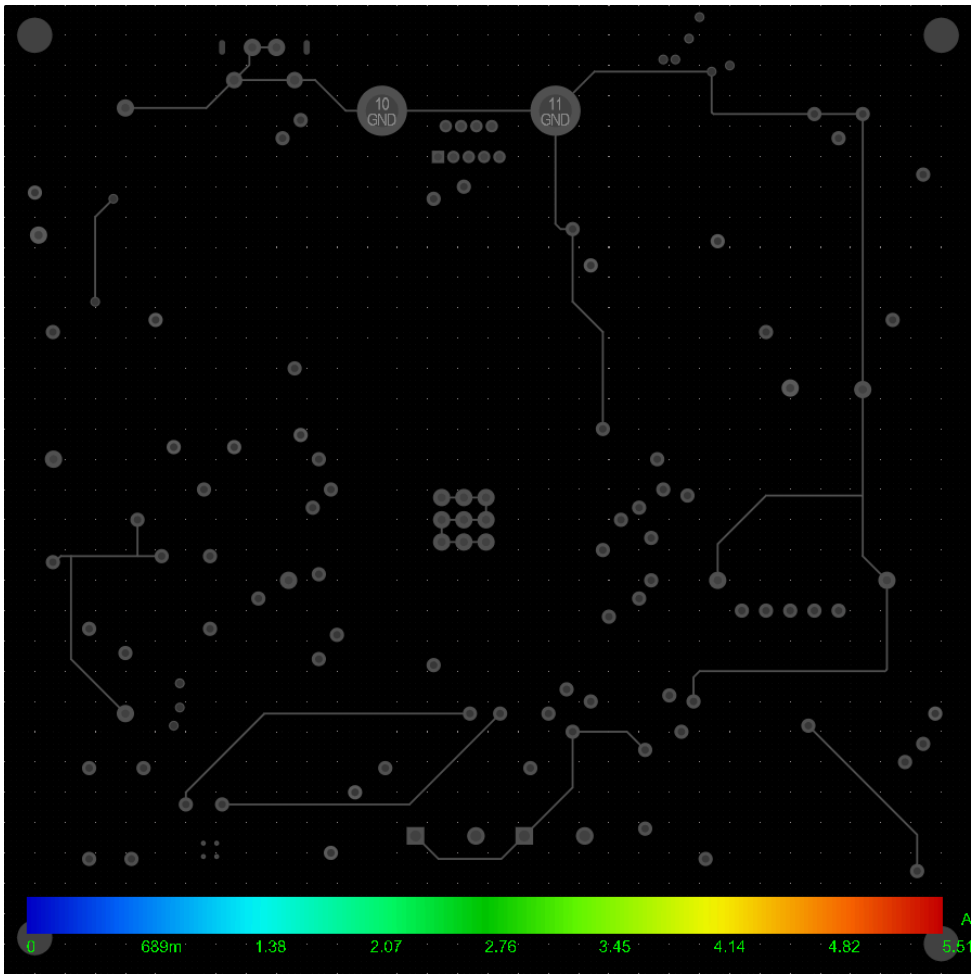
Layer: Bottom Layer



Layer: VDD

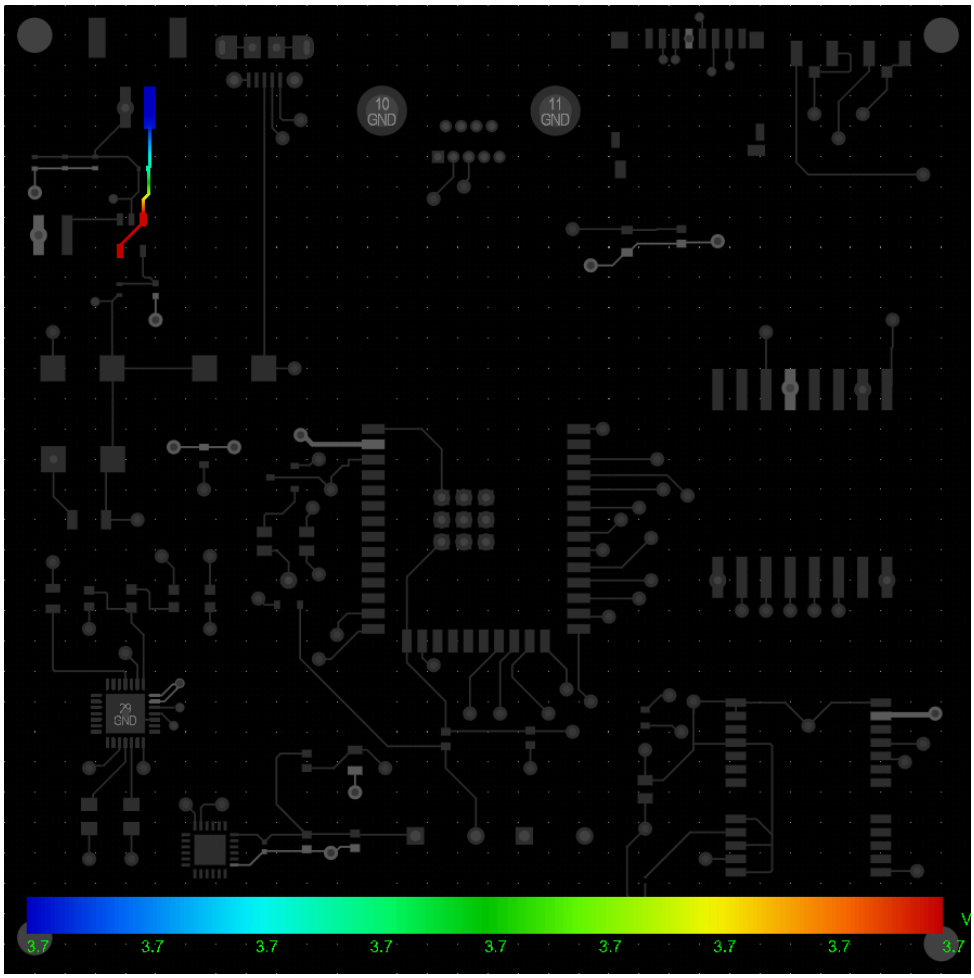


Layer: GND

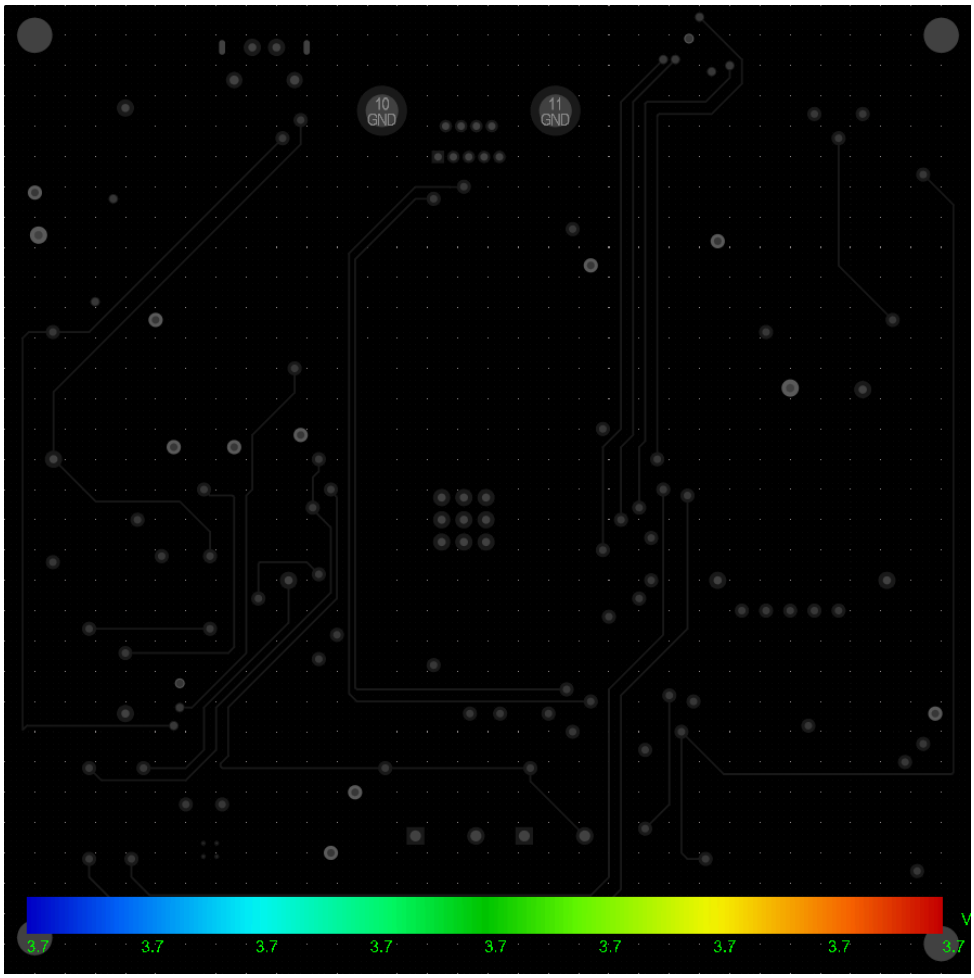


Heatmap For Voltage Drop −

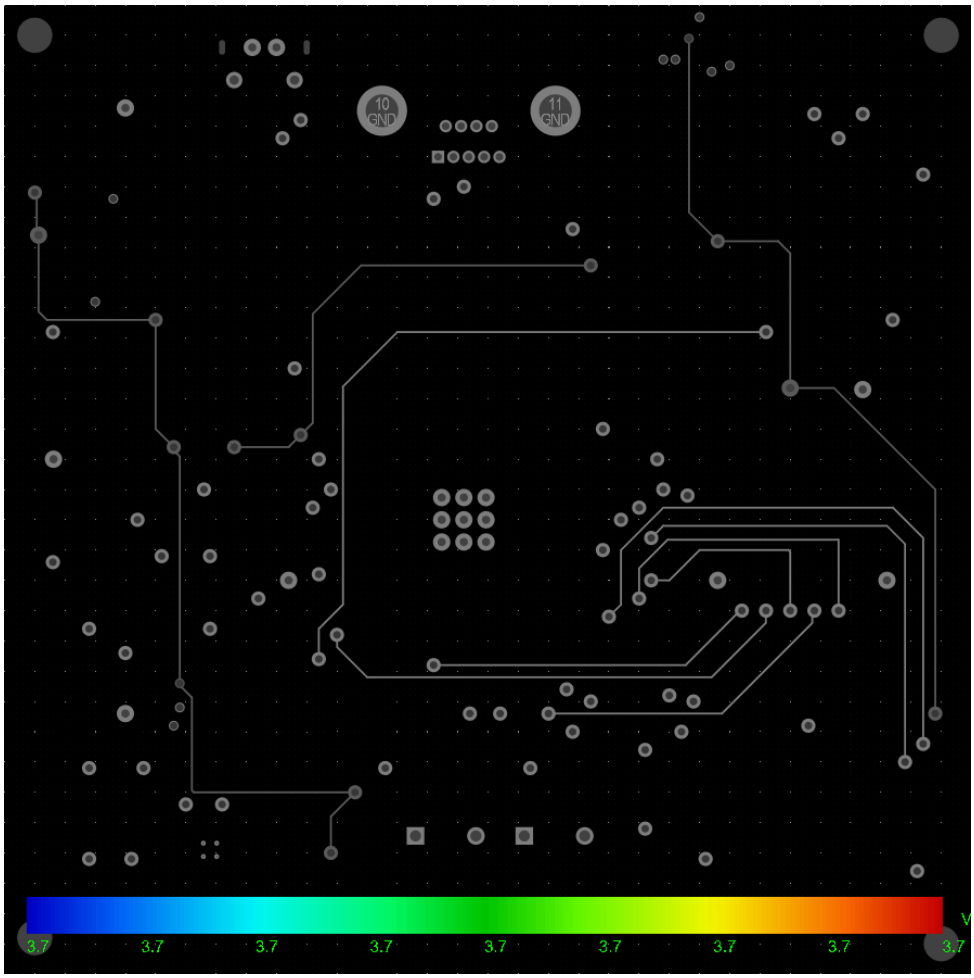
Layer: Top Layer



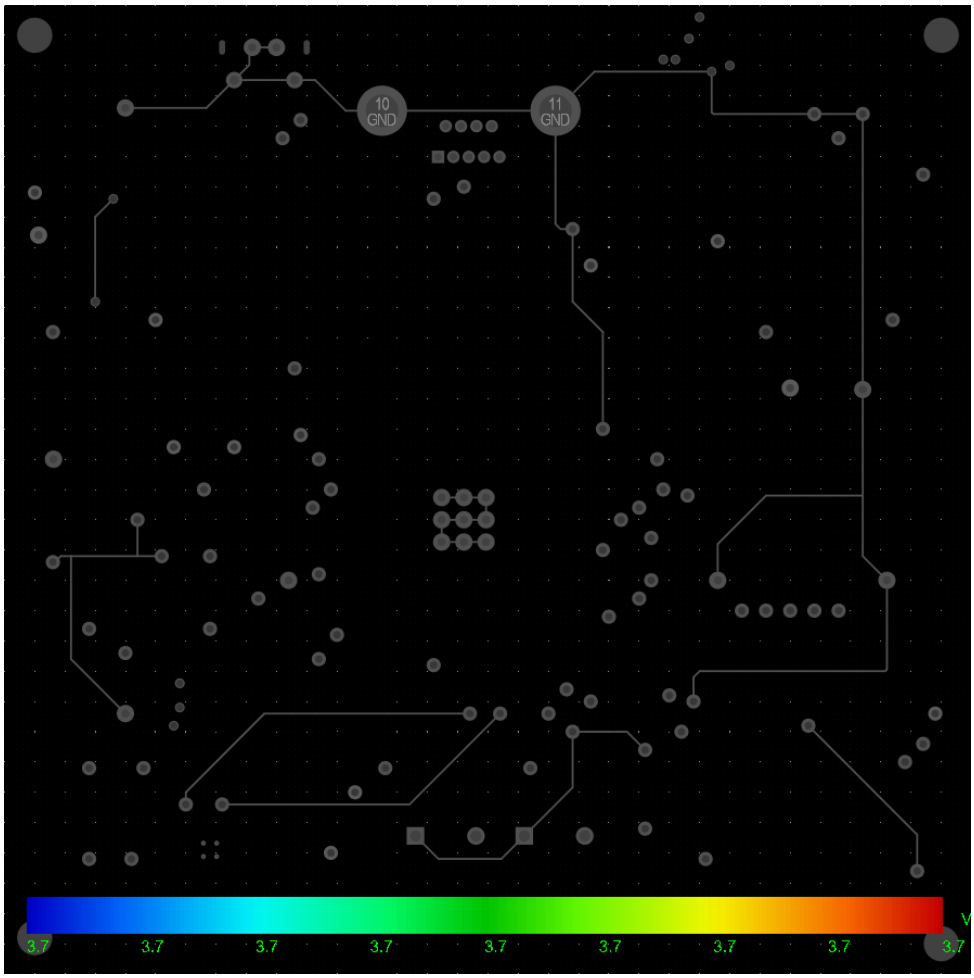
Layer: Bottom Layer



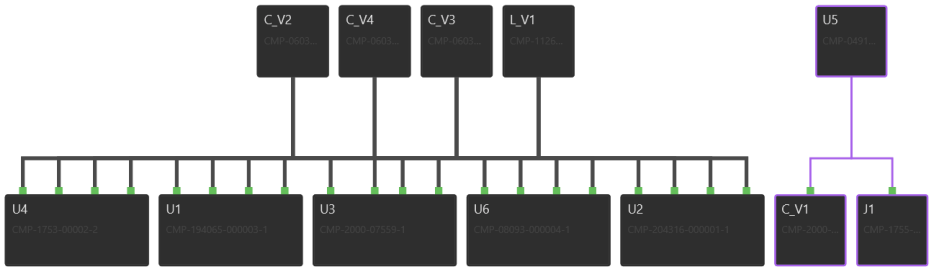
Layer: VDD



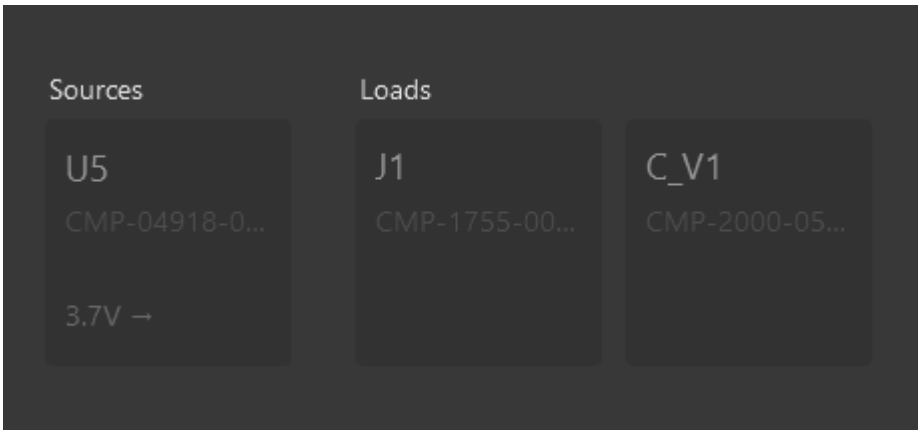
Layer: GND



System-Level Power Network Results



Network 3V7 Details



Power Analysis Pass/Fail: Pass

Power Consumption for This Network: 0 Watts

Least Margins:

Margin Type	Absolute	Pass/Fail
Non-Via Current Density (A/mm^2)	66.111	Pass
Via Current (A)	692.77m	Pass

Margin Type (%)	Percent	Pass/Fail
Non-Via Current Density	66.11%	Pass
Via Current	69.28%	Pass

Failed Via Summary:

Net	Location	Drill Diameter	Max Current (A)	Actual Current (A)	Margin (%)	Max Current Density	Actual Current Density	Margin (%)
GND	10.99998 mm : 37.5mm	0.7112mm	1	150m	85.00%	0 (A/mm^2)	3.2295 (A/mm^2)	∞
GND	13mm : 34.5mm	0.7112mm	1	530.54f	100.00%	0 (A/mm^2)	20.456p (A/mm^2)	∞
GND	18.00001 mm : 76.50002 mm	0.6mm	1	75.993f	100.00%	0 (A/mm^2)	1.6904p (A/mm^2)	∞
GND	19.00001 mm : 73.8mm	0.85mm	1	82.758m	91.72%	0 (A/mm^2)	1.9357 (A/mm^2)	∞
GND	20.49998 mm : 76.50002 mm	0.762mm	1	1.1487p	100.00%	0 (A/mm^2)	21.485p (A/mm^2)	∞
GND	22.49998 mm :	0.762mm	1	369.89f	100.00%	0 (A/mm^	12.042p (A/mm^	∞

Net	Location	Drill Diameter	Max Current (A)	Actual Current (A)	Margin (%)	Max Current Density	Actual Current Density	Margin (%)
	76.50002 mm					2)	2)	
GND	24mm : 73.8mm	0.85mm	1	79.85m	92.02%	0 (A/mm^ 2)	1.8495 (A/mm^ 2)	∞
GND	25mm : 76.50002 mm	0.6mm	1	162.81f	100.00%	0 (A/mm^ 2)	3.6191p (A/mm^ 2)	∞
GND	3.99999 mm : 33.99998 mm	0.7112m m	1	627.65f	100.00%	0 (A/mm^ 2)	19.371p (A/mm^ 2)	∞
GND	31.23001 mm : 71.27001 mm	2.79mm	1	148.26m	85.17%	0 (A/mm^ 2)	282.24m (A/mm^ 2)	∞
GND	31.23001 mm : 71.27001 mm	0.762mm	1	148.26m	85.17%	0 (A/mm^ 2)	282.24m (A/mm^ 2)	∞
GND	33.99998 mm : 11.39998 mm	1mm	1	307.23m	69.28%	0 (A/mm^ 2)	3.7685 (A/mm^ 2)	∞
GND	33.99998 mm : 11.39998 mm	0.762mm	1	307.23m	69.28%	0 (A/mm^ 2)	3.7685 (A/mm^ 2)	∞
GND	36.16498 mm : 35.665m m	0.762mm	1	43.144u	100.00%	0 (A/mm^ 2)	792.66u (A/mm^ 2)	∞
GND	36.16498 mm : 37.5mm	0.762mm	1	2.8611u	100.00%	0 (A/mm^ 2)	50.965u (A/mm^ 2)	∞
GND	36.16498 mm : 39.335m m	0.762mm	1	909.49f	100.00%	0 (A/mm^ 2)	27.515p (A/mm^ 2)	∞
GND	38.00003 mm : 35.665m m	0.762mm	1	2.9711u	100.00%	0 (A/mm^ 2)	52.554u (A/mm^ 2)	∞
GND	38.00003 mm : 37.5mm	0.762mm	1	68.419n	100.00%	0 (A/mm^ 2)	1.2101u (A/mm^ 2)	∞
GND	38.00003 mm : 39.335m m	0.762mm	1	2.918p	100.00%	0 (A/mm^ 2)	61.995p (A/mm^ 2)	∞
GND	39.83502 mm : 35.665m m	0.762mm	1	41.303n	100.00%	0 (A/mm^ 2)	727.91n (A/mm^ 2)	∞
GND	39.83502 mm :	0.762mm	1	932.99p	100.00%	0 (A/mm^	16.556n (A/mm^	∞

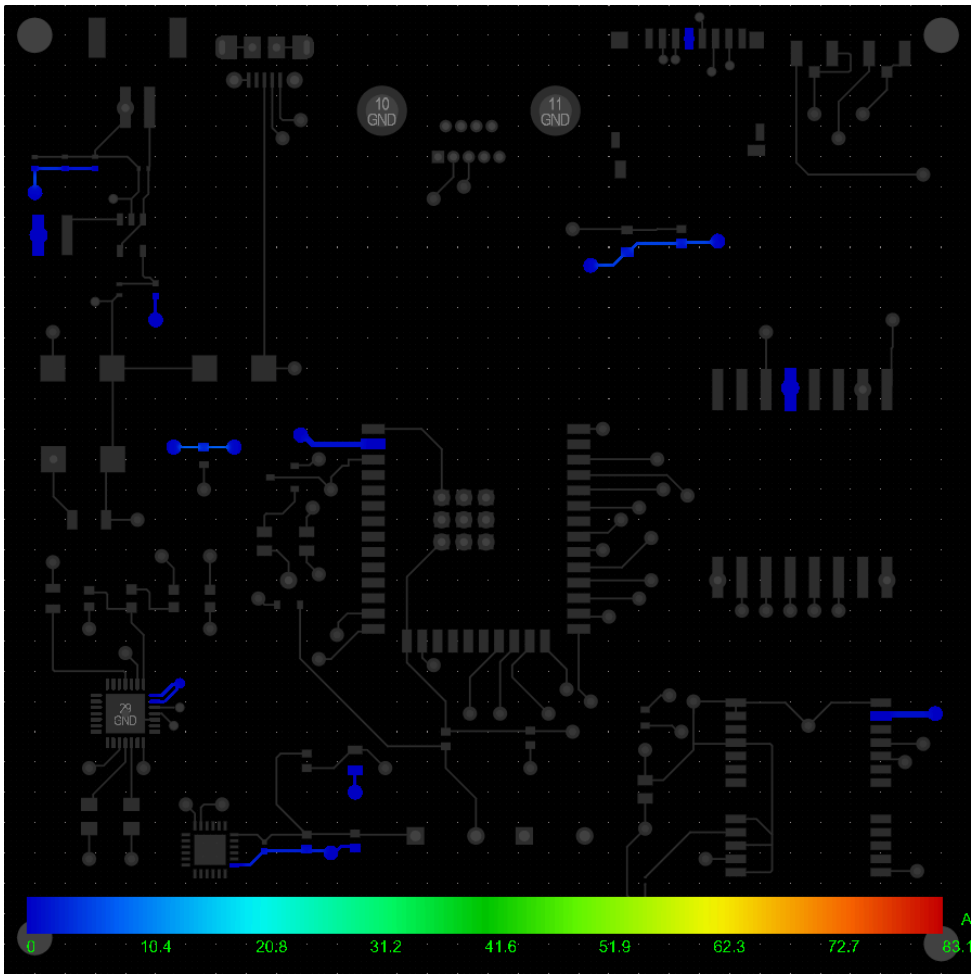
Net	Location	Drill Diameter	Max Current (A)	Actual Current (A)	Margin (%)	Max Current Density	Actual Current Density	Margin (%)
	37.5mm					2)	2)	
GND	39.83502 mm : 39.335m m	0.762mm	1	20.71p	100.00%	0 (A/mm^ 2)	375.62p (A/mm^ 2)	∞
GND	43.00002 mm : 11.39998 mm	1mm	1	182.37m	81.76%	0 (A/mm^ 2)	3.065 (A/mm^ 2)	∞
GND	43.00002 mm : 11.39998 mm	0.762mm	1	182.37m	81.76%	0 (A/mm^ 2)	3.065 (A/mm^ 2)	∞
GND	45.58mm : 71.27001 mm	2.79mm	1	142.84m	85.72%	0 (A/mm^ 2)	264.51m (A/mm^ 2)	∞
GND	45.58mm : 71.27001 mm	0.762mm	1	142.84m	85.72%	0 (A/mm^ 2)	264.51m (A/mm^ 2)	∞
GND	47.00001 mm : 61.5mm	0.7112m m	1	24.693m	97.53%	0 (A/mm^ 2)	800.54m (A/mm^ 2)	∞
GND	47mm : 20mm	0.7112m m	1	132.9m	86.71%	0 (A/mm^ 2)	4.143 (A/mm^ 2)	∞
GND	49.5mm : 45mm	0.7112m m	1	55.373m	94.46%	0 (A/mm^ 2)	1.1922 (A/mm^ 2)	∞
GND	53mm : 18.5mm	0.7112m m	1	212.6m	78.74%	0 (A/mm^ 2)	4.6853 (A/mm^ 2)	∞
GND	56.99999 mm : 22.49998 mm	0.7112m m	1	62.597m	93.74%	0 (A/mm^ 2)	1.4365 (A/mm^ 2)	∞
GND	58.5mm : 74.5mm	0.7112m m	1	51.34m	94.87%	0 (A/mm^ 2)	1.6114 (A/mm^ 2)	∞
GND	59mm : 32.5mm	0.762mm	1	14.548u	100.00%	0 (A/mm^ 2)	256.06u (A/mm^ 2)	∞
GND	66.49999 mm : 20.49998 mm	0.7112m m	1	38.099u	100.00%	0 (A/mm^ 2)	802.27u (A/mm^ 2)	∞
GND	67mm : 71mm	0.7112m m	1	42.571m	95.74%	0 (A/mm^ 2)	1.4083 (A/mm^ 2)	∞
GND	7.5mm : 55.5mm	0.7112m m	1	150m	85.00%	0 (A/mm^ 2)	3.5648 (A/mm^ 2)	∞
GND	71.00001 mm :	0.762mm	1	87.39m	91.26%	0 (A/mm^	1.5493 (A/mm^	∞

Net	Location	Drill Diameter	Max Current (A)	Actual Current (A)	Margin (%)	Max Current Density	Actual Current Density	Margin (%)
	48.24999 mm					2)	2)	
GND	71mm : 71mm	0.7112mm	1	39.005m	96.10%	0 (A/mm^2)	1.2631 (A/mm^2)	∞
GND	73.00001 mm : 32.50001 mm	0.762mm	1	62.599m	93.74%	0 (A/mm^2)	1.1176 (A/mm^2)	∞
GND	75.5mm : 8.5mm	0.7112mm	1	5.4427u	100.00%	0 (A/mm^2)	117.19u (A/mm^2)	∞
GND	9.99998 mm : 21.49998 mm	0.762mm	1	150m	85.00%	0 (A/mm^2)	2.6395 (A/mm^2)	∞
GND	9.99998 mm : 71.49998 mm	0.762mm	1	142.78m	85.72%	0 (A/mm^2)	2.5293 (A/mm^2)	∞
GND	9mm : 64mm	0.7112mm	1	150m	85.00%	0 (A/mm^2)	3.5705 (A/mm^2)	∞

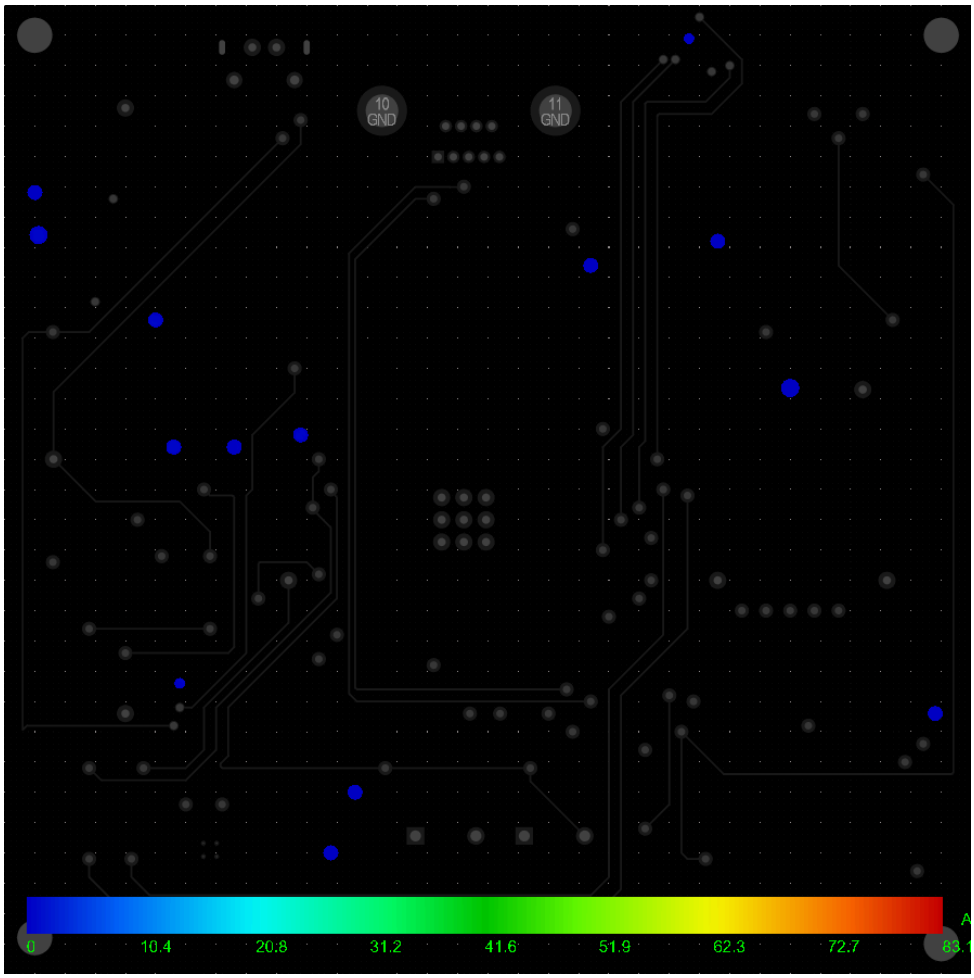
3V3 −

Heatmap For Current Density −

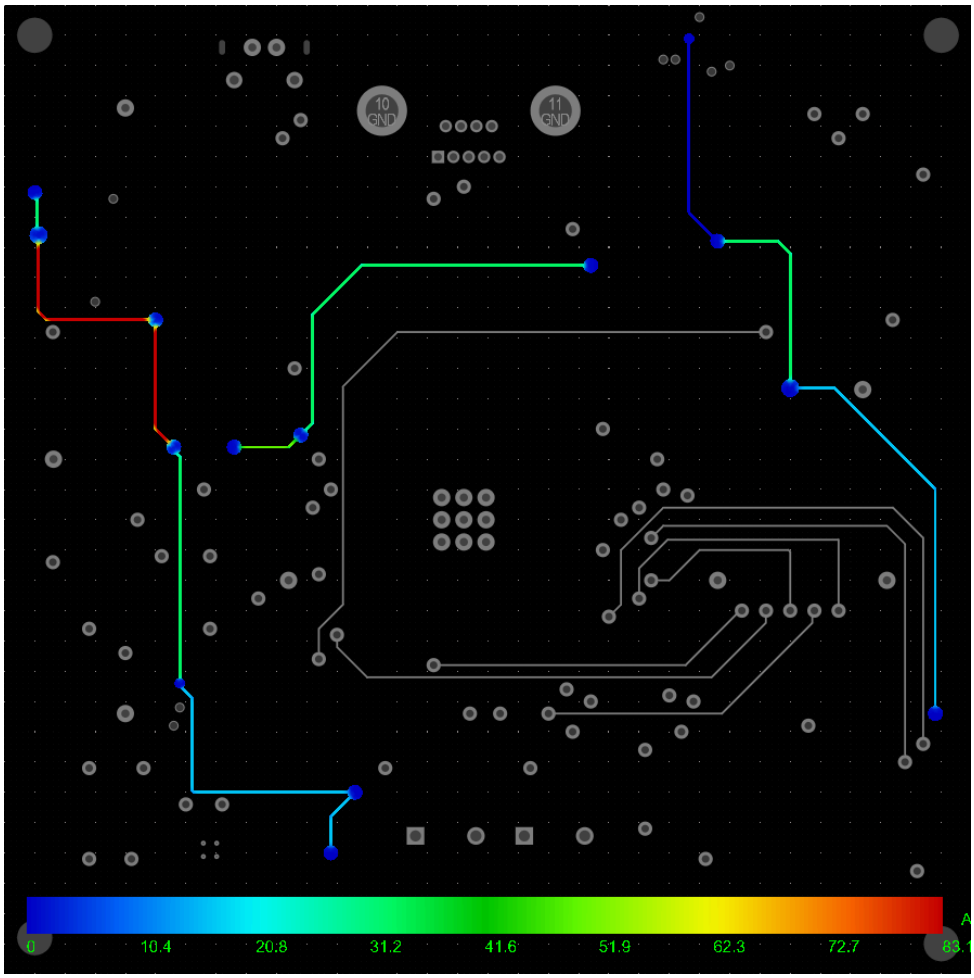
Layer: Top Layer



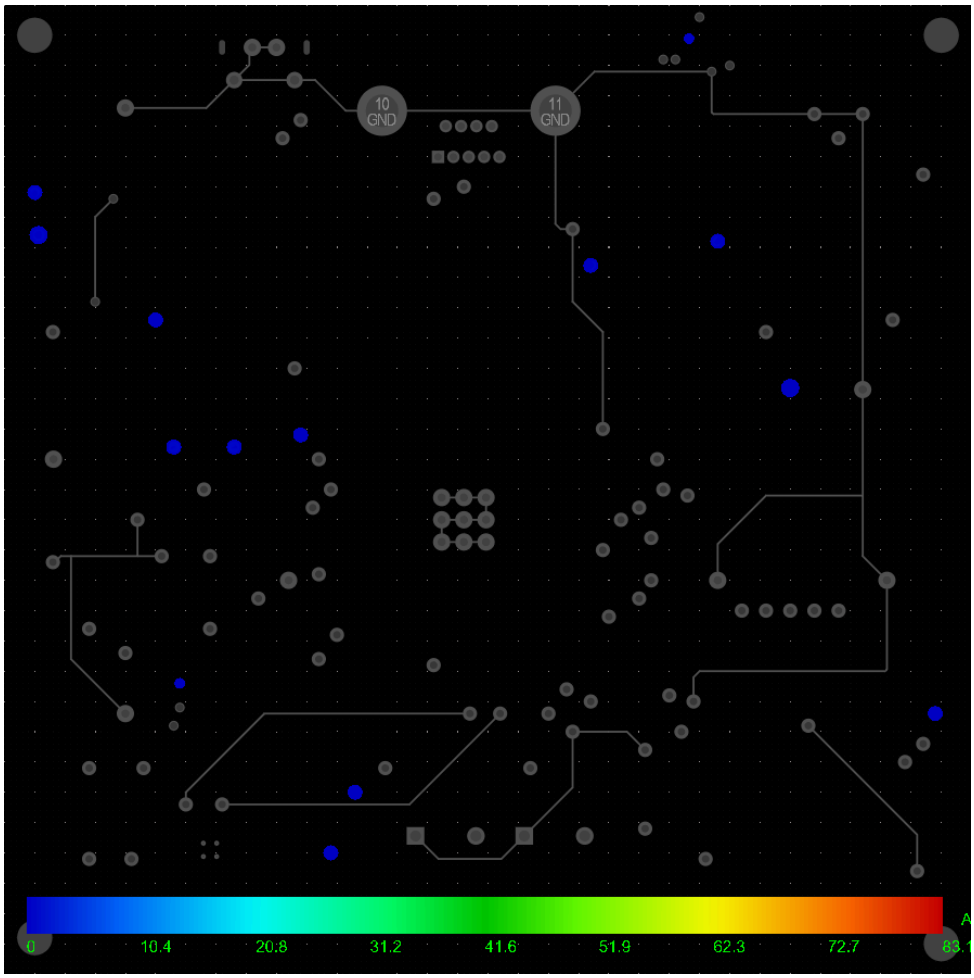
Layer: Bottom Layer



Layer: VDD

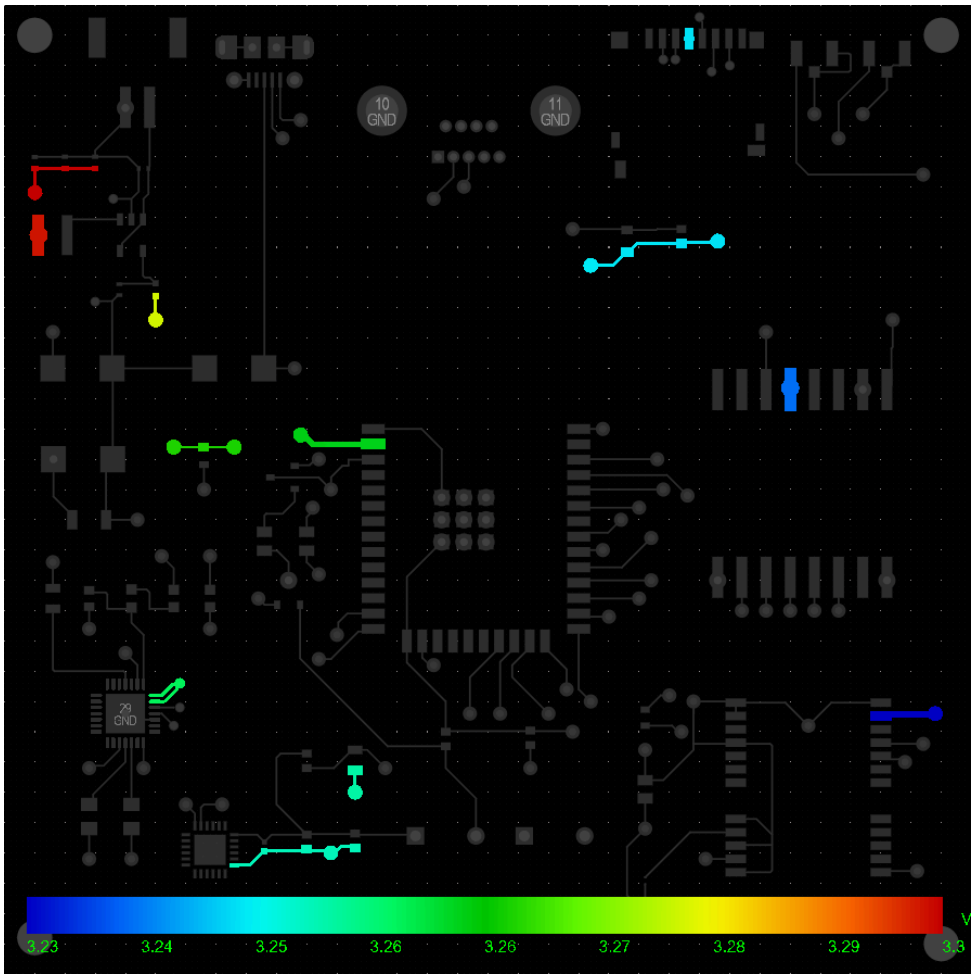


Layer: GND

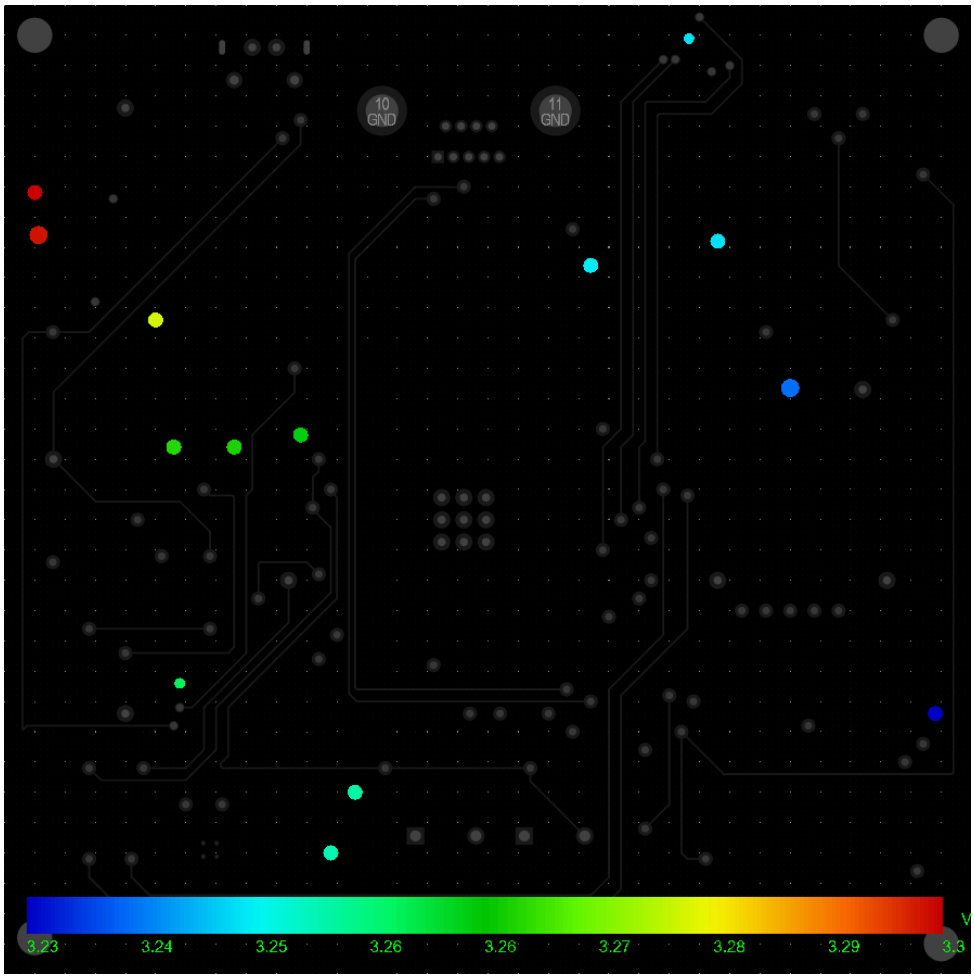


Heatmap For Voltage Drop −

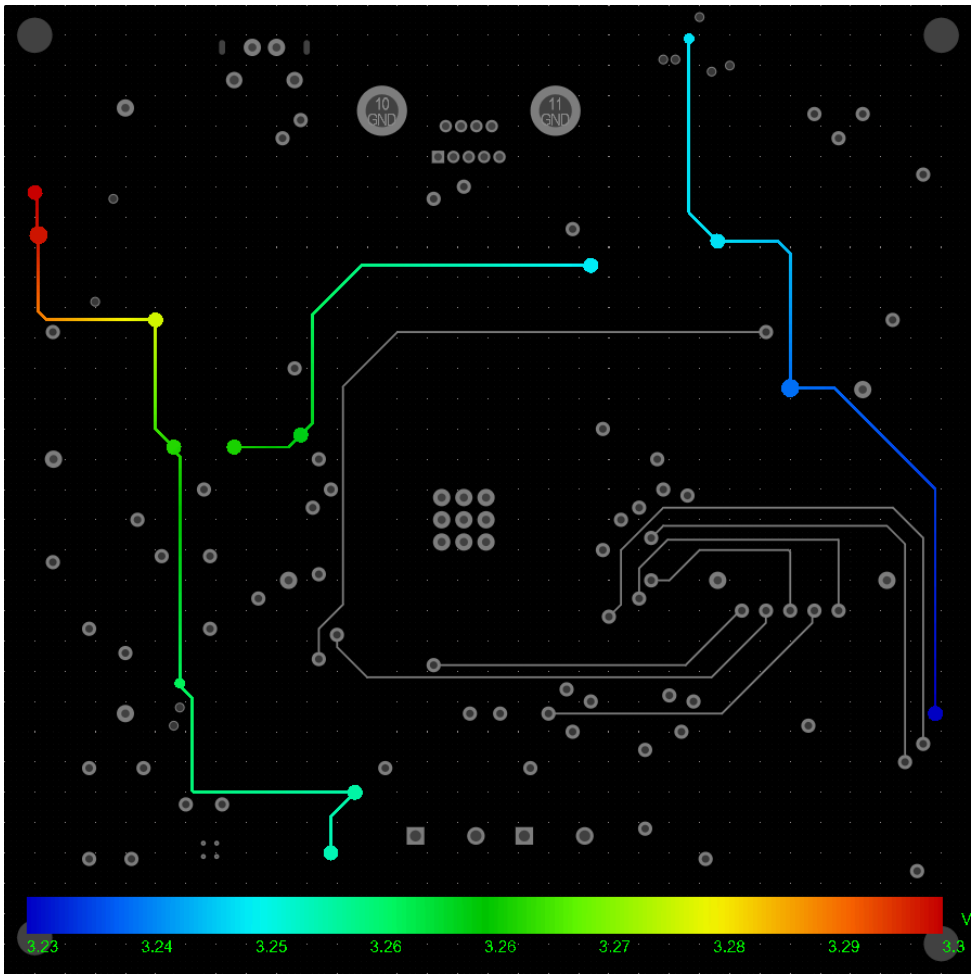
Layer: Top Layer



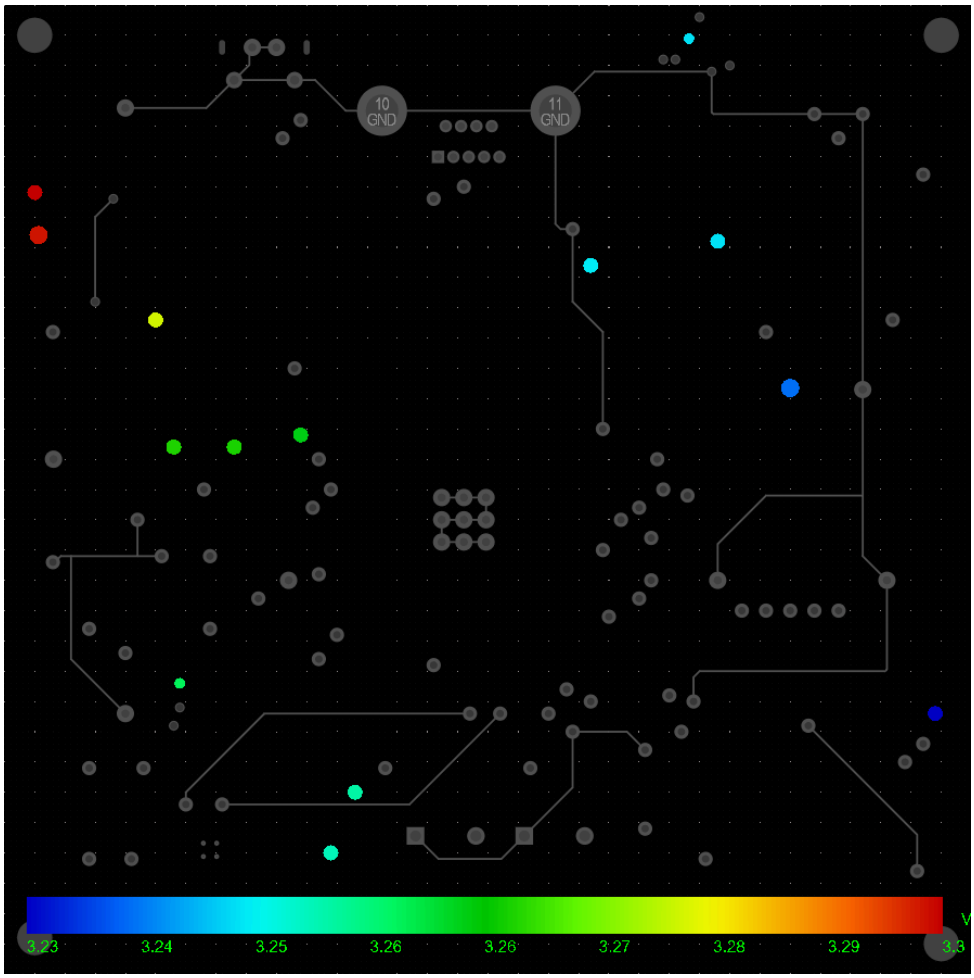
Layer: Bottom Layer



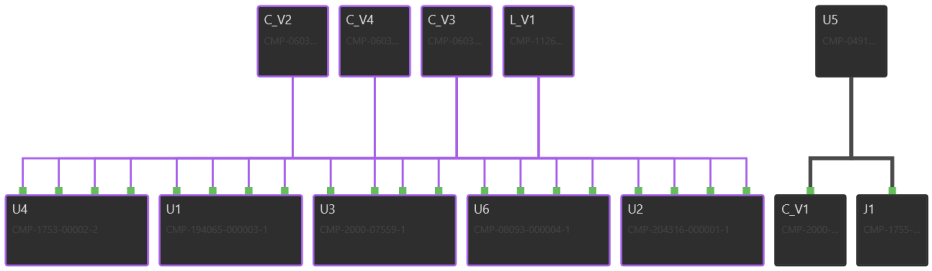
Layer: VDD



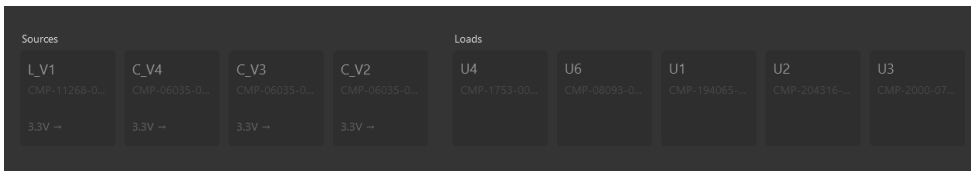
Layer: GND



System-Level Power Network Results



Network 3V3 Details



Power Analysis Pass/Fail: Pass

Power Consumption for This Network: 0 Watts

Least Margins:

Margin Type	Absolute	Pass/Fail
Non-Via Current Density (A/mm^2)	16.883	Pass
Via Current (A)	473.91m	Pass

Margin Type (%)	Percent	Pass/Fail
Non-Via Current Density	16.88%	Pass
Via Current	47.39%	Pass

Failed Via Summary:

Net	Location	Drill Diameter	Max Current (A)	Actual Current (A)	Margin (%)	Max Current Density	Actual Current Density	Margin (%)
3V3	12.5mm : 53.99999 mm	0.7112mm	1	526.09m	47.39%	0 (A/mm^2)	19.44 (A/mm^2)	∞
3V3	14.00002 mm : 43.49999 mm	0.7112mm	1	468.54m	53.15%	0 (A/mm^2)	55.566 (A/mm^2)	∞
3V3	14.5mm : 24mm	0.7112mm	1	239.03m	76.10%	0 (A/mm^2)	21.047 (A/mm^2)	∞
3V3	19.00001 mm : 43.49999 mm	0.7112mm	1	450.01m	55.00%	0 (A/mm^2)	48.27 (A/mm^2)	∞
3V3	2.51252 mm : 64.51249 mm	0.7112mm	1	292.78m	70.72%	0 (A/mm^2)	31.38 (A/mm^2)	∞
3V3	2.81498 mm : 60.99998 mm	0.762mm	1	457.23m	54.28%	0 (A/mm^2)	47.812 (A/mm^2)	∞
3V3	24.5mm : 44.5mm	0.7112mm	1	327.02m	67.30%	0 (A/mm^2)	23.745 (A/mm^2)	∞
3V3	27mm : 9.99998 mm	0.7112mm	1	150m	85.00%	0 (A/mm^2)	16.067 (A/mm^2)	∞
3V3	28.99999 mm : 15.00002 mm	0.7112mm	1	75.503m	92.45%	0 (A/mm^2)	2.7559 (A/mm^2)	∞
3V3	48.49998 mm : 58.50001 mm	0.7112mm	1	300.01m	70.00%	0 (A/mm^2)	32.195 (A/mm^2)	∞

Net	Location	Drill Diameter	Max Current (A)	Actual Current (A)	Margin (%)	Max Current Density	Actual Current Density	Margin (%)
3V3	56.62498 mm : 77.22499 mm	0.7112mm	1	639.07p	100.00%	0 (A/mm^2)	63.388n (A/mm^2)	∞
3V3	58.99998 mm : 60.50001 mm	0.7112mm	1	300.01m	70.00%	0 (A/mm^2)	32.169 (A/mm^2)	∞
3V3	65.00002 mm : 48.37501 mm	0.762mm	1	156.07m	84.39%	0 (A/mm^2)	16.132 (A/mm^2)	∞
3V3	77mm : 21.5mm	0.7112mm	1	150m	85.00%	0 (A/mm^2)	16.069 (A/mm^2)	∞
GND	10.99998 mm : 37.5mm	0.7112mm	1	150m	85.00%	0 (A/mm^2)	3.2295 (A/mm^2)	∞
GND	13mm : 34.5mm	0.7112mm	1	530.54f	100.00%	0 (A/mm^2)	20.456p (A/mm^2)	∞
GND	18.00001 mm : 76.50002 mm	0.6mm	1	75.993f	100.00%	0 (A/mm^2)	1.6904p (A/mm^2)	∞
GND	19.00001 mm : 73.8mm	0.85mm	1	82.758m	91.72%	0 (A/mm^2)	1.9357 (A/mm^2)	∞
GND	20.49998 mm : 76.50002 mm	0.762mm	1	1.1487p	100.00%	0 (A/mm^2)	21.485p (A/mm^2)	∞
GND	22.49998 mm : 76.50002 mm	0.762mm	1	369.89f	100.00%	0 (A/mm^2)	12.042p (A/mm^2)	∞
GND	24mm : 73.8mm	0.85mm	1	79.85m	92.02%	0 (A/mm^2)	1.8495 (A/mm^2)	∞
GND	25mm : 76.50002 mm	0.6mm	1	162.81f	100.00%	0 (A/mm^2)	3.6191p (A/mm^2)	∞
GND	3.99999 mm : 33.99998 mm	0.7112mm	1	627.65f	100.00%	0 (A/mm^2)	19.371p (A/mm^2)	∞
GND	31.23001 mm : 71.27001 mm	2.79mm	1	148.26m	85.17%	0 (A/mm^2)	282.24m (A/mm^2)	∞
GND	31.23001 mm : 71.27001 mm	0.762mm	1	148.26m	85.17%	0 (A/mm^2)	282.24m (A/mm^2)	∞

Net	Location	Drill Diameter	Max Current (A)	Actual Current (A)	Margin (%)	Max Current Density	Actual Current Density	Margin (%)
GND	33.99998 mm : 11.39998 mm	1mm	1	307.23m	69.28%	0 (A/mm^2)	3.7685 (A/mm^2)	∞
GND	33.99998 mm : 11.39998 mm	0.762mm	1	307.23m	69.28%	0 (A/mm^2)	3.7685 (A/mm^2)	∞
GND	36.16498 mm : 35.665mm	0.762mm	1	43.144u	100.00%	0 (A/mm^2)	792.66u (A/mm^2)	∞
GND	36.16498 mm : 37.5mm	0.762mm	1	2.8611u	100.00%	0 (A/mm^2)	50.965u (A/mm^2)	∞
GND	36.16498 mm : 39.335mm	0.762mm	1	909.49f	100.00%	0 (A/mm^2)	27.515p (A/mm^2)	∞
GND	38.00003 mm : 35.665mm	0.762mm	1	2.9711u	100.00%	0 (A/mm^2)	52.554u (A/mm^2)	∞
GND	38.00003 mm : 37.5mm	0.762mm	1	68.419n	100.00%	0 (A/mm^2)	1.2101u (A/mm^2)	∞
GND	38.00003 mm : 39.335mm	0.762mm	1	2.918p	100.00%	0 (A/mm^2)	61.995p (A/mm^2)	∞
GND	39.83502 mm : 35.665mm	0.762mm	1	41.303n	100.00%	0 (A/mm^2)	727.91n (A/mm^2)	∞
GND	39.83502 mm : 37.5mm	0.762mm	1	932.99p	100.00%	0 (A/mm^2)	16.556n (A/mm^2)	∞
GND	39.83502 mm : 39.335mm	0.762mm	1	20.71p	100.00%	0 (A/mm^2)	375.62p (A/mm^2)	∞
GND	43.00002 mm : 11.39998 mm	1mm	1	182.37m	81.76%	0 (A/mm^2)	3.065 (A/mm^2)	∞
GND	43.00002 mm : 11.39998 mm	0.762mm	1	182.37m	81.76%	0 (A/mm^2)	3.065 (A/mm^2)	∞
GND	45.58mm : 71.27001 mm	2.79mm	1	142.84m	85.72%	0 (A/mm^2)	264.51m (A/mm^2)	∞
GND	45.58mm :	0.762mm	1	142.84m	85.72%	0 (A/mm^2)	264.51m (A/mm^2)	∞

Net	Location	Drill Diameter	Max Current (A)	Actual Current (A)	Margin (%)	Max Current Density	Actual Current Density	Margin (%)
	71.27001 mm							
GND	47.00001 mm : 61.5mm	0.7112mm	1	24.693m	97.53%	0 (A/mm^2)	800.54m (A/mm^2)	∞
GND	47mm : 20mm	0.7112mm	1	132.9m	86.71%	0 (A/mm^2)	4.143 (A/mm^2)	∞
GND	49.5mm : 45mm	0.7112mm	1	55.373m	94.46%	0 (A/mm^2)	1.1922 (A/mm^2)	∞
GND	53mm : 18.5mm	0.7112mm	1	212.6m	78.74%	0 (A/mm^2)	4.6853 (A/mm^2)	∞
GND	56.99999 mm : 22.49998 mm	0.7112mm	1	62.597m	93.74%	0 (A/mm^2)	1.4365 (A/mm^2)	∞
GND	58.5mm : 74.5mm	0.7112mm	1	51.34m	94.87%	0 (A/mm^2)	1.6114 (A/mm^2)	∞
GND	59mm : 32.5mm	0.762mm	1	14.548u	100.00%	0 (A/mm^2)	256.06u (A/mm^2)	∞
GND	66.49999 mm : 20.49998 mm	0.7112mm	1	38.099u	100.00%	0 (A/mm^2)	802.27u (A/mm^2)	∞
GND	67mm : 71mm	0.7112mm	1	42.571m	95.74%	0 (A/mm^2)	1.4083 (A/mm^2)	∞
GND	7.5mm : 55.5mm	0.7112mm	1	150m	85.00%	0 (A/mm^2)	3.5648 (A/mm^2)	∞
GND	71.00001 mm : 48.24999 mm	0.762mm	1	87.39m	91.26%	0 (A/mm^2)	1.5493 (A/mm^2)	∞
GND	71mm : 71mm	0.7112mm	1	39.005m	96.10%	0 (A/mm^2)	1.2631 (A/mm^2)	∞
GND	73.00001 mm : 32.50001 mm	0.762mm	1	62.599m	93.74%	0 (A/mm^2)	1.1176 (A/mm^2)	∞
GND	75.5mm : 8.5mm	0.7112mm	1	5.4427u	100.00%	0 (A/mm^2)	117.19u (A/mm^2)	∞
GND	9.99998 mm : 21.49998 mm	0.762mm	1	150m	85.00%	0 (A/mm^2)	2.6395 (A/mm^2)	∞
GND	9.99998 mm :	0.762mm	1	142.78m	85.72%	0 (A/mm^2)	2.5293 (A/mm^2)	∞

Net	Location	Drill Diameter	Max Current (A)	Actual Current (A)	Margin (%)	Max Current Density	Actual Current Density	Margin (%)
	71.49998 mm							
GND	9mm : 64mm	0.7112mm	1	150m	85.00%	0 (A/mm^2)	3.5705 (A/mm^2)	∞