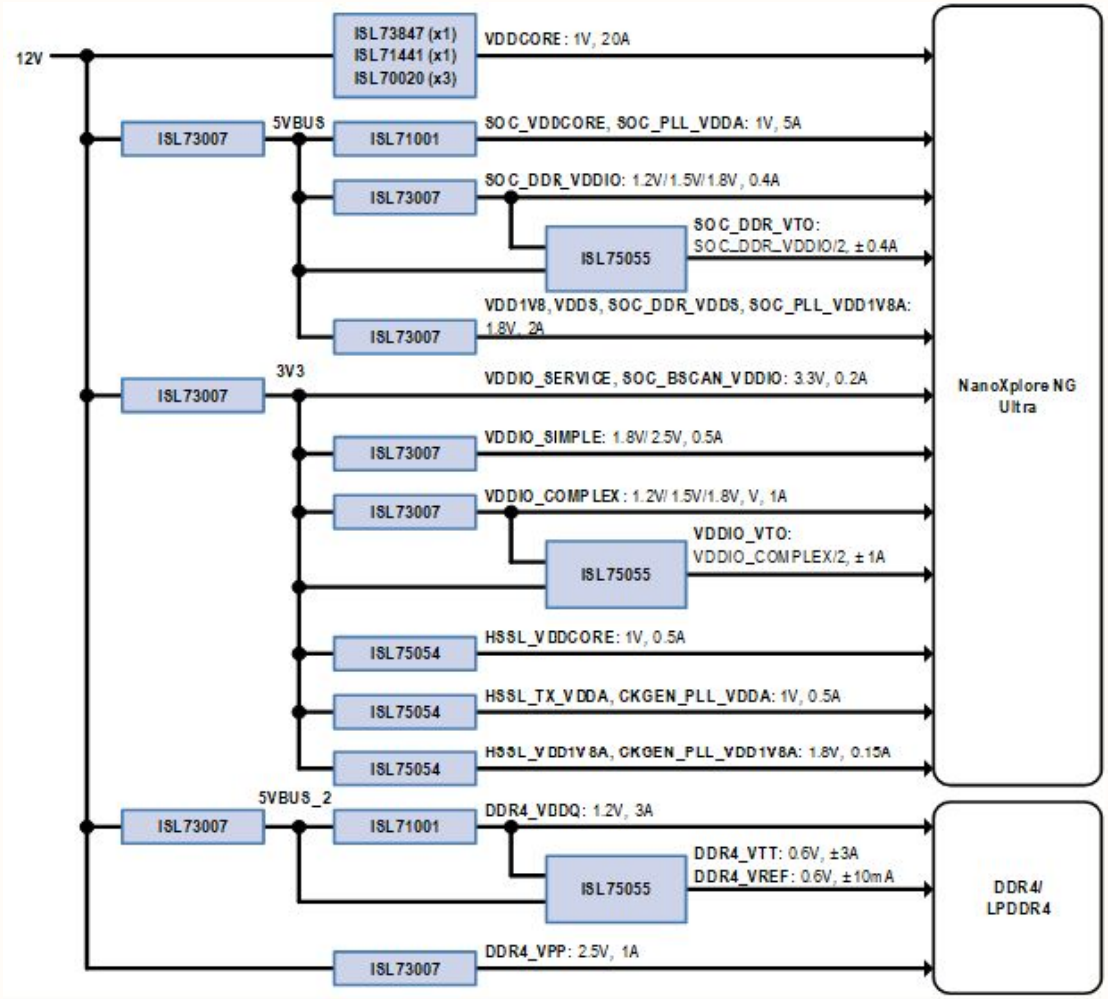
NG ULTRA

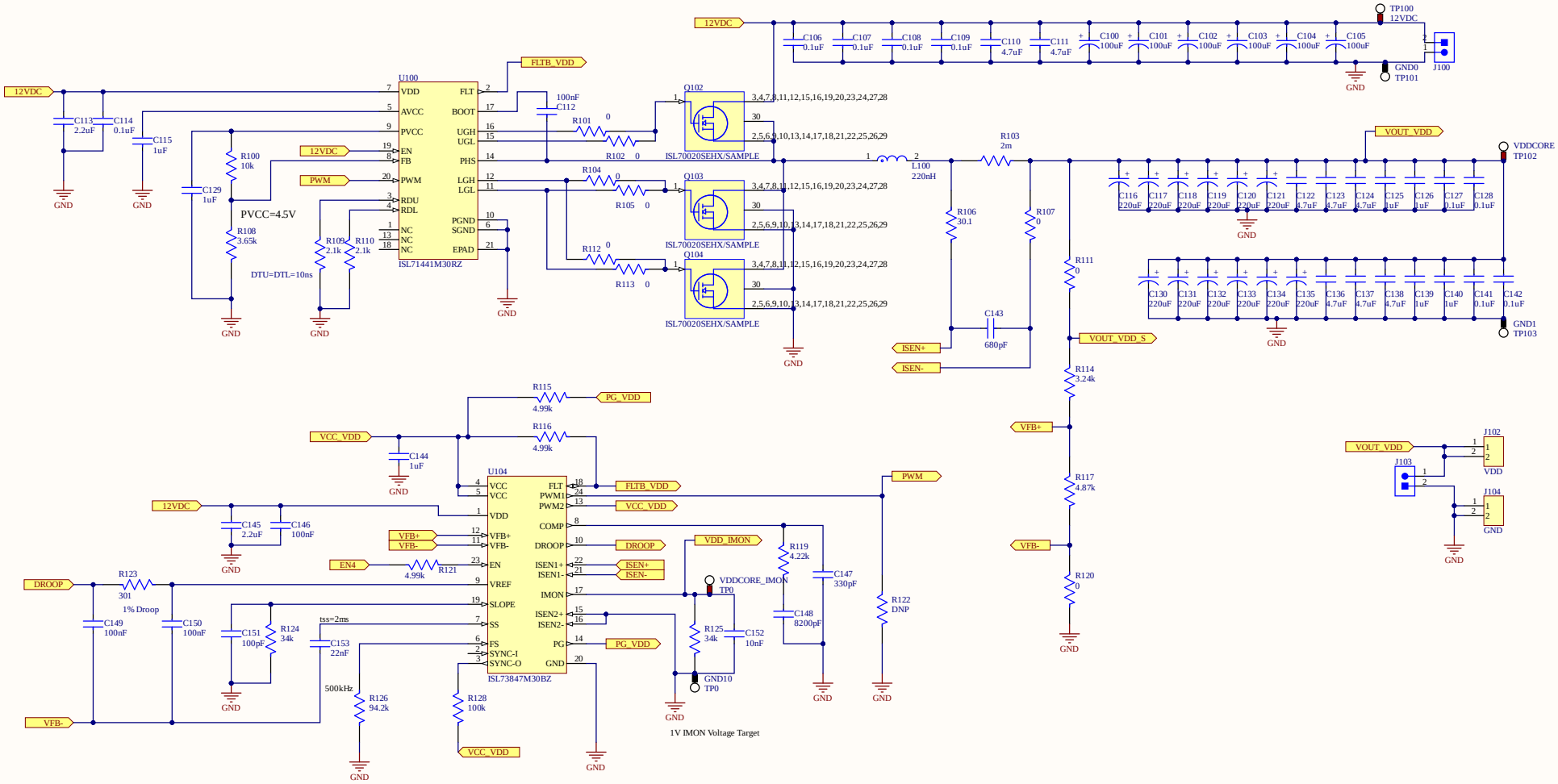
NX2H540AT



Rail Name	Rail Voltage (V)	Output Current (A)	Solution	Sequence
5VBUS	5	3	ISL73007	1
VDD1V8A VDDS_x SOC_DDR_VDDS SOC_PLL_VDD1V8A	1.8	2	ISL73007	2
VDDIO_SERVICE SOC_BSCAN_VDDIO	3.3	0.2	ISL73007	3
5VBUS_2	5	3	ISL73007	3
VDDCORE	1	20	ISL73847 ISL71441 ISL70020	4
SOC_VDDCORE SOC_PLL_VDDA	1	5	ISL71001	4
RST_HARD_N	N/A	N/A		5
SOC_DDR_VDDIO	1.2/1.5/1.8	0.4 (Plus 0.4 for VTO)	ISL73007	6
VDDIO_x (Simple)	1.8/2.5/3.3	0.5	ISL73007	6
VDDIO_x (Complex)	1.2/1.5/1.8	1 (Plus 1 for VTO)	ISL73007	6
HSSLx_VDDCORE	1	0.5	ISL75054	6
HSSLx_TXx_VDDA CKGENx_PLL_VDDA	1	0.5	ISL75054	6
HSSLx_VDD1V8A CKGENx_PLL_VDD1V8A	1.8	0.15	ISL75054	6
DDR_VDDQ	1.2/1.5/1.8	3 (Plus 3 for VTT)	ISL71001	6
SOC_DDR_VTO	SOC_BSCAN_VDDIO/2	±0.4	ISL75055	7
VTO_x	VDDIO_x (Complex)/2	±1	ISL75055	7
DDR_VTT	DDR_VDDQ/2	±3	ISL75055	7
DDR_VREF	DDR_VTT	±0.01		
DDR_VPP	2.5	1	ISL73007	8

Input: 12V +/-10%

VDDCore: 1V/20A

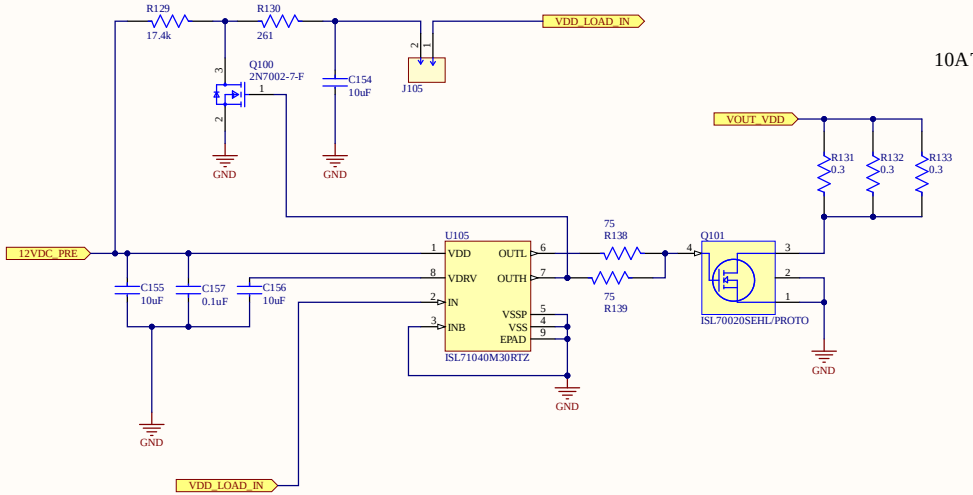


ISLNGULTRADEMO1Z	
Version:	Document Revision: A
Release Date: --/--/----	Sheet 2 of 23
File: ISLNGULTRADEMO1Z_VDD_Core.SchDoc	60

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RT0603BRD0794K2L

VDD Load Transient

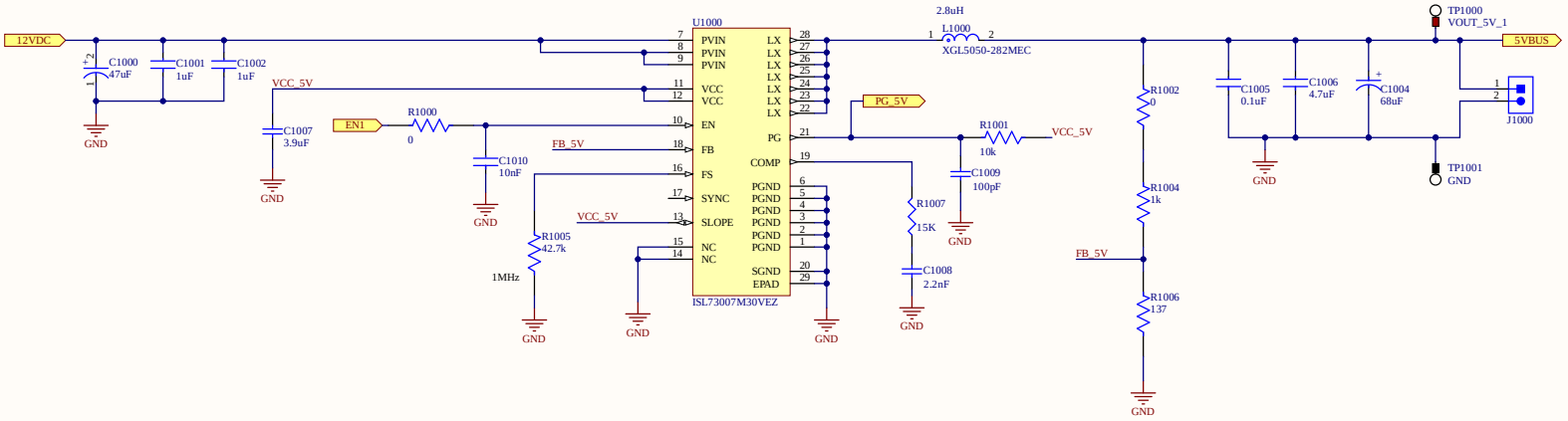


10A Transient

ISLNGULTRADEMO1Z			RENESAS	
Version:		Document Revision: A	www.renesas.com	
Release Date: --/--/----		Sheet 3 of 23		
File: ISLNGULTRADEMO1Z_VDD_LOAD.SchDoc		60	Last Updated: 7/5/2016	

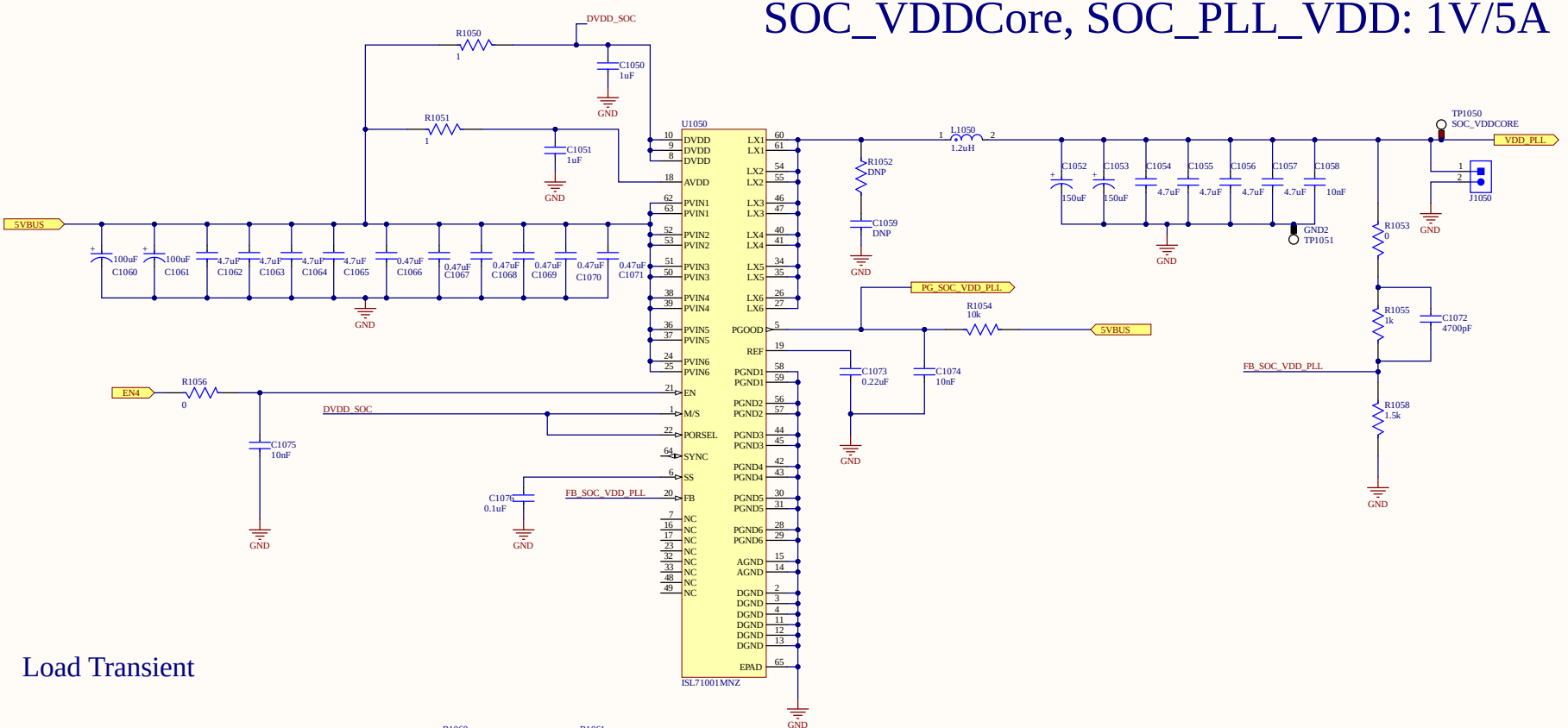
CONN HEADER VERT 2POS 2.54MM

5V BUS #1: 5V/3A

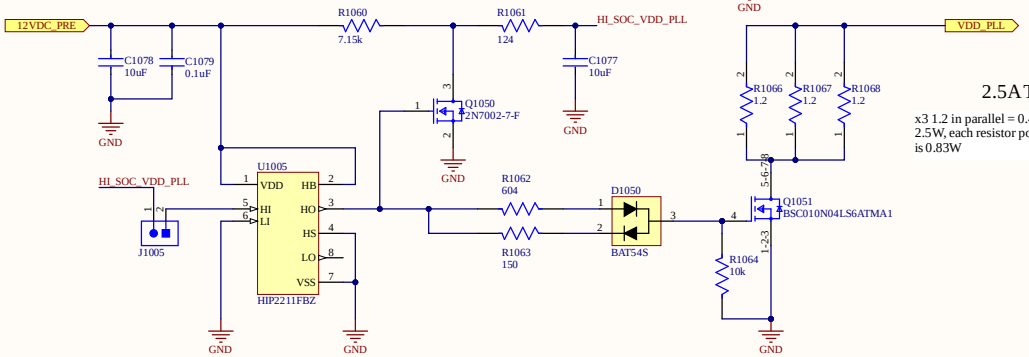


ISLNGULTRADEMO1Z			RENESAS
Version:		Document Revision: A	www.renesas.com
Release Date: --/--/----		Sheet 4 of 23	
File: ISLNGULTRADEMO1Z_5V.SchDoc		60	Last Updated: 7/8/2026

SOC_VDDCore, SOC_PLL_VDD: 1V/5A



Load Transient

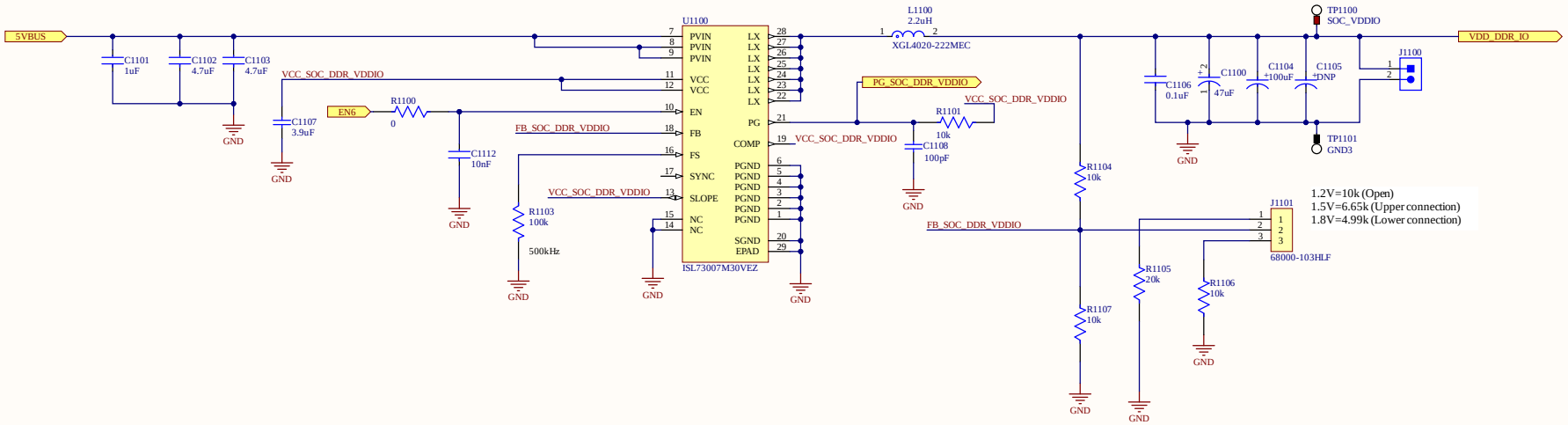


2.5A Transient

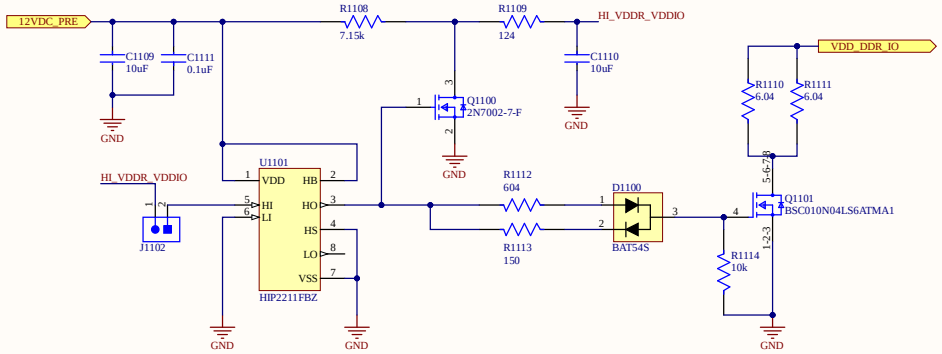
x3 1.2 in parallel = 0.4 ohm; 2.5W, each resistor power req is 0.83W

ISLNGULTRADEMO1Z		RENESAS
Version:	Document Revision: A	www.renesas.com
Release Date: --/--/----	Sheet 5 of 23	
File: ISLNGULTRADEMO1Z_SOC_VDD_Core_PLL_VDDA.SchDoc	60	Last Updated: 7/8/2105

SOC DDR VDDIO: 1.2V/1.5V/1.8V; 0.8A



Load Transient

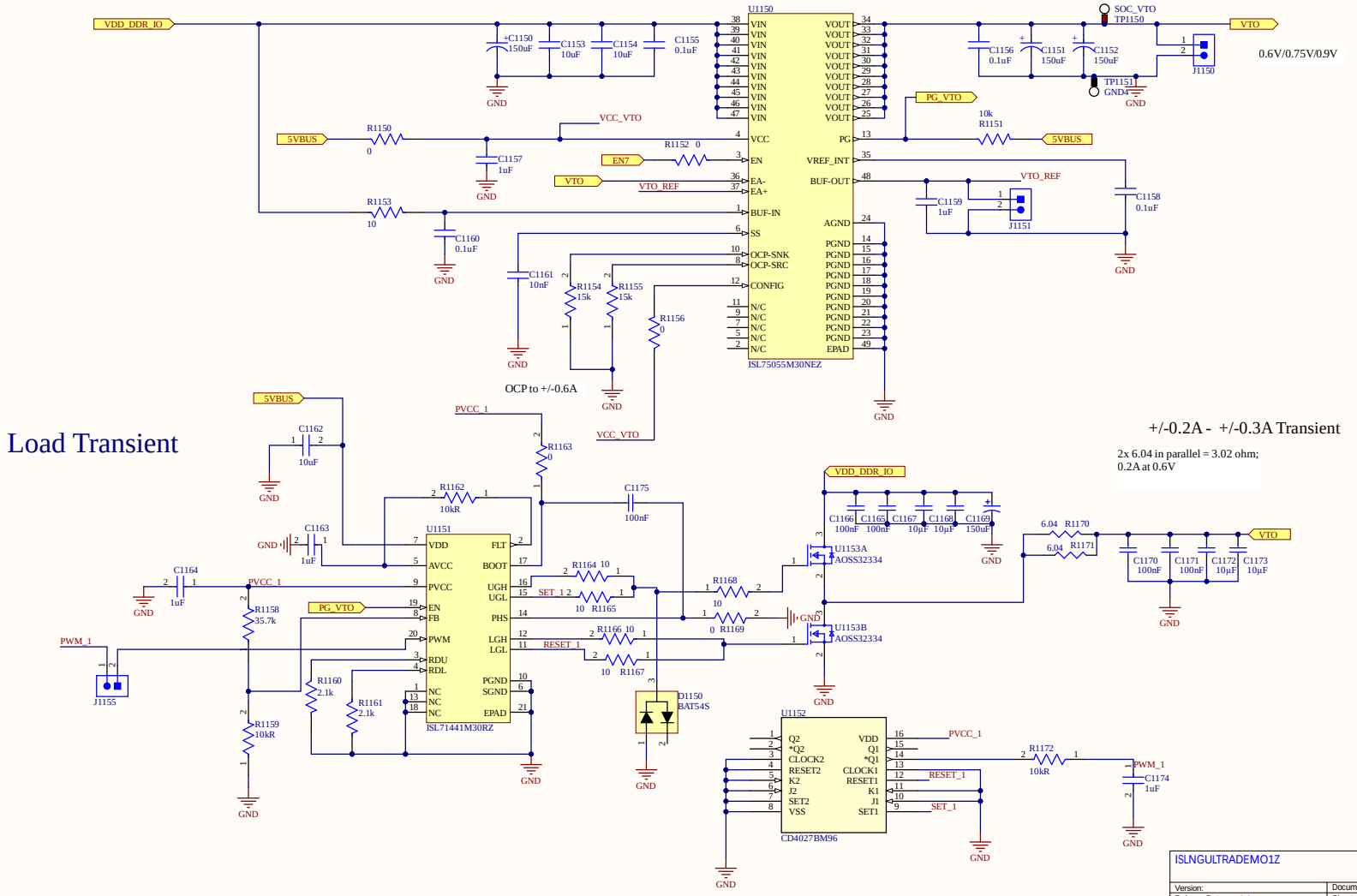


0.4A-0.6A Transient

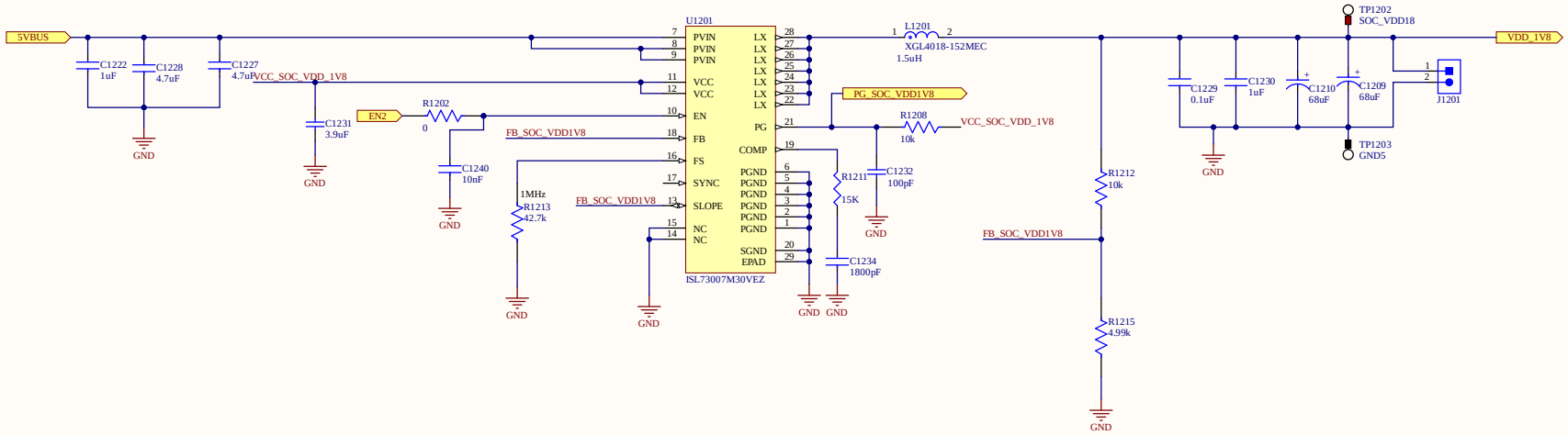
1.2V=3ohm/0.48W, two 6 parallel
1.5V=3.75ohm/0.6W, two 7.5 parallel
1.8V=4.5ohm/0.72W, two 9 parallel

ISLNGULTRADEMO1Z		RENESAS
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File: ISLNGULTRADEMO1Z_SOC_DDR_VDDIO.SchDoc	60	Last Updated: 7/7/2105

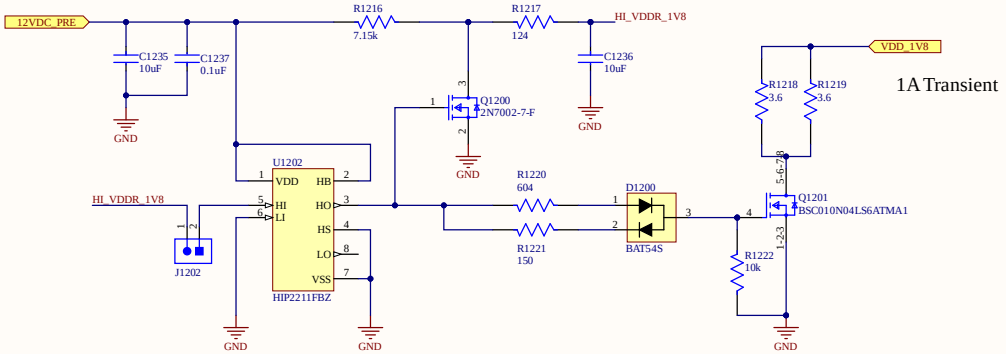
SOC DDR VTO: SOC_DDR_VDDIO/2, +/-0.4A



VDD1V8, VDDS, SOC_DDR_VDDS, SOC_PLL_VDD1V8A: 1.8V/ 2A



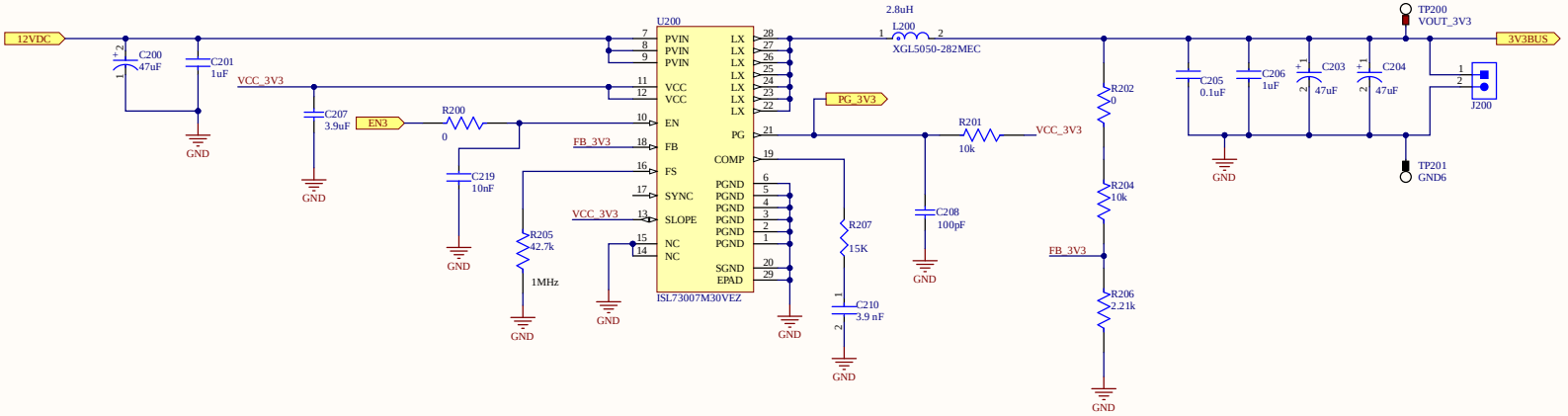
Load Transient



1A Transient

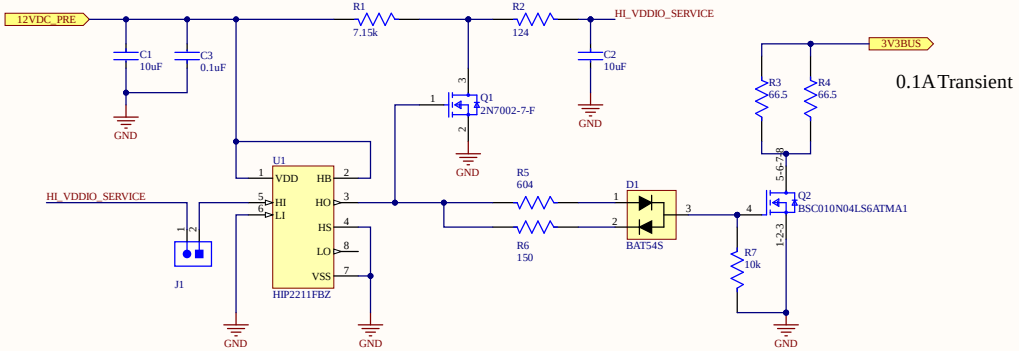
ISLNGULTRADEMO1Z			RENESAS
Version:		Document Revision: A	www.renesas.com
Release Date: --/--/----		Sheet 8 of 23	
File: ISLNGULTRADEMO1Z_SOC_VDD_1V8.SchDoc		60	Last Updated: 7/6/2026

3V3 BUS: 3.3V/3A



VDDIO_SERVICE,SOC_BSCAN_VDDIO: 3V3, 0.2A

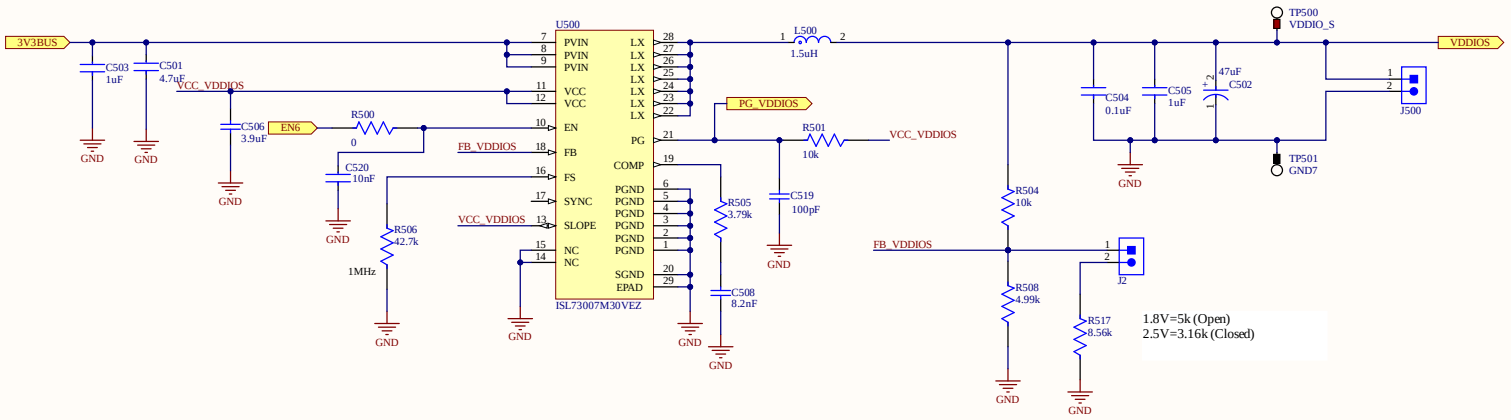
Load Transient



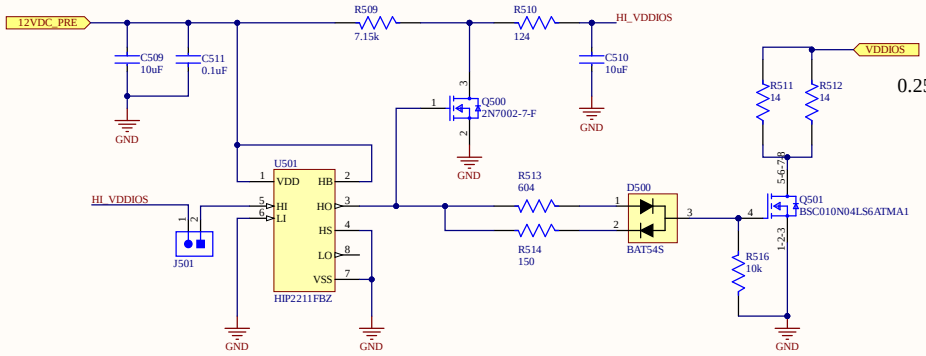
0.1A Transient

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File: ISLNGULTRADEMO1Z_3V3.SchDoc		60	Last Updated: 7/8/2026

VDDIO_Simple: 1.8V,2.5V/0.5A

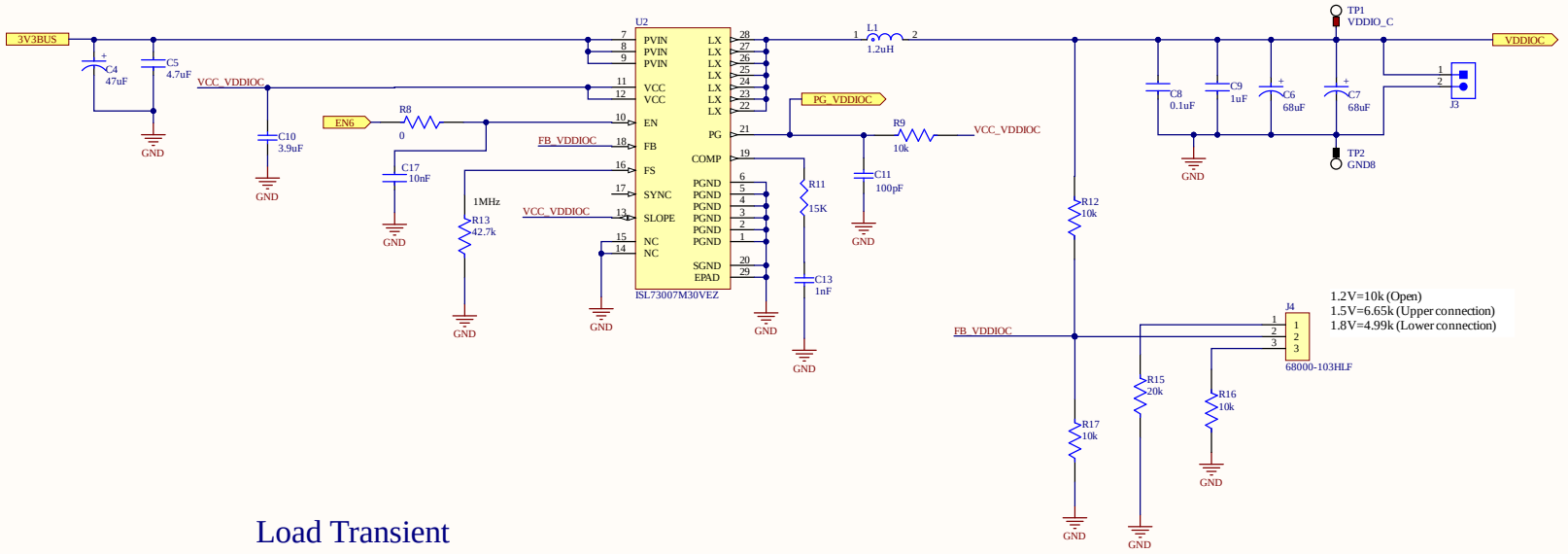


Load Transient

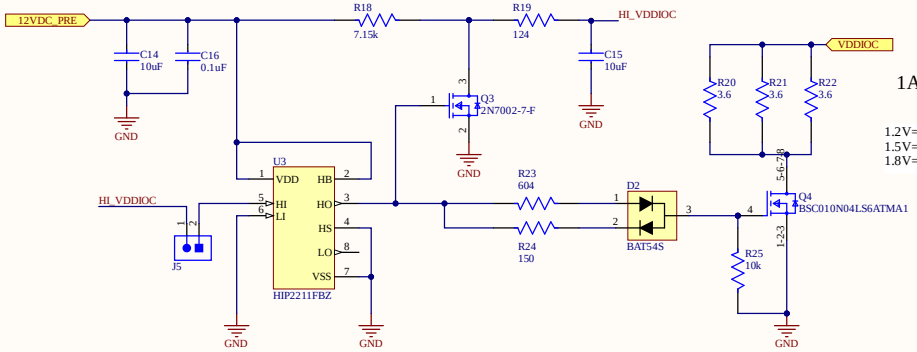


ISLNGULTRADEMO1Z		RENESAS www.renesas.com
Version:	Document Revision: A	
Release Date: --/--/----	Sheet 10 of 23	
File: ISLNGULTRADEMO1Z_VDDIO_Simple.SchDoc	60	Last Updated: 7/7/2105

VDDIO_Complex: 1.2V,1.5V,1.8V/ 2A

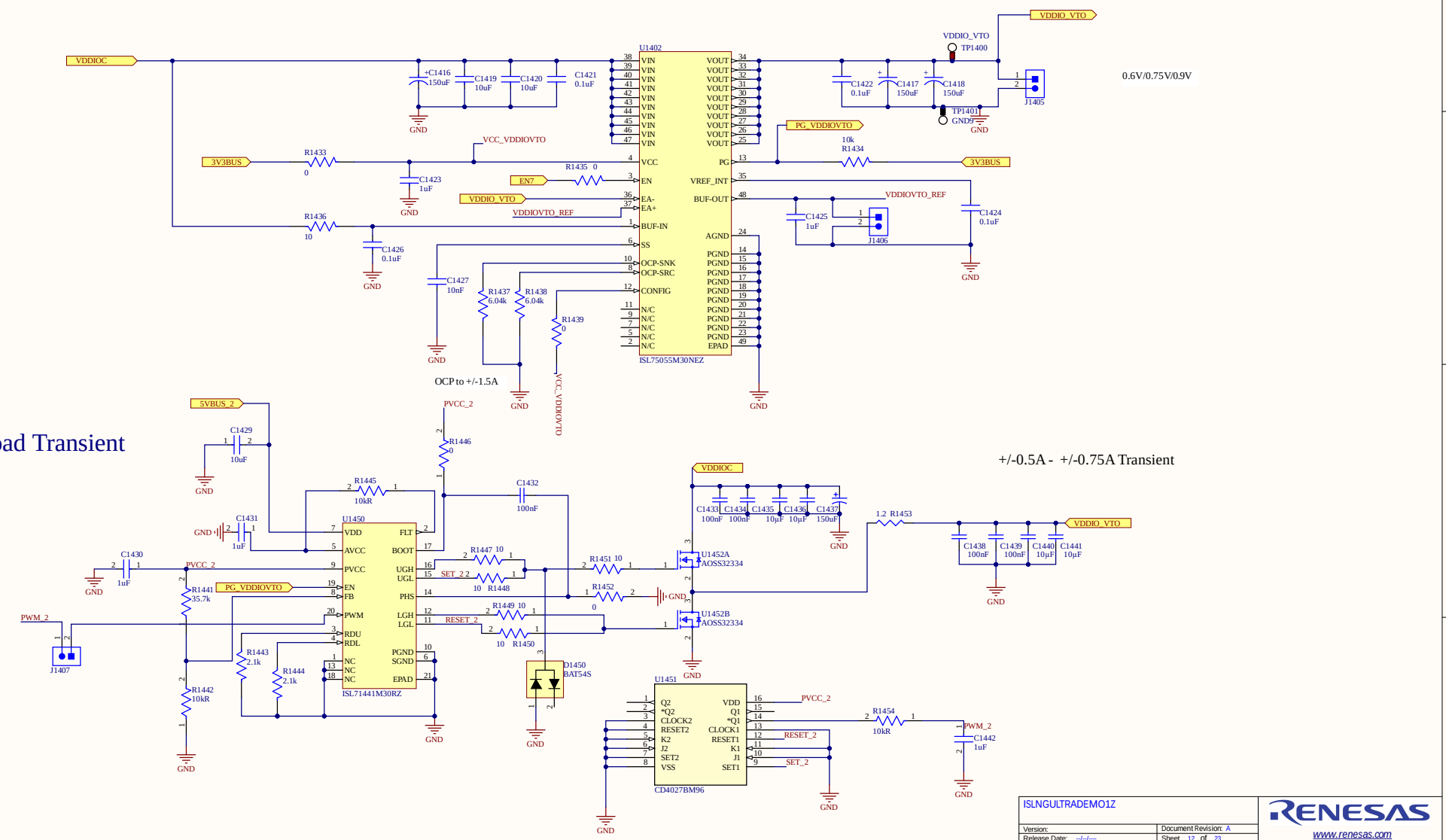


Load Transient



ISLNGULTRADEMO1Z		RENESAS
Version:	Document Revision: A	www.renesas.com
Release Date: --/--/----	Sheet 11 of 23	
File: ISLNGULTRADEMO1Z_VDDIO_Complex.SchDoc	60	Last Updated: 7/6/2026

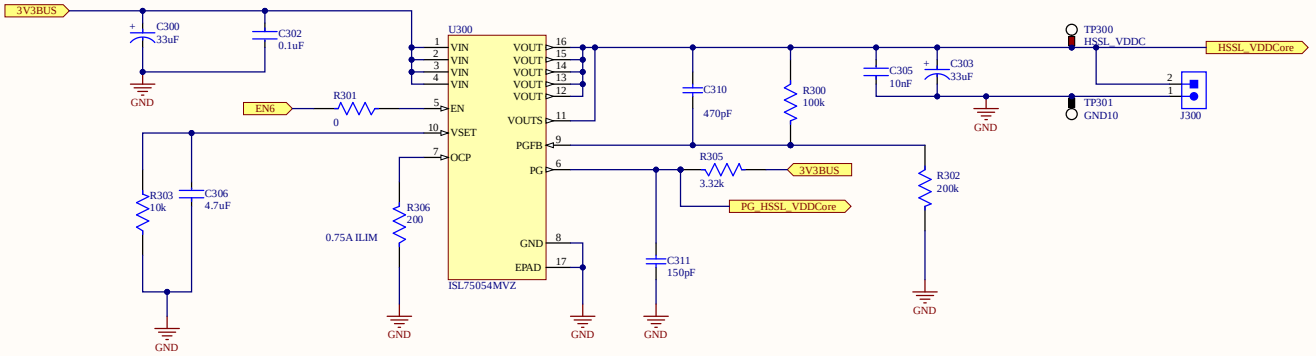
VDDIO VTO: VDDIO_Complex/2, +/-1A



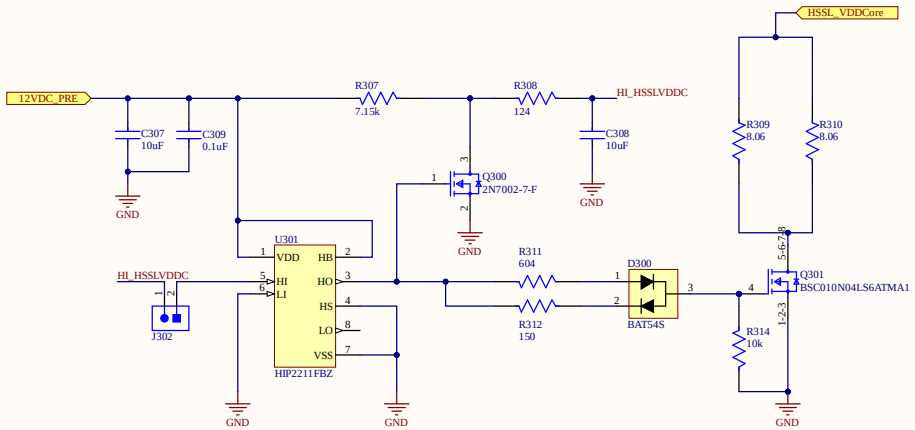
ISLNGULTRADEMO1Z	
Version:	Document Revision: A
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File: ISLNGULTRADEMO1Z_VDDIO_VTO.SchDoc	60

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HSSL_VDDCORE: 1V/ 0.5A



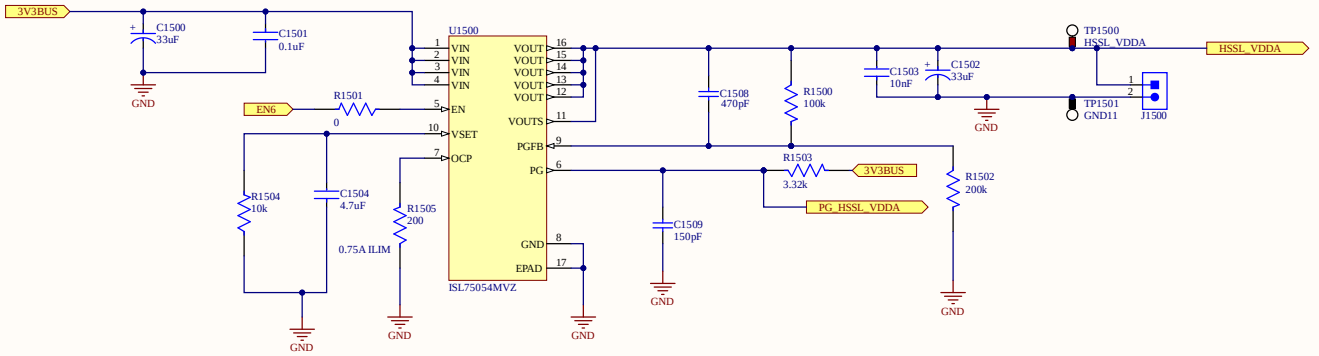
Load Transient



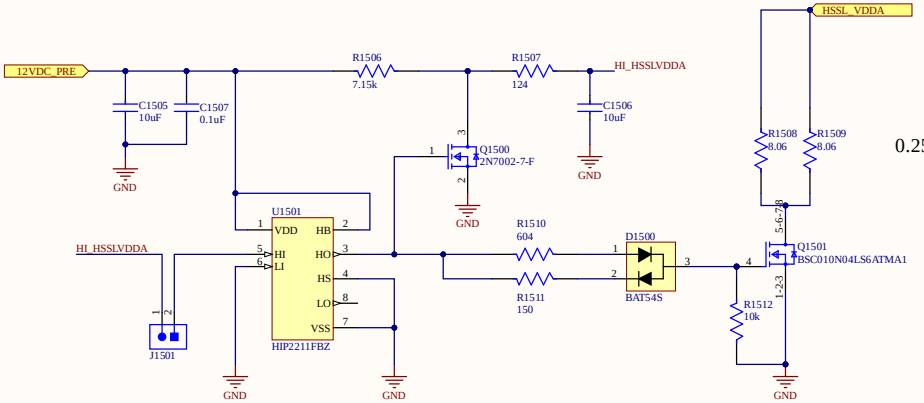
0.25A Transient

ISLNGULTRADEMO1Z		RENESAS
Version:	Document Revision: A	www.renesas.com
Release Date: --/--/----	Sheet 13 of 23	
File: ISLNGULTRADEMO1Z_HSSL_VDDCore.SchDoc	60	Last Updated: 7/5/2016

HSSL_TX_VDDA,CKGEN_PLL_VDDA: 1V/ 0.5A



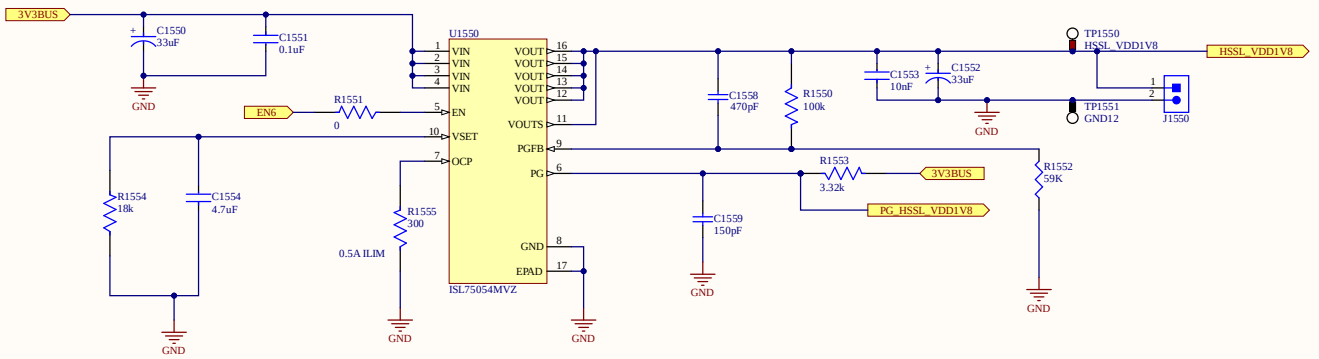
Load Transient



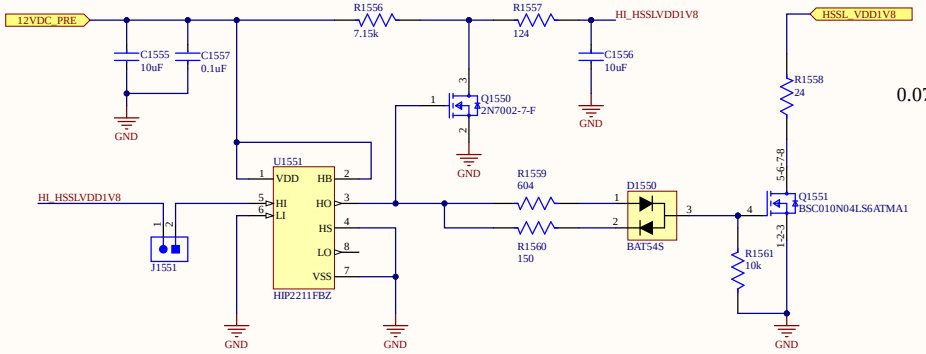
0.25A Transient

ISLNGULTRADEMO1Z			RENESAS
Version:		Document Revision: A	www.renesas.com
Release Date: --/--/----		Sheet 14 of 23	
File: ISLNGULTRADEMO1Z_HSSL_VDDA.SchDoc			60

HSSL_VDD1V8,CKGEN_PLL_VDD1V8: 1.8V/ 0.15A



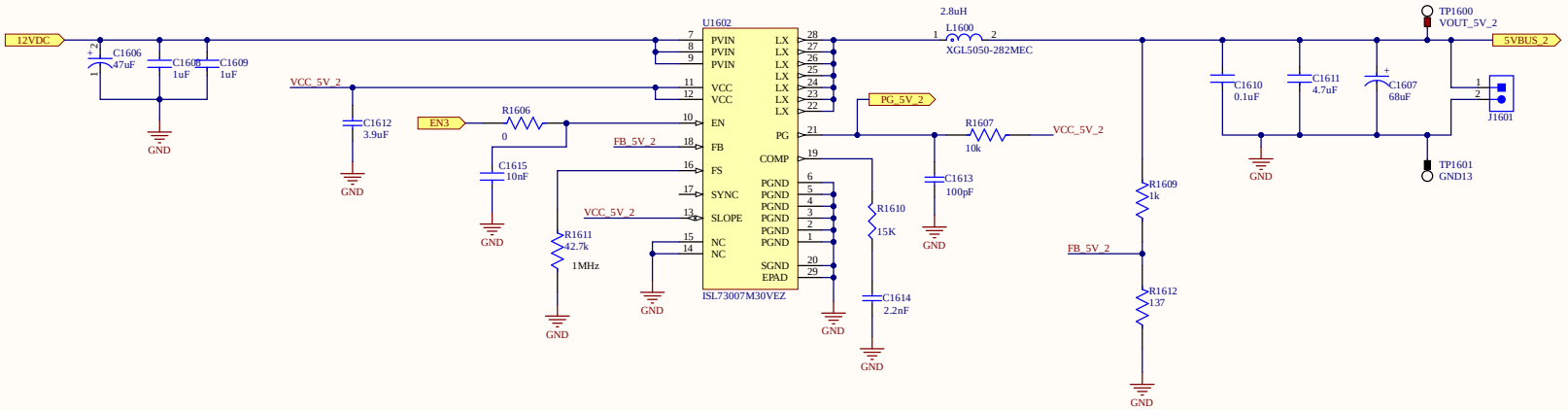
Load Transient



0.075A Transient

ISLNGULTRADEMO1Z		RENESAS
Version:	Document Revision: A	www.renesas.com
Release Date: --/--/----	Sheet 15 of 23	
File: ISLNGULTRADEMO1Z_HSSL_VDD1V8.SchDoc	60	Last Updated: 7/5/2016

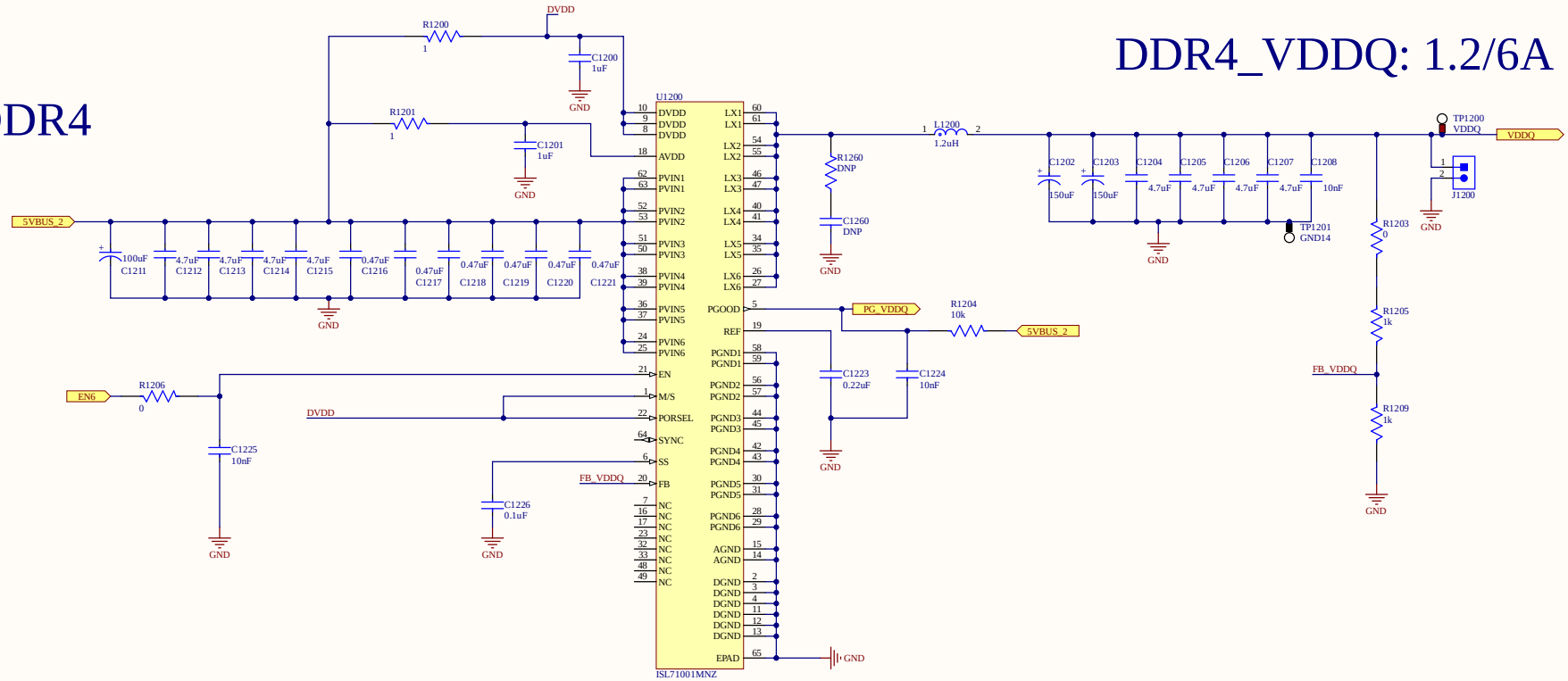
5V BUS #2: 5V/3A



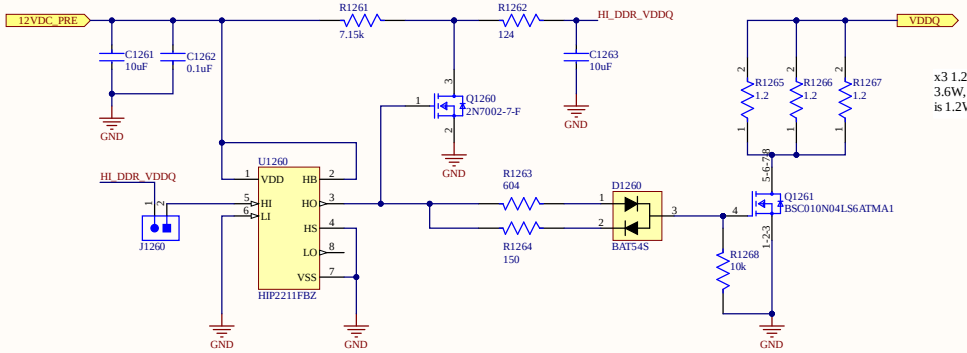
ISLNGULTRADEMO1Z		RENESAS
Version:	Document Revision: A	www.renesas.com
Release Date: --/--/----	Sheet 16 of 23	
File: ISLNGULTRADEMO1Z_5VBUS_2.SchDoc	60	Last Updated: 7/8/2105

DDR4

DDR4_VDDQ: 1.2/6A



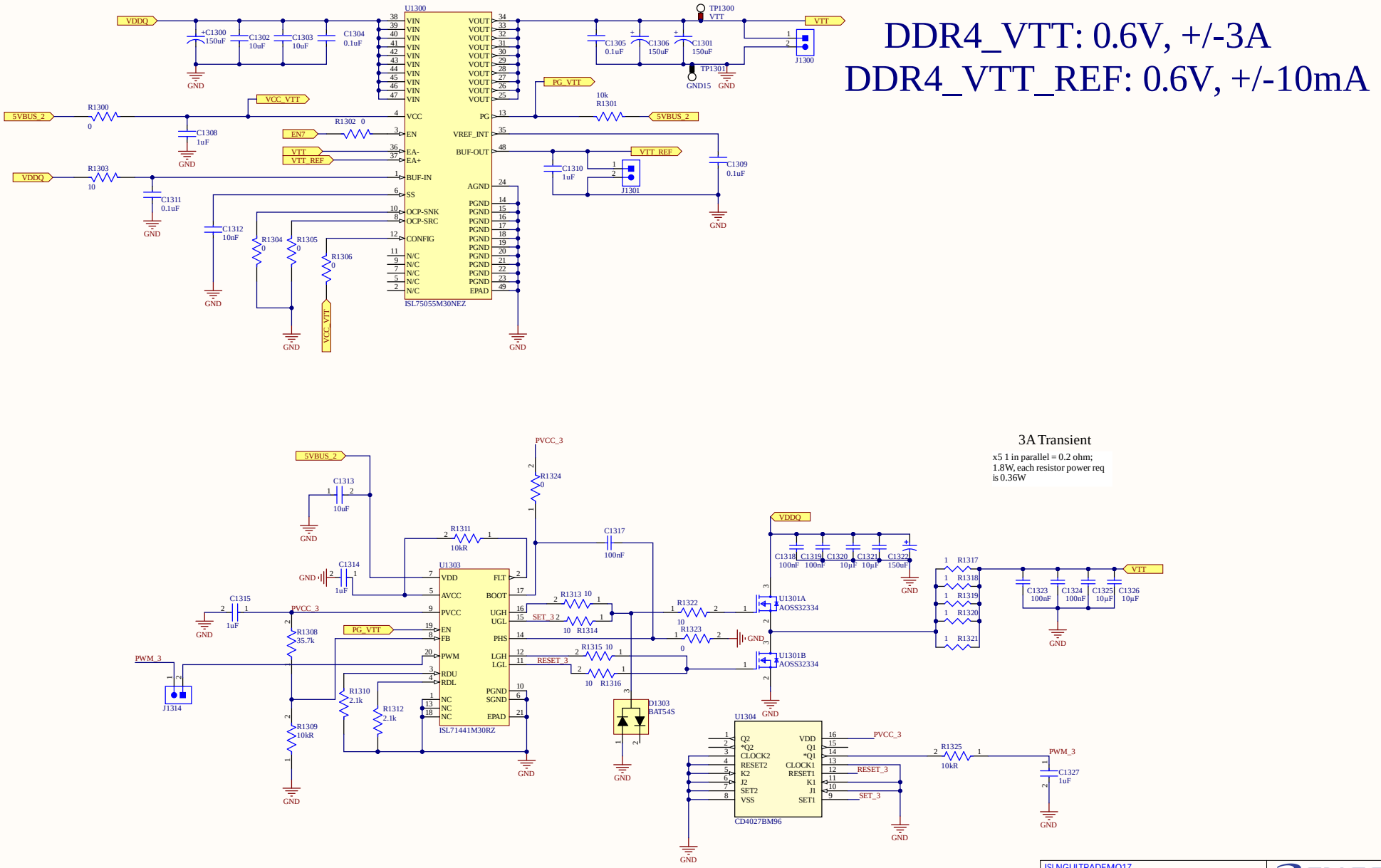
Load Transient



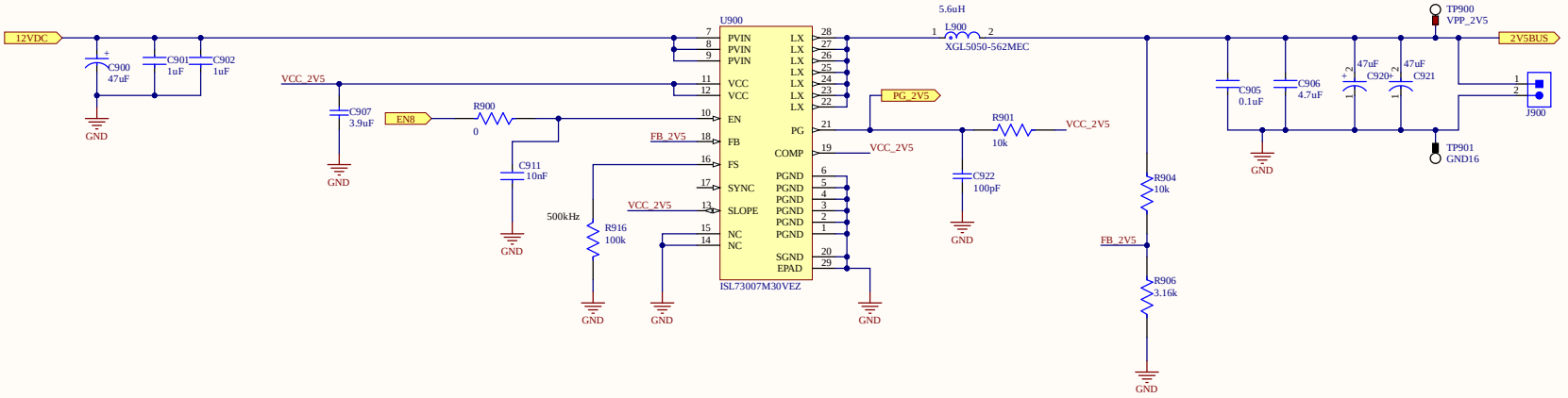
3A Transient

x3 1.2 in parallel = 0.4 ohm; 3.6W, each resistor power req is 1.2W

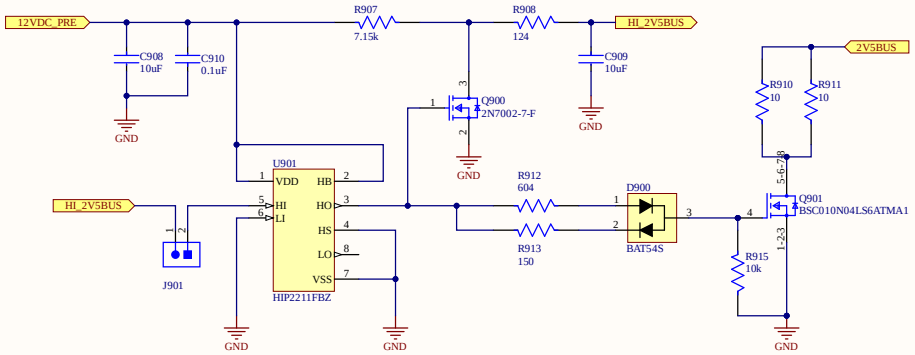
ISLNGULTRADEMO1Z		RENESAS
Version:	Document Revision: A	www.renesas.com
Release Date: --/--/----	Sheet 17 of 23	
File: ISLNGULTRADEMO1Z_DDR_VDDQ.SchDoc	60	Last Updated: 7/8/2026


DDR4_VTT: 0.6V, +/-3A
DDR4_VTT_REF: 0.6V, +/-10mA
3A Transient
x5 1 in parallel = 0.2 ohm;
1.8W, each resistor power req
is 0.36W
U1300
ISL75055M30NEZ
U1303
ISL71441M30RZ
U1304
CD4027BM96
U1301A
AOSS32334
U1301B
AOSS32334
D1303
BAT54S
J1300
J1301
J1314
TP1300
TP1301
VDDQ
VTT
VCC_VTT
VTT_REF
PG_VTT
5VBUS_2
PVCC_3
PWM_3
EN7
RESET_3
SET_3
GND
GND15
ISLNGULTRADEMO1Z
Version:
Release Date: --/--/----
File: ISLNGULTRADEMO1Z_DDR_VTT.SchDoc
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60
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DDR4_VPP: 2.5V/1A

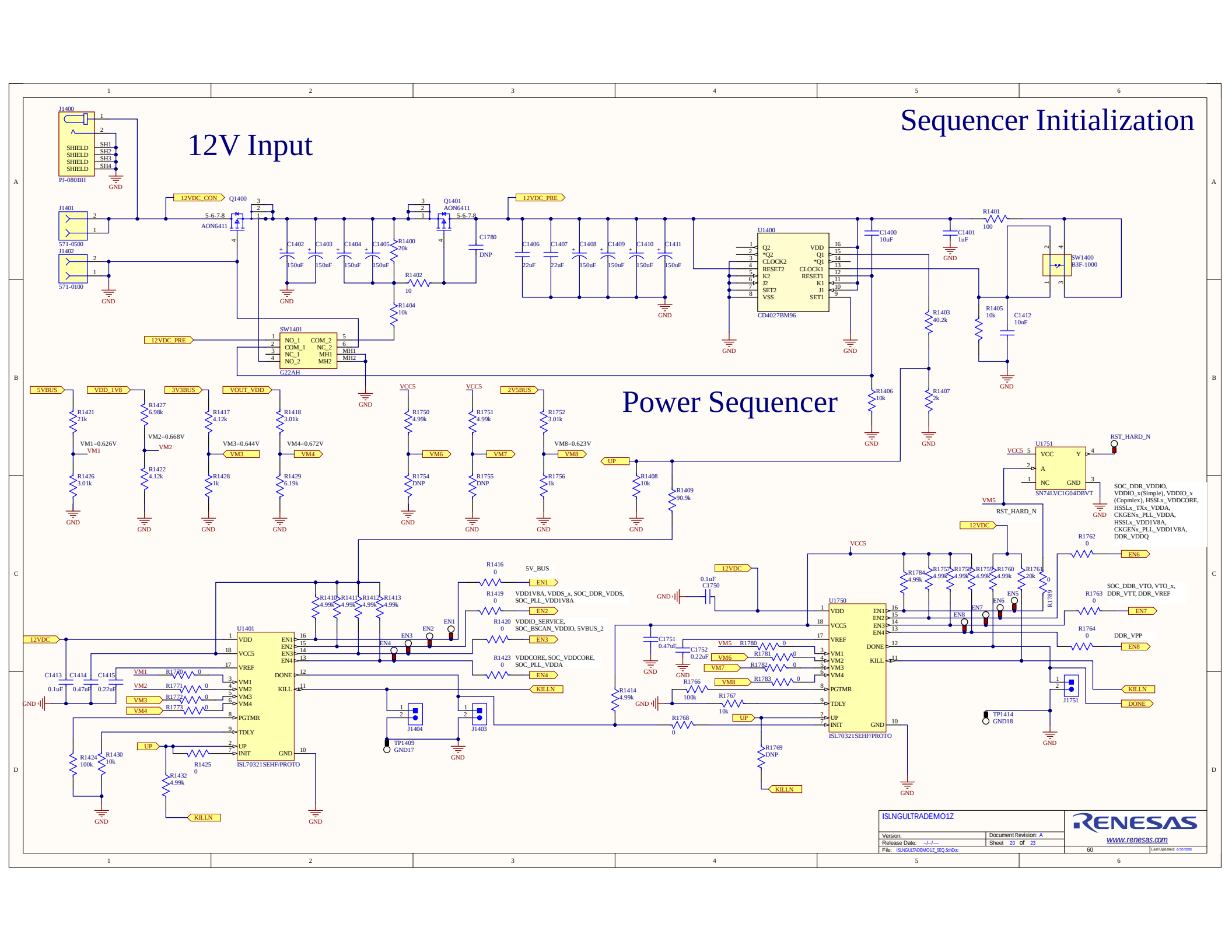


Load Transient



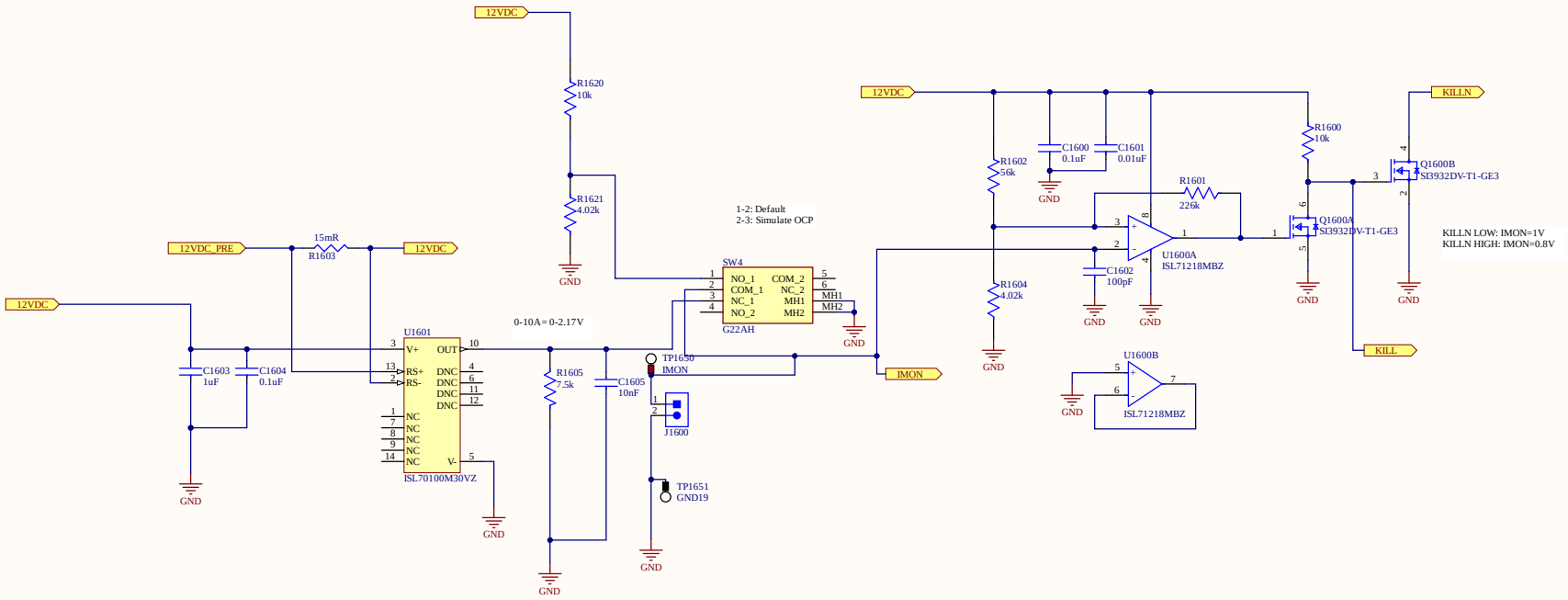
0.5A Transient

ISLNGULTRADEMO1Z			RENESAS
Version:		Document Revision: A	www.renesas.com
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File: ISLNGULTRADEMO1Z_2V5.SchDoc		60	Last Updated: 7/5/2016


Sequencer Initialization
12V Input
Power Sequencer
J1400
PJ-080BH
SHIELD
SH1
SH2
SH3
SH4
GND
J1401
571-0500
J1402
571-0100
12VDC_CON
Q1400
AON6411
5-6-7-8
Q1401
12VDC_PRE
C1402
C1403
C1404
C1405
150uF
R1400
20k
R1402
10
R1404
10k
C1780
DNP
C1406
C1407
C1408
C1409
C1410
C1411
22uF
150uF
U1400
CD4027BM96
Q2
*Q2
CLOCK2
RESET2
K2
J2
SET2
VSS
VDD
Q1
*Q1
CLOCK1
RESET1
K1
J1
SET1
C1400
10uF
C1401
1uF
R1401
100
SW1400
B3F-1000
R1403
40.2k
R1405
10k
C1412
10nF
SW1401
G22AH
NO_1
COM_1
NC_1
NO_2
COM_2
NC_2
MH1
MH2
R1406
10k
R1407
2k
5VBUS
VDD_1V8
3V3BUS
VOUT_VDD
2V5BUS
R1421
21k
R1426
3.01k
R1427
6.98k
R1422
4.12k
R1417
4.12k
R1428
1k
R1418
3.01k
R1429
6.19k
VM1=0.626V
VM1
VM2=0.668V
VM2
VM3=0.644V
VM3
VM4=0.672V
VM4
VCC5
R1750
4.99k
R1754
DNP
VM6
R1751
4.99k
R1755
DNP
VM7
R1752
3.01k
R1756
1k
VM8=0.623V
VM8
UP
R1408
10k
R1409
90.9k
U1751
SN74LVC1G04DBVT
VCC5
A
NC
Y
RST_HARD_N
VM5
SOC_DDR_VDDIO, VDDIO_x(Simple), VDDIO_x (Copmlex), HSSLx_VDDCORE, HSSLx_TXx_VDDA, CKGENx_PLL_VDDA, HSSLx_VDD1V8A, CKGENx_PLL_VDD1V8A, DDR_VDDQ
12VDC
R1762
0
EN6
R1784
4.99k
R1757
4.99k
R1758
4.99k
R1759
4.99k
R1760
4.99k
R1761
20k
R1789
0
EN5
EN7
EN8
R1763
0
SOC_DDR_VTO, VTO_x, DDR_VTT, DDR_VREF
R1764
0
DDR_VPP
KILLN
DONE
J1751
TP1414
GND18
U1401
ISL70321SEHF/PROTO
VDD
VCC5
VREF
VM1
VM2
VM3
VM4
PGTMR
TDLY
UP
INIT
EN1
EN2
EN3
EN4
DONE
KILL
GND
R1410
4.99k
R1411
4.99k
R1412
4.99k
R1413
4.99k
R1416
0
5V_BUS
R1419
0
VDD1V8A, VDDS_x, SOC_DDR_VDDS, SOC_PLL_VDD1V8A
R1420
0
VDDIO_SERVICE, SOC_BSCAN_VDDIO, 5VBUS_2
R1423
0
VDDCORE, SOC_VDDCORE, SOC_PLL_VDDA
C1413
0.1uF
C1414
0.47uF
C1415
0.22uF
R1770
R1771
R1772
R1773
R1424
100k
R1430
10k
R1425
0
R1432
4.99k
KILLN
J1404
J1403
TP1409
GND17
U1750
ISL70321SEHF/PROTO
C1750
0.1uF
C1751
0.47uF
C1752
0.22uF
R1780
R1781
R1782
R1783
R1766
100k
R1767
10k
R1768
0
R1414
4.99k
R1769
DNP
ISLNGULTRADEMO1Z
Version:
Release Date:
File:
Document Revision: A
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RENESAS
www.renesas.com
60

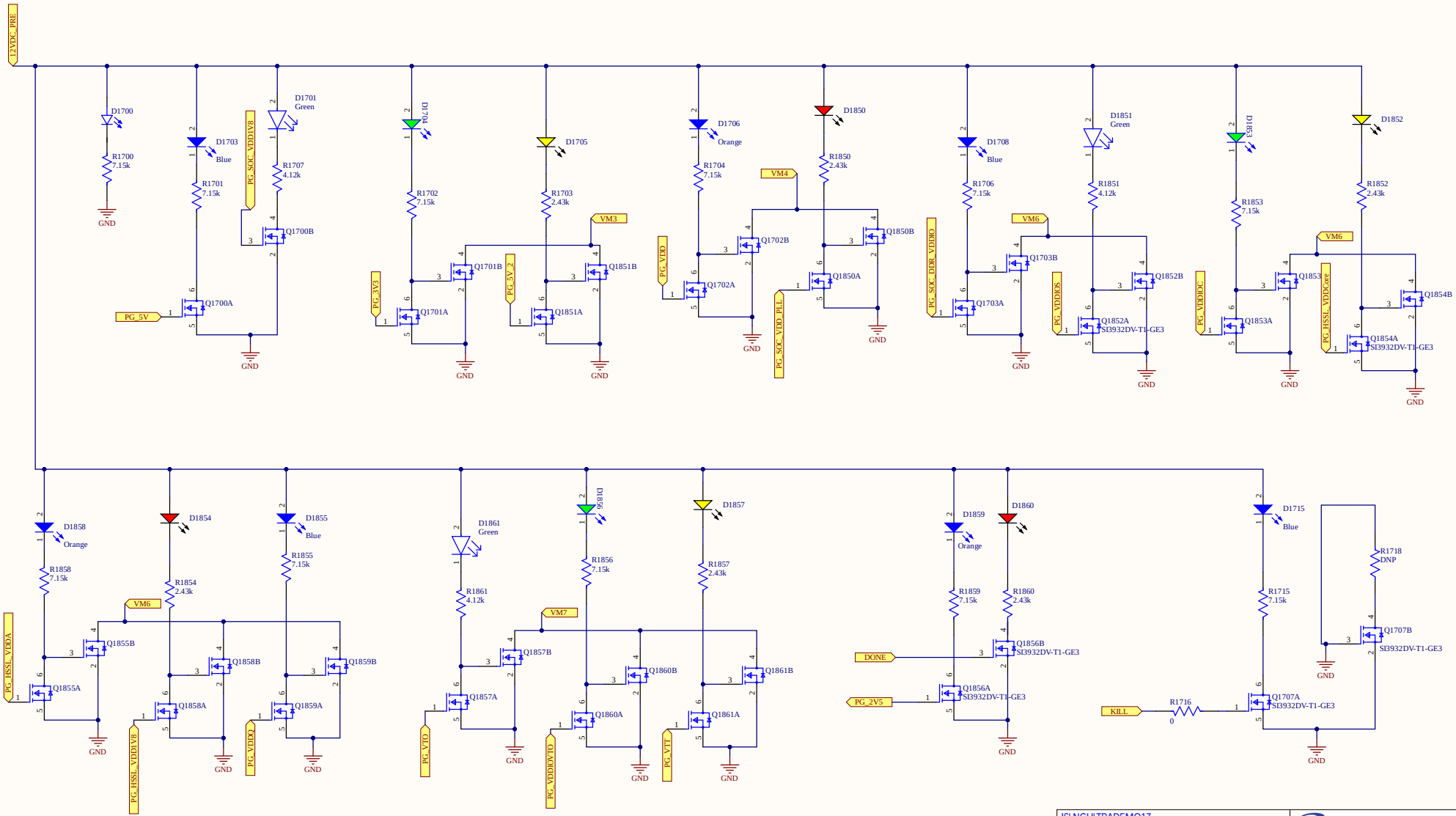
Current Sense

KILL Comparator



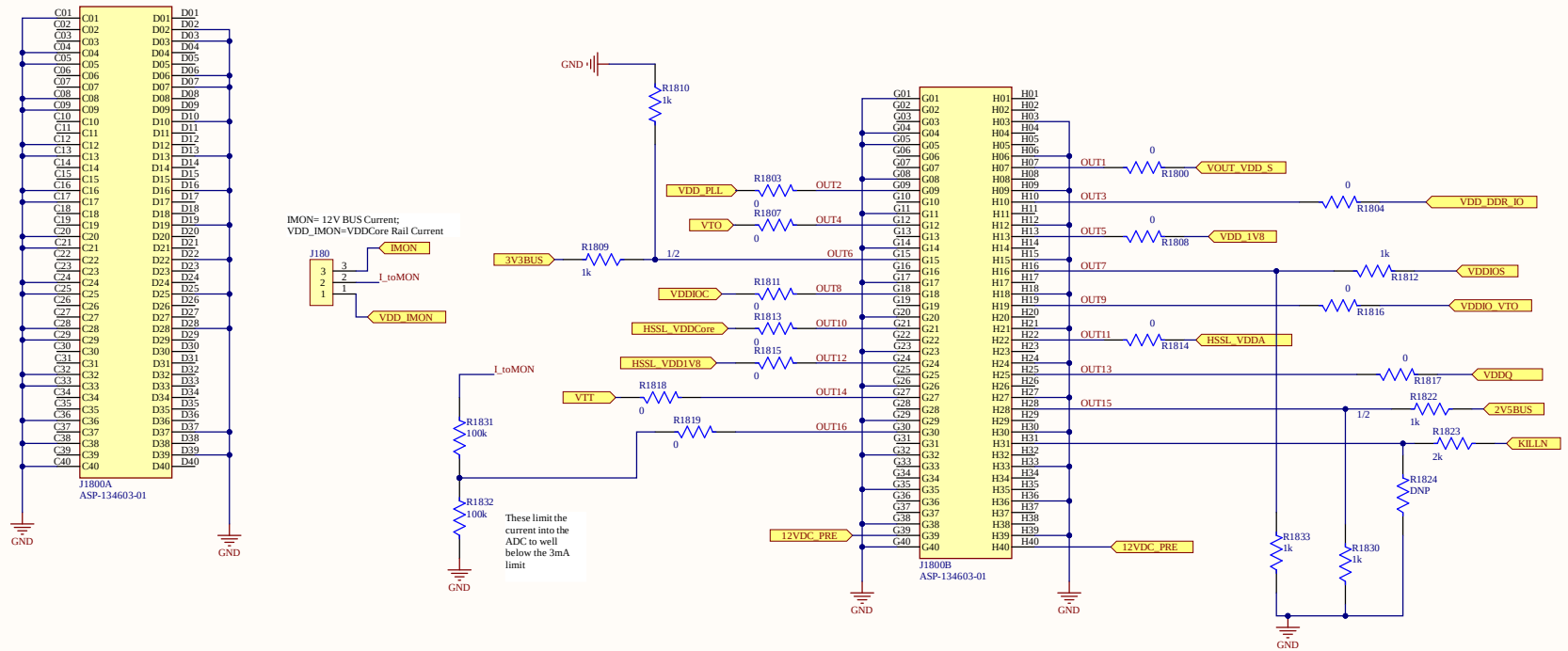
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LED PG Indicators



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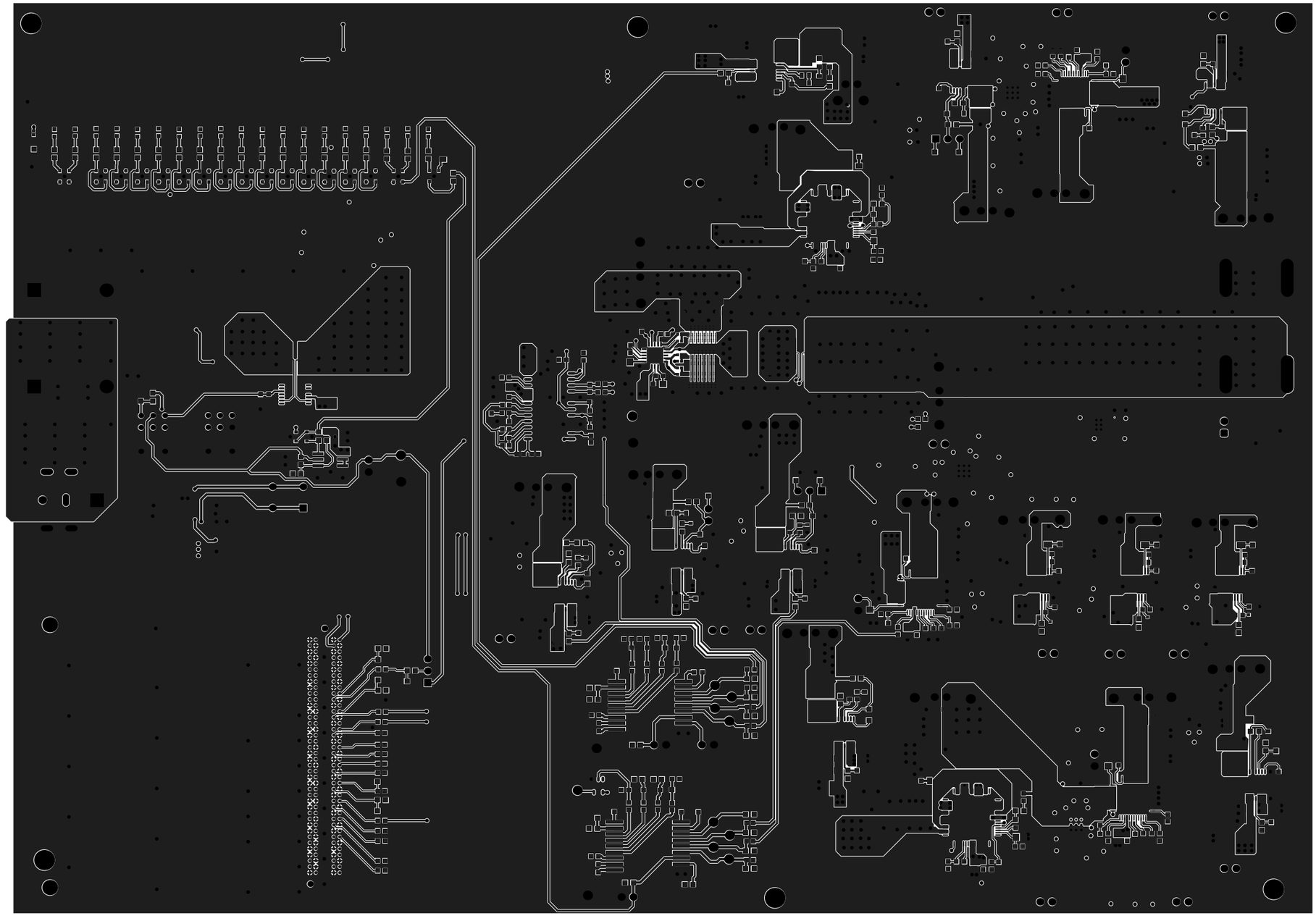
ADC Interface



MP1800 1957 MP1801 1957 MP1802 1957

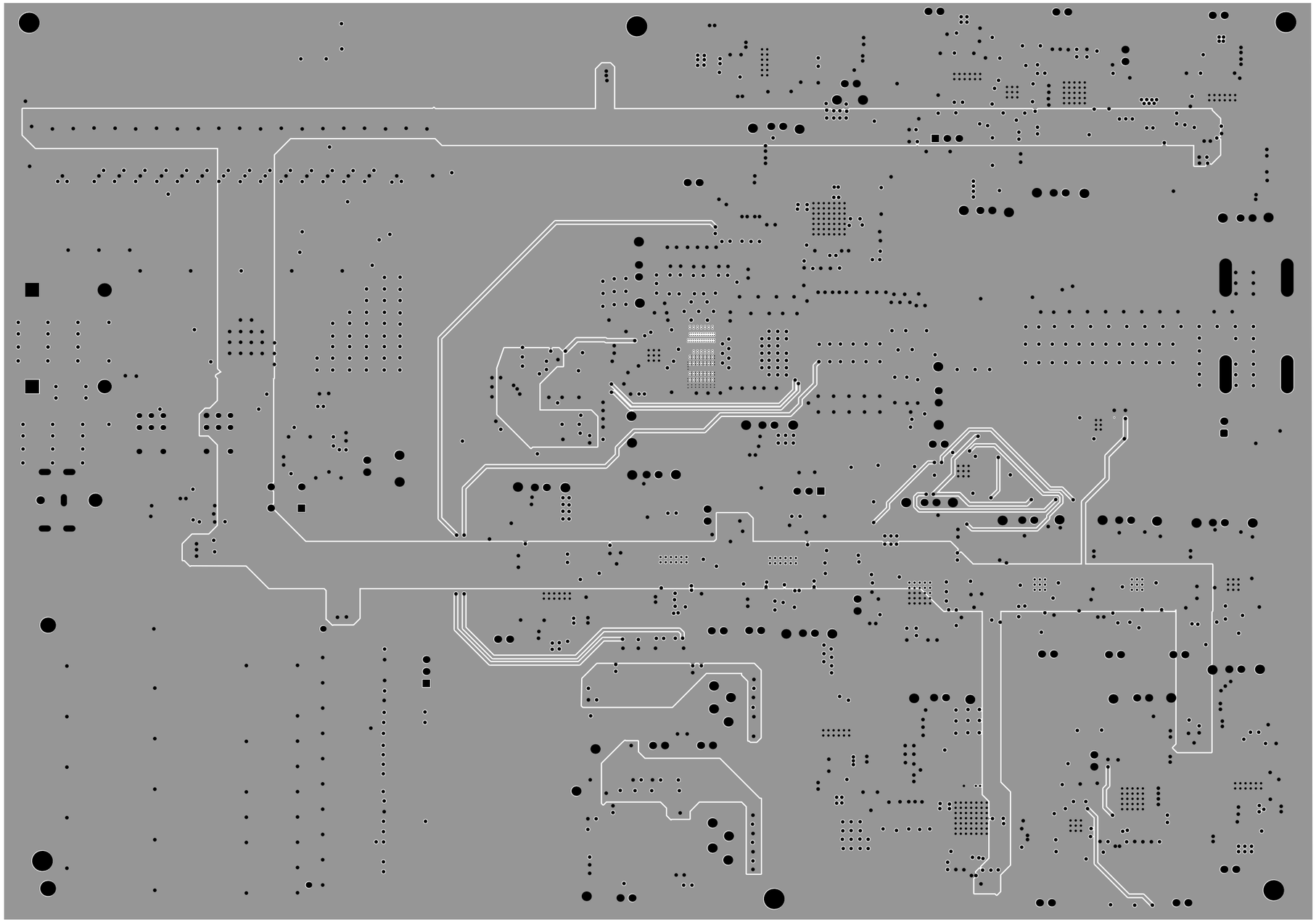
MP1803 1957 MP1804 1957 MP1805 1957

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Version:	Document Revision: A	www.renesas.com
Release Date: --/--/----	Sheet 23 of 23	
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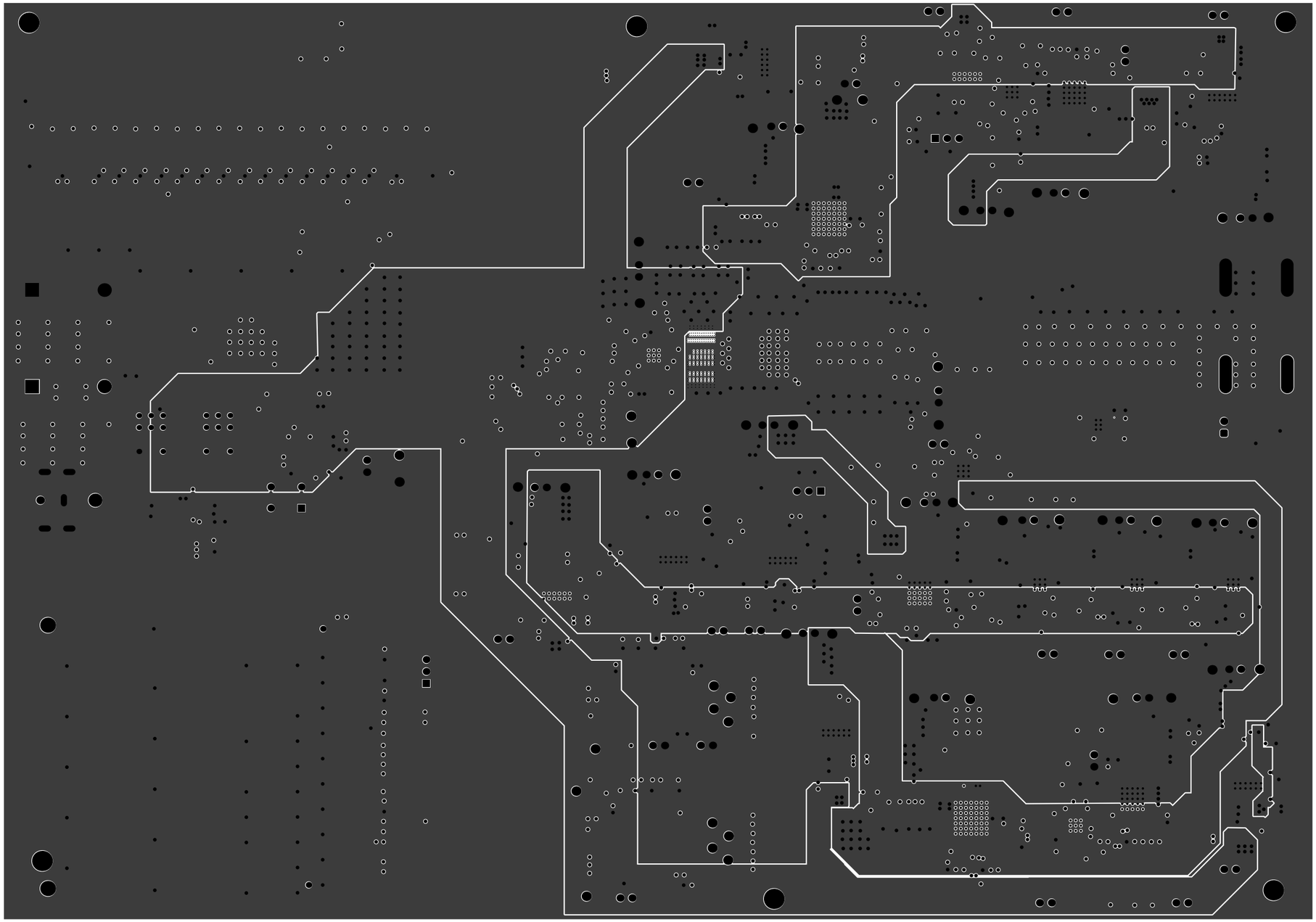


Top Layer

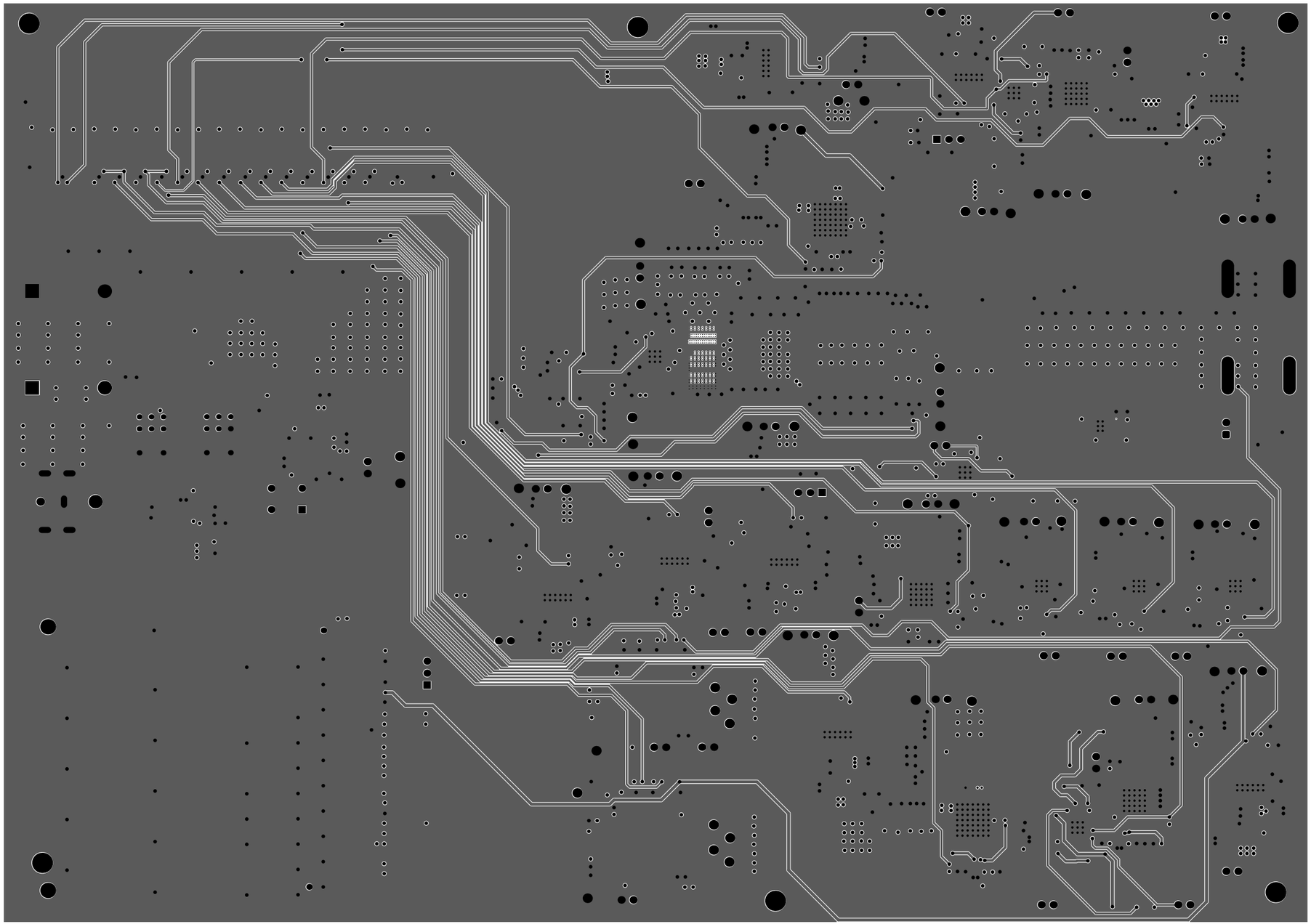
Layer 2



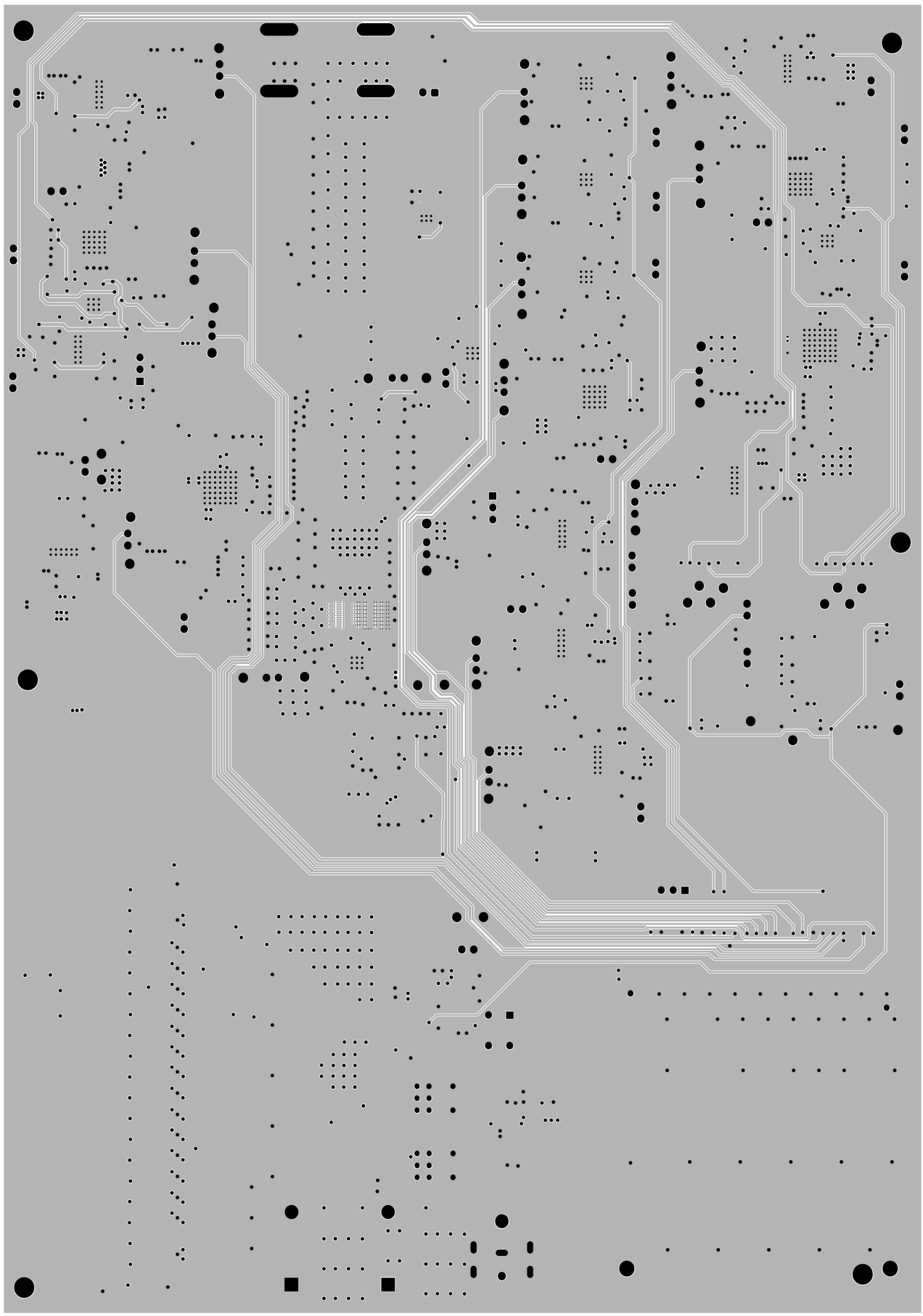
Layer 3

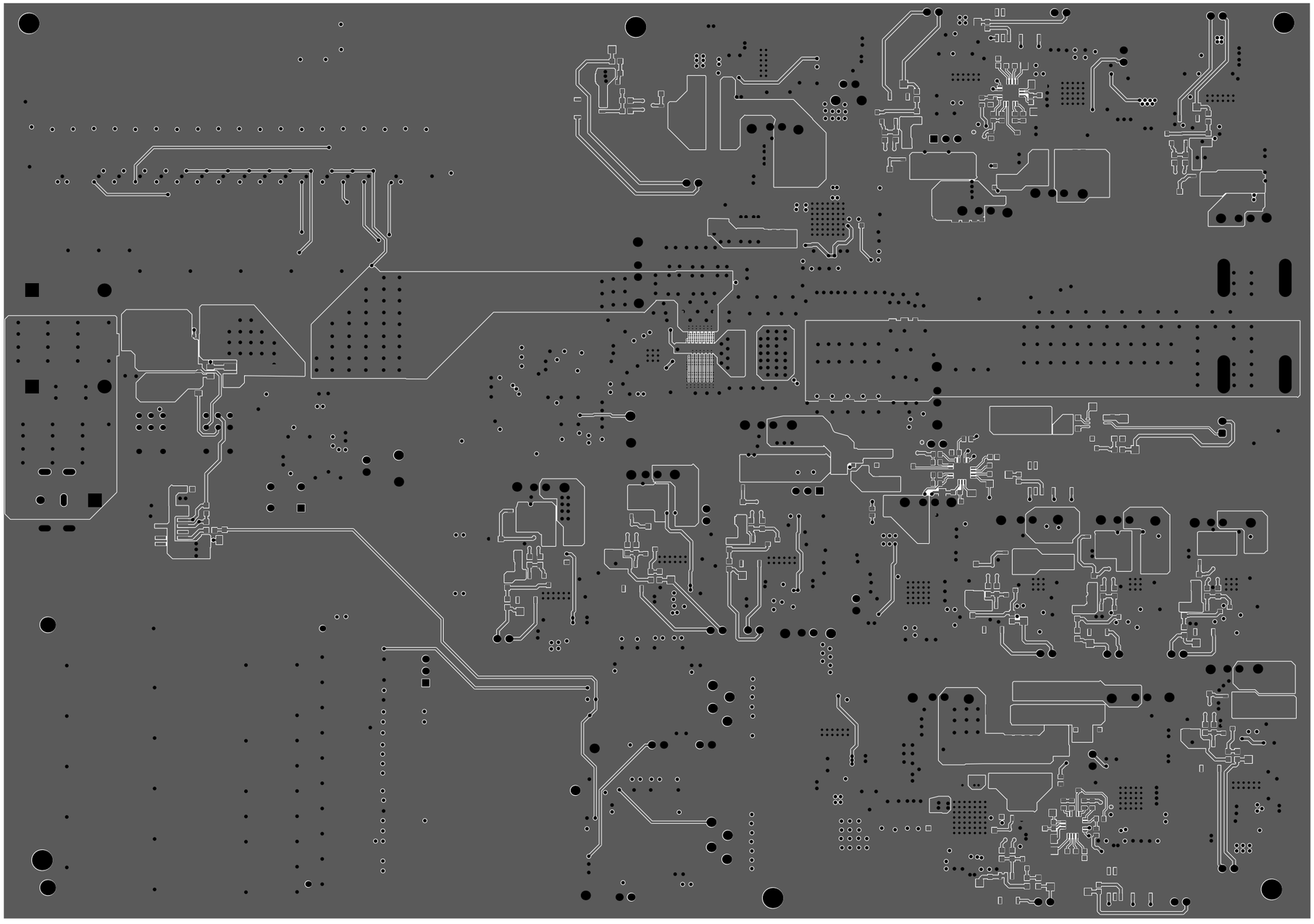


Layer 4



Layer 5





Bottom Layer

Symbol	Count	Hole Size	Plated	Hole Type	Drill Layer Pair	Via/Pad	Pad Shape	Template	Description	Hole Tolerance (+)	Hole Tolerance (-)
	1	31.50mil (0.800mm)	PTH	Slot	Top Layer - Bottom Layer	Pad	Rounded	r262_131h80_220r65m0mx0			
	1	66.93mil (1.700mm)	NPTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c170h170m0mx0			
	1	74.80mil (1.900mm)	PTH	Round	Top Layer - Bottom Layer	Pad	Rounded	s285h190z285m0mx0			
	2	40.16mil (1.020mm)	PTH	Round	Top Layer - Bottom Layer	Pad	(Mixed)	(Mixed)			
	2	50.00mil (1.270mm)	NPTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c127h127m0mx0			
	2	128.00mil (3.251mm)	NPTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c325h325m0mx0			
	3	10.00mil (0.254mm)	PTH	Round	Top Layer - Bottom Layer	Via	Rounded	v51h25m0mx0			
	4	31.50mil (0.800mm)	PTH	Slot	Top Layer - Bottom Layer	Pad	Rounded	r262_131h80_200r65m0mx0			
	4	39.37mil (1.000mm)	PTH	Round	Top Layer - Bottom Layer	Pad	(Mixed)	(Mixed)		3.94mil (0.100mm)	3.94mil (0.100mm)
	4	60.00mil (1.524mm)	PTH	Slot	Top Layer - Bottom Layer	Pad	Rounded Rectangle	r611_267h152_696r133m621_277			
	4	86.22mil (2.190mm)	PTH	Round	Top Layer - Bottom Layer	Pad	(Mixed)	(Mixed)			
	6	15.00mil (0.381mm)	PTH	Round	Top Layer - Bottom Layer	Via	Rounded	v76h38m0mx0			
	6	169.50mil (4.305mm)	NPTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c431hr431m431p0			
	9	40.16mil (1.020mm)	PTH	Round	Top Layer - Bottom Layer	Pad	(Mixed)	(Mixed)		3.15mil (0.080mm)	3.15mil (0.080mm)
	16	23.62mil (0.600mm)	PTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c110h60m0mx0			
	51	40.00mil (1.016mm)	PTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c203h102m0mx0			
	80	43.31mil (1.100mm)	PTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c160h110m160			
	187	16.00mil (0.406mm)	PTH	Round	Top Layer - Bottom Layer	Via	Rounded	v76h41m0mx0			
	219	4.00mil (0.102mm)	PTH	Round	Top Layer - Bottom Layer	Via	Rounded	(Mixed)			
	338	7.87mil (0.200mm)	PTH	Round	Top Layer - Bottom Layer	Via	Rounded	v50h20m0mx0			
	1068	15.00mil (0.381mm)	PTH	Round	Top Layer - Bottom Layer	Via	Rounded	(Mixed)			
	2068 Total										

Slot definitions: Routed Path Length = Calculated from tool start centre position to tool end centre position.
Hole Length = Routed Path Length + Tool Size = Slot length as defined in the PCB layout

