8A0DLS

P1-10 P1-9 P1-8 P1-7 P1-6 — P1-10 P1-9 P1-8 P1-7 P1-6 — P1-1 P1-2 P1-3 P1-4 P1-5

P3-10 P3-9 P3-8 P3-7 P3-6 — P3-10 P3-9 P3-8 P3-7 P3-6 — P3-1 P3-2 P3-3 P3-4 P3-5

P5-10 P5-9 P5-8 P5-7 P5-6 — P5-10 P5-9 P5-8 P5-7 P5-6 — P5-1 P5-2 P5-3 P5-4 P5-5

P7-10 P7-9 P7-8 P7-7 P7-6 — P7-10 P7-9 P7-8 P7-7 P7-6 — P7-1 P7-2 P7-3 P7-4 P7-5

SD1000

VA

VB

VC

EARTH_GND

EARTH_GND

D1000 C4D40120D

F1000 ALC 90A 500V

F1001 ALC 90A 500V

F1002 ALC 90A 500V

RV1000 V320LT40CP

RV1001 V320LT40CP

RV1002 V320LT40CP

RV1003 3500A/550V

RV1004 3500A/550V

RV1005 3500A/550V

C1012 4700pF

C1013 4700pF

C1014 4700pF

C1000 4700pF

C1003 3.3uF

C1004 3.3uF

C1005 3.3uF

R1000 390k/1206

R1001 390k/1206

R1002 390k/1206

R1003 390K/1206

R1004 390K/1206

R1005 390K/1206

R1006 390k/1206

R1007 390K/1206

R1008 390k/1206

L1000

C1001 4700pF

C1006 3.3uF

C1007 3.3uF

C1008 3.3uF

C1015 4700pF

C1016 4700pF

C1017 4700pF

L1001

C1002 4700pF

C1009 3.3uF

C1010 3.3uF

C1011 3.3uF

C1018 4700pF

C1019 4700pF

C1020 4700pF

RT1000 75Ω/5W

RT1001 75Ω/5W

RE1000 65A/277V

D1001 1A/40V

RT1002 75Ω/5W

RT1003 75Ω/5W

RE1001 65A/277V

D1002 1A/40V

D1003 1A/40V

D1004 1A/40V

12VBSm

Q1000 2N7002

Q1001 2N7002

RLY_DRV

C1021 10uF/25V/1206

C1022 10uF/25V/1206

C1023 10uF/25V/1206

C1024 0.1uF

R1027 10K/0603

R1028 10K/0603

C1025 0.01uF

R1035 2.4/0805

GND_Dig

R1009 390K/1206 — R1010 390K/1206 — R1011 390K/1206 — R1012 390K/1206 — R1013 390K/1206 — R1014 390K/1206

R1015 390K/1206 — R1016 390K/1206 — R1017 390K/1206 — R1018 390K/1206 — R1019 390K/1206 — R1020 390K/1206

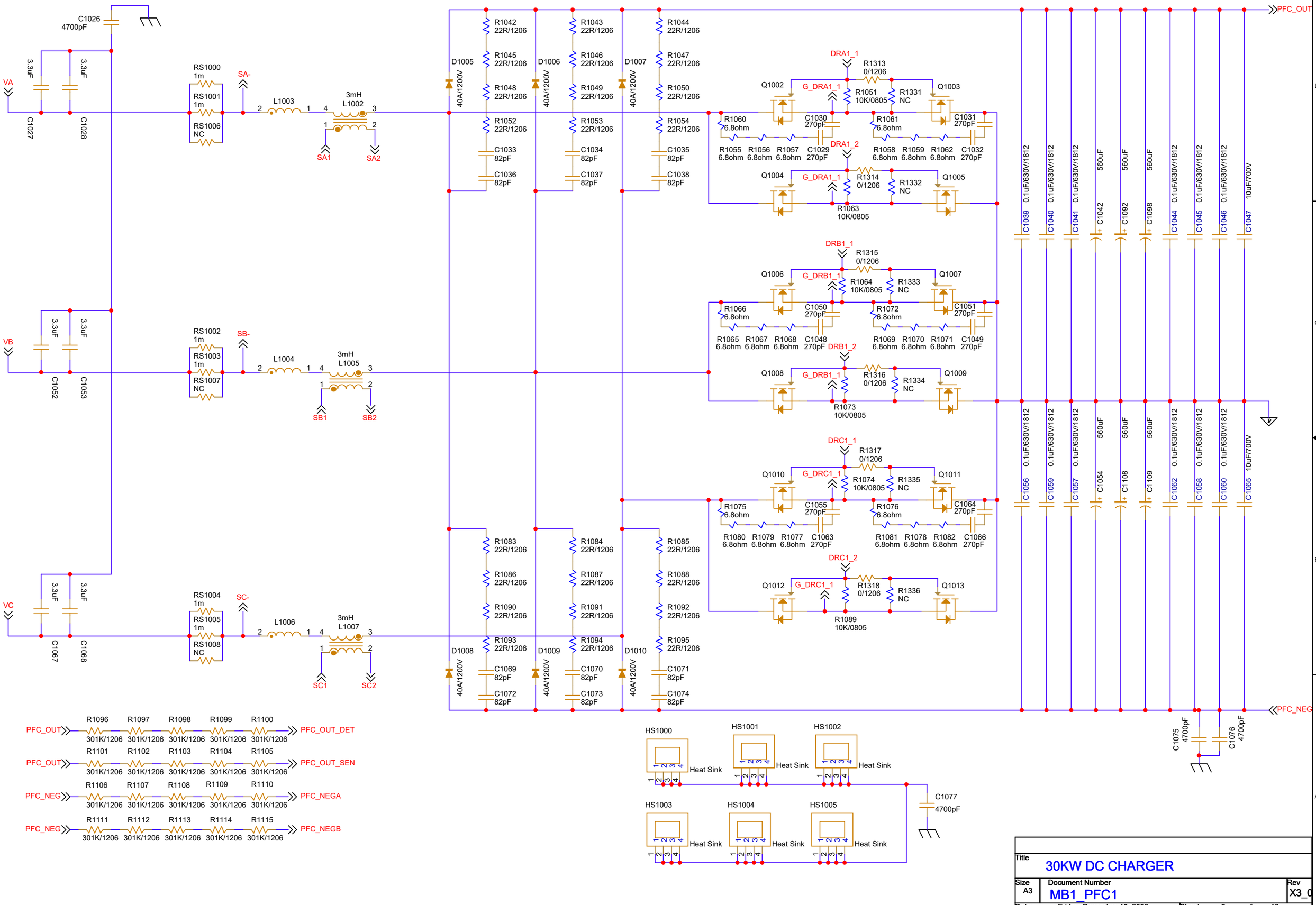
R1021 390K/1206 — R1022 390K/1206 — R1023 390K/1206 — R1024 390K/1206 — R1025 390K/1206 — R1026 390K/1206

R1029 390K/1206 — R1030 390K/1206 — R1031 390K/1206 — R1032 390K/1206 — R1033 390K/1206 — R1034 390K/1206

R1036 240K/1206 — R1037 240K/1206 — R1038 240K/1206 — R1039 240K/1206 — R1040 240K/1206 — R1041 240K/1206

VCSA.1 VCSA.2 VCSB.1 VCSB.2 VCSC.1 VCSC.2

Title	30KW DC CHARGER	
Size A3	Document Number MB1_EMI	Rev X3_0
Date: Friday, December 18, 2020	Sheet 1 of 10	



Title	30KW DC CHARGER		
Size A3	Document Number MB1_PFC1		Rev X3_0
Date: Friday, December 18, 2020		Sheet 2 of 10	

PFC_OUT

R1116 22R/1206
R1119 22R/1206
R1122 22R/1206
R1127 22R/1206
C1082 82pF
C1085 82pF
D1011 40A/1200V

R1117 22R/1206
R1120 22R/1206
R1123 22R/1206
R1128 22R/1206
C1083 82pF
C1086 82pF
D1012 40A/1200V

R1118 22R/1206
R1121 22R/1206
R1124 22R/1206
R1129 22R/1206
C1084 82pF
C1087 82pF
D1013 40A/1200V

SA- L1008 SA1 SA2

DRA2_1 R1319 0/1206
Q1014 G_DRA2_1 R1125 10K/0805 R1337 NC Q1015
R1130 6.8ohm C1078 270pF R1131 6.8ohm C1081 270pF
R1126 6.8ohm R1132 6.8ohm R1133 6.8ohm C1079 270pF DRA2_2 R1134 6.8ohm R1135 6.8ohm R1136 6.8ohm C1080 270pF
Q1016 G_DRA2_1 R1320 0/1206 R1338 NC Q1017
R1137 10K/0805

C1088 0.1uF/630V/1812
C1089 0.1uF/630V/1812
C1090 0.1uF/630V/1812
C1043 330uF
C1091 330uF
C1093 330uF
C1094 0.1uF/630V/1812
C1095 0.1uF/630V/1812
C1096 0.1uF/630V/1812
C1097 0.1uF/630V/1812

SB- L1009 SB1 SB2

DRB2_1 R1321 0/1206
Q1018 G_DRB2_1 R1138 10K/0805 R1339 NC Q1019
R1142 6.8ohm C1100 270pF R1143 6.8ohm C1101 270pF
R1139 6.8ohm R1140 6.8ohm R1141 6.8ohm C1099 270pF DRB2_2 R1144 6.8ohm R1145 6.8ohm R1146 6.8ohm C1102 270pF
Q1020 G_DRB2_1 R1322 0/1206 R1340 NC Q1021
R1147 10K/0805

C1114 0.1uF/630V/1812
C1117 0.1uF/630V/1812
C1107 0.1uF/630V/1812
C1061 330uF
C1113 330uF
C1115 330uF
C1110 0.1uF/630V/1812
C1111 0.1uF/630V/1812
C1116 0.1uF/630V/1812
C1112 0.1uF/630V/1812

SC- L1010 SC1 SC2

DRC2_1 R1323 0/1206
Q1022 G_DRC2_1 R1148 10K/0805 R1341 NC Q1023
R1155 6.8ohm C1104 270pF R1156 6.8ohm C1106 270pF
R1149 6.8ohm R1150 6.8ohm R1151 6.8ohm C1103 270pF R1152 6.8ohm R1153 6.8ohm R1154 6.8ohm C1105 270pF
DRC2_2
Q1024 G_DRC2_1 R1324 0/1206 R1342 NC Q1025
R1163 10K/0805

R1158 22R/1206
R1160 22R/1206
R1164 22R/1206
R1167 22R/1206
C1118 82pF
C1121 82pF
D1014 40A/1200V

R1159 22R/1206
R1161 22R/1206
R1165 22R/1206
R1168 22R/1206
C1119 82pF
C1122 82pF
D1015 40A/1200V

R1157 22R/1206
R1162 22R/1206
R1166 22R/1206
R1169 22R/1206
C1120 82pF
C1123 82pF
D1016 40A/1200V

PFC_NEG

J1000 PFC_OUT 1 2 3 4 MB2

J1001 PFC_NEG 1 2 3 4 MB2

VA R1170 10/0603 C1124 0.022uF/50V/0603 IC1000
R1172 1K/0603
SA- R1177 10/0603
VCC_5VA C1127 4.7uF/25V/0805
SA-
VIN+ VOUT+ VIN- VOUT- VDD1 VDD2 GND1 GND2
ISCA IZCA 5Vref0 C1128 10uF/25V/1206 AGND
AMC1301DW

VB R1171 10/0603 C1126 0.022uF/50V/0603 IC1001
R1174 1K/0603
SB- R1176 10/0603
VCC_5VB C1129 4.7uF/25V/0805
SB-
VIN+ VOUT+ VIN- VOUT- VDD1 VDD2 GND1 GND2
ISCB IZCB 5Vref0 C1130 4.7uF/25V/0805 AGND
AMC1301DW

VC R1173 10/0603 C1125 0.022uF/50V/0603 IC1002
R1175 1K/0603
SC- R1178 10/0603
VCC_5VC C1131 4.7uF/25V/0805
SC-
VIN+ VOUT+ VIN- VOUT- VDD1 VDD2 GND1 GND2
ISCC IZCC 5Vref0 C1132 4.7uF/25V/0805 AGND
AMC1301DW

Title: 30KW DC CHARGER
Size: A3
Document Number: MB1_PFC2
Rev: X3_0
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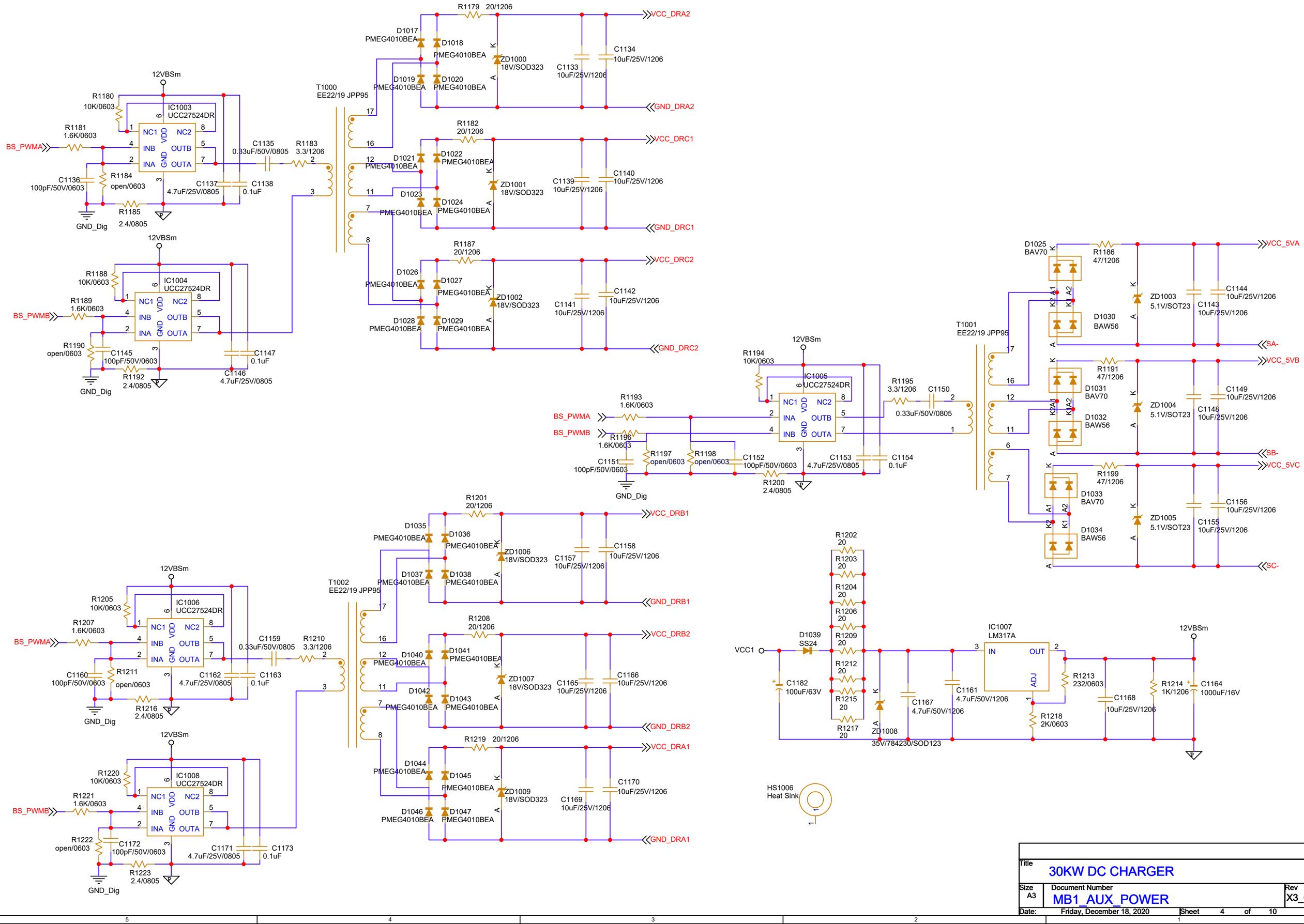

Title	30KW DC CHARGER	
Size A3	Document Number MB1_AUX_POWER	Rev X3_0
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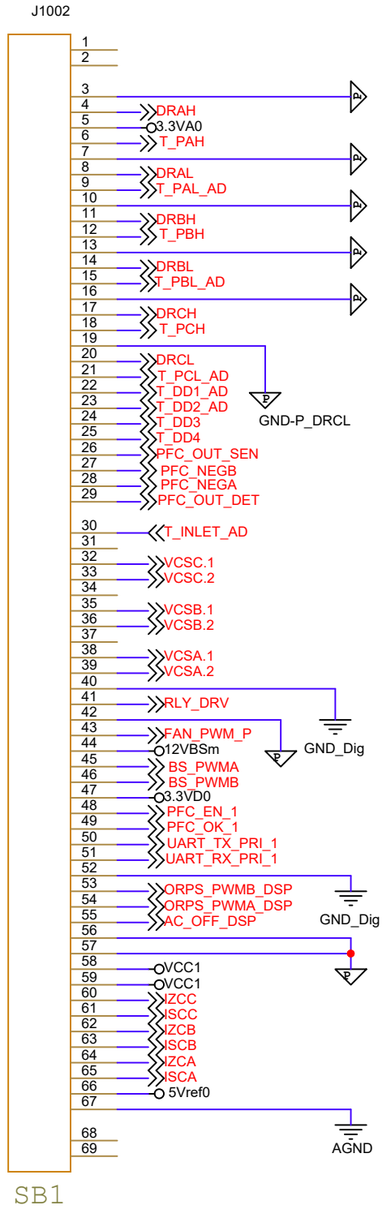

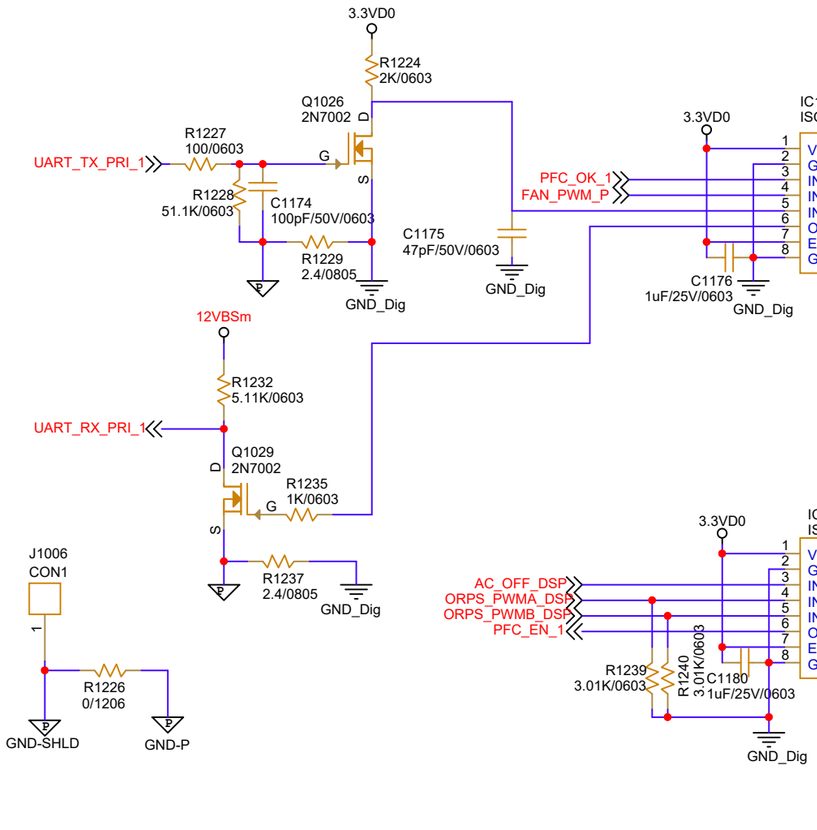

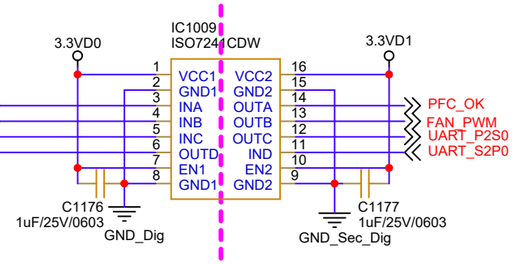

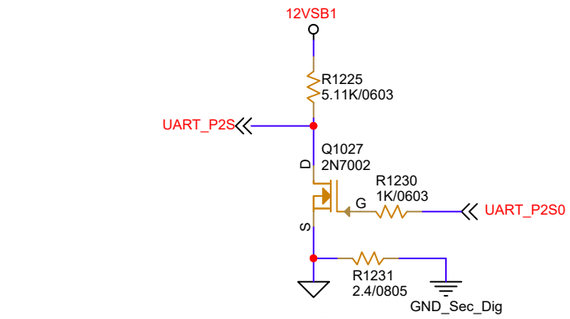

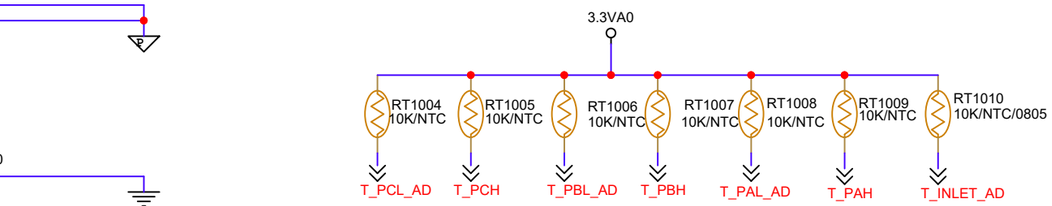

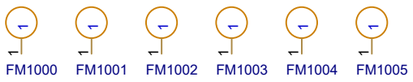

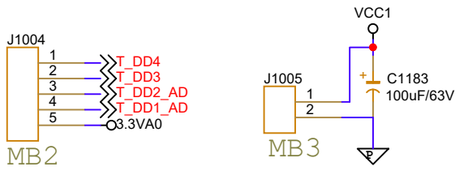

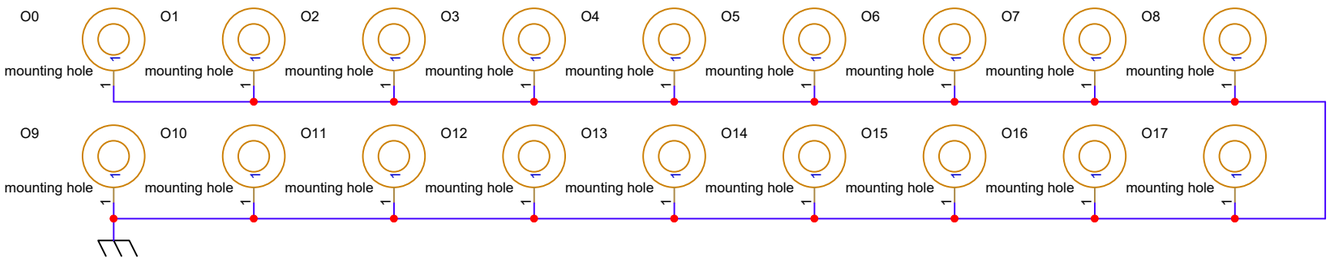

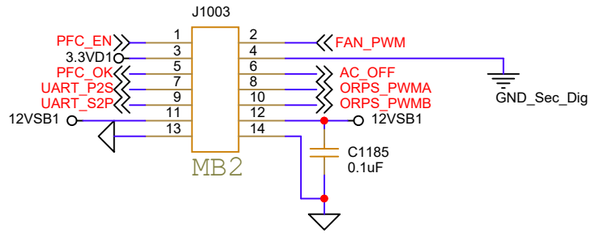

Title	30KW DC CHARGER		
Size A3	Document Number MB1_COMMUNICATION		Rev X3_0
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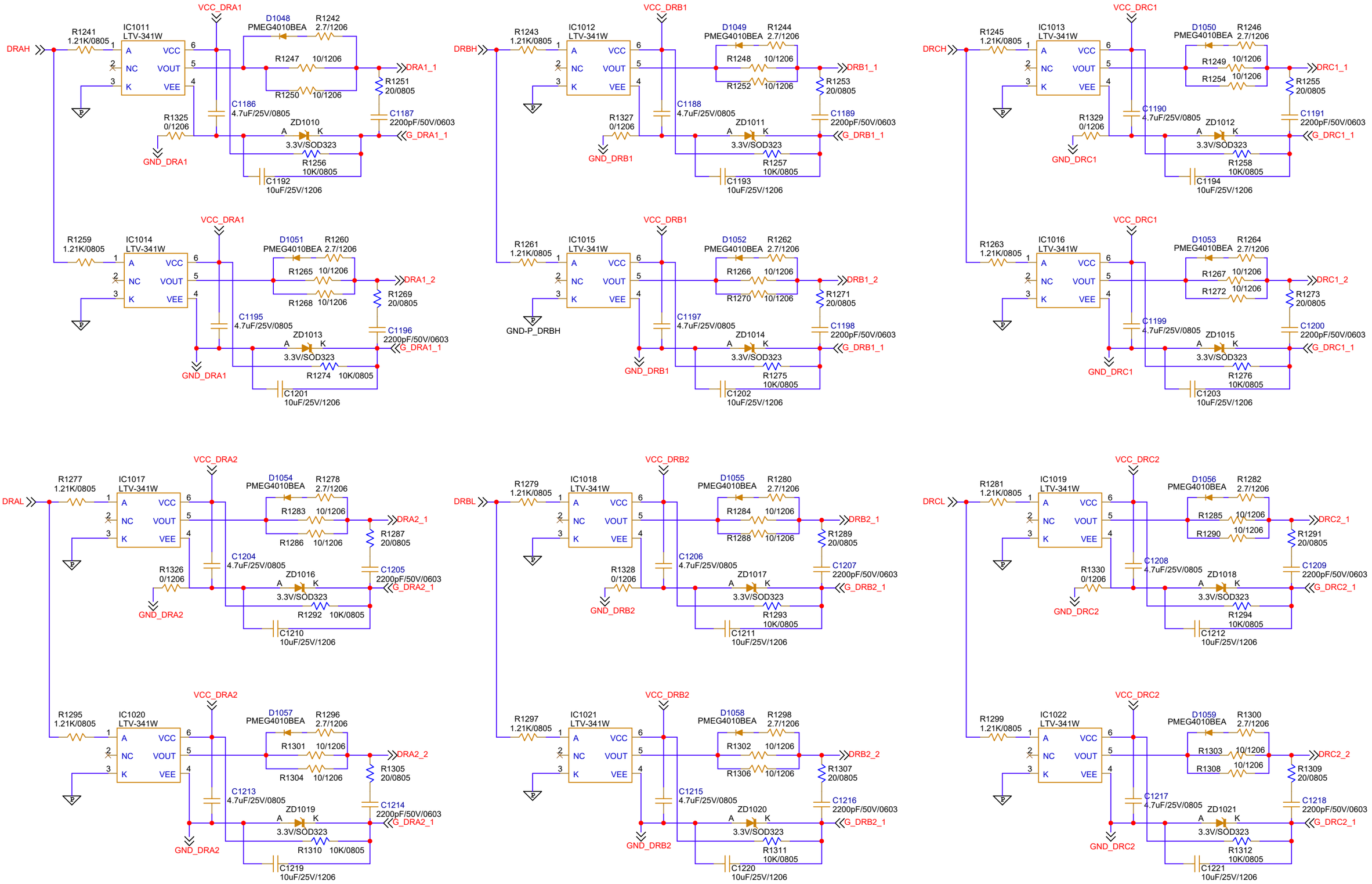

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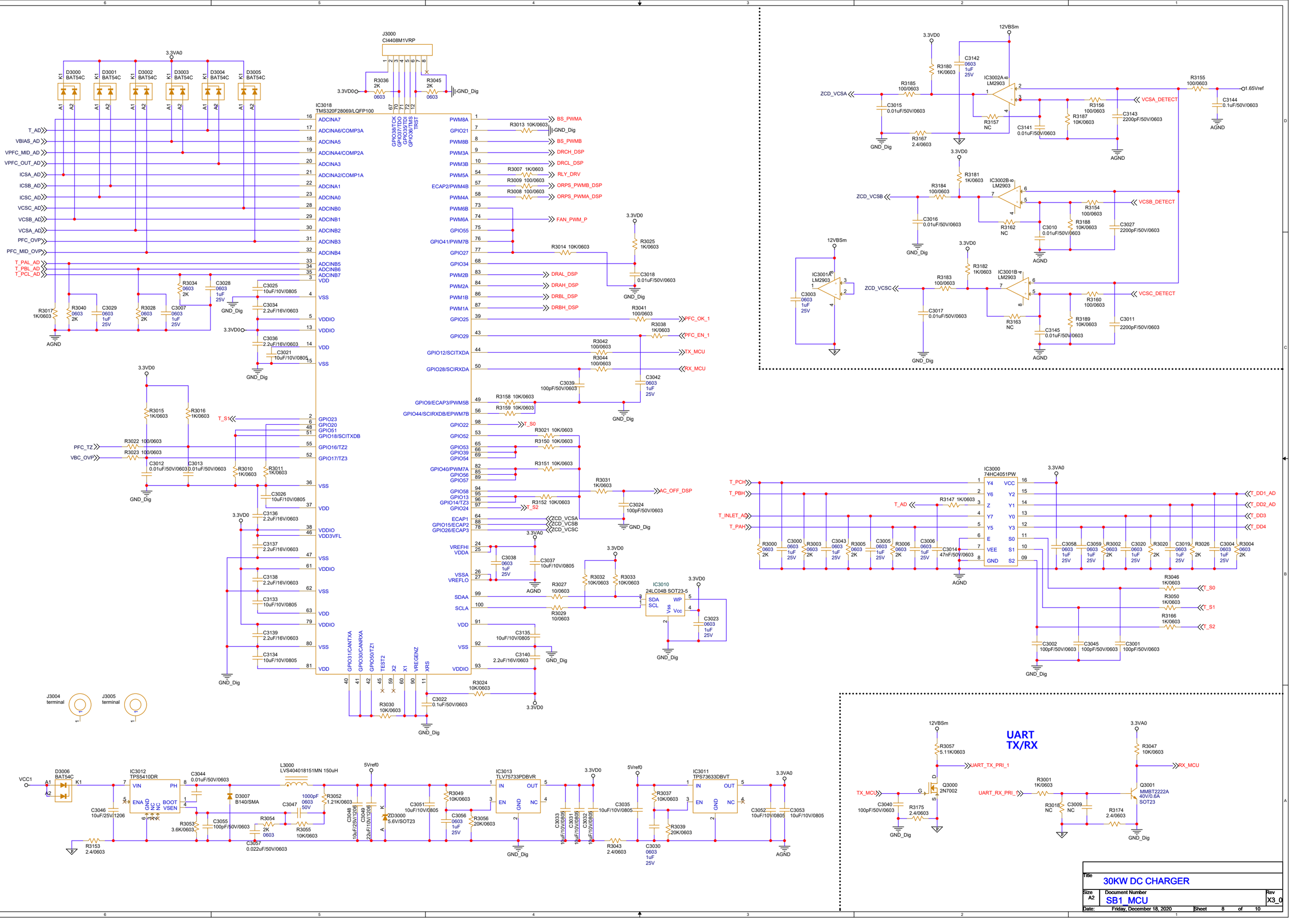
Size A3	Document Number MB1_DRIVER	Rev X3_0
Date: Friday, December 18, 2020	Sheet 6 of 10	


J3000
CI4408M1VRP
3.3VA0
D3000 BAT54C
D3001 BAT54C
D3002 BAT54C
D3003 BAT54C
D3004 BAT54C
D3005 BAT54C
IC3018
TMS320F28069/LQFP100
T_AD
VBIAS_AD
VPFC_MID_AD
VPFC_OUT_AD
ICSA_AD
ICSB_AD
ICSC_AD
VCSC_AD
VCSB_AD
VCSA_AD
PFC_OVP
PFC_MID_OVP
T_PAL_AD
T_PBL_AD
T_PCL_AD
ADCINA7
ADCINA6/COMP3A
ADCINA5
ADCINA4/COMP2A
ADCINA3
ADCINA2/COMP1A
ADCINA1
ADCINA0
ADCINB0
ADCINB1
ADCINB2
ADCINB3
ADCINB4
ADCINB5
ADCINB6
ADCINB7
VDD
VSS
VDDIO
VDD
VSS
VDDIO
VDD
VSS
VDDIO
VDD3VFL
VDD
VSS
VDDIO
VSS
VDD
VDDIO
VDD
VSS
VDDIO
PWM8A
GPIO21
PWM8B
PWM3A
PWM3B
PWM5A
ECAP2/PWM4B
PWM4A
PWM6B
PWM6A
GPIO55
GPIO41/PWM7B
GPIO27
GPIO34
PWM2B
PWM2A
PWM1B
PWM1A
GPIO25
GPIO29
GPIO12/SCITXDA
GPIO28/SCIRXDA
GPIO9/ECAP3/PWM5B
GPIO44/SCIRXDB/EPWM7B
GPIO22
GPIO52
GPIO53
GPIO39
GPIO54
GPIO40/PWM7A
GPIO56
GPIO57
GPIO58
GPIO13
GPIO14/TZ3
GPIO24
ECAP1
GPIO15/ECAP2
GPIO26/ECAP3
VREFHI
VDDA
VSSA
VREFLO
SDAA
SCLA
GPIO23
GPIO20
GPIO51
GPIO18/SCITXDB
GPIO16/TZ2
GPIO17/TZ3
GPIO38/TCK
GPIO37/TDO
GPIO35/TDI
GPIO36/TMS
TRST
GPIO31/CANTXA
GPIO30/CANRXA
GPIO50/TZ1
TEST2
X2
X1
VREGENZ
XRS
BS_PWMA
BS_PWMB
DRCH_DSP
DRCL_DSP
RLY_DRV
ORPS_PWMB_DSP
ORPS_PWMA_DSP
FAN_PWM_P
DRAL_DSP
DRAH_DSP
DRBL_DSP
DRBH_DSP
PFC_OK_1
PFC_EN_1
TX_MCU
RX_MCU
T_S0
T_S1
T_S2
ZCD_VCSA
ZCD_VCSB
ZCD_VCSC
AC_OFF_DSP
PFC_TZ
VBC_OVP
IC3010
24LC04B SOT23-5
SDA
SCL
WP
Vss
Vcc
AGND
GND_Dig
3.3VD0
J3004 terminal
J3005 terminal
12VBSm
IC3001A LM2903
IC3002A LM2903
IC3001B LM2903
IC3002B LM2903
VCSA_DETECT
VCSB_DETECT
VCSC_DETECT
1.65Vref
IC3000
74HC4051PW
T_PCH
T_PBH
T_INLET_AD
T_PAH
T_AD
T_DD1_AD
T_DD2_AD
T_DD3
T_DD4
5Vref0
L3000
LVS404018151MN 150uH
D3006 BAT54C
IC3012 TPS5410DR
VIN
PH
ENA
GND
NC
BOOT
VSEN
D3007 B140/SMA
ZD3000 5.6V/SOT23
IC3013 TLV75733PDBVR
IC3011 TPS73633DBVT
IN
OUT
EN
GND
NC
UART
TX/RX
UART_TX_PRI_1
UART_RX_PRI_1
Q3000 2N7002
Q3001 MMBT2222A 40V/0.6A SOT23
Title
30KW DC CHARGER
Size
A2
Document Number
SB1_MCU
Rev
X3_0
Date:
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of
10

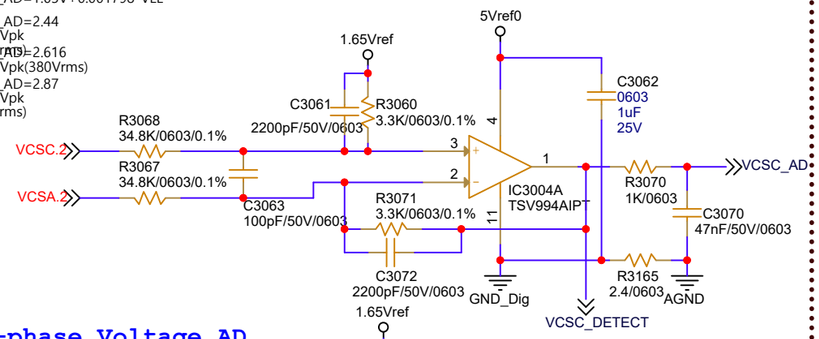
TR-phase Voltage AD

VCSA_AD=1.65V+0.001798*VLL

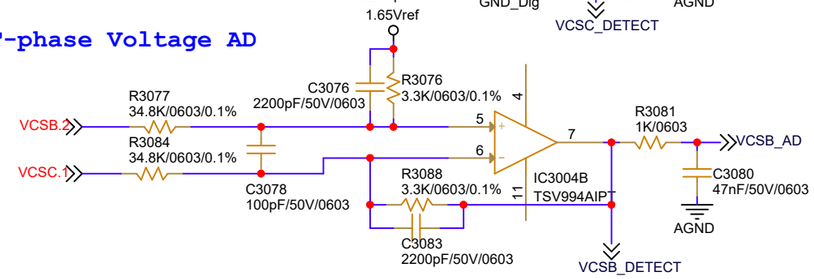
VCSA_AD=2.44
@442Vpk
(312Vrms)

VCSA_AD=2.616
@537Vpk(380Vrms)

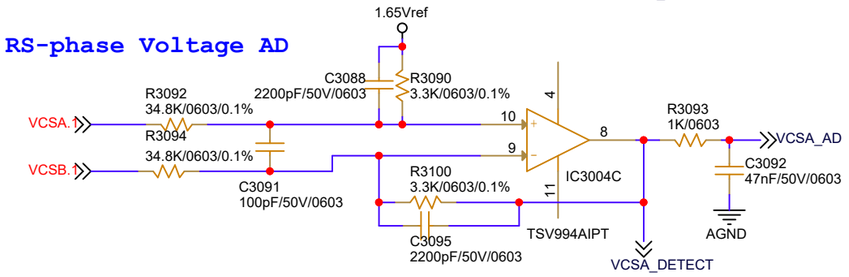
VCSA_AD=2.87
@678Vpk
(480Vrms)



ST-phase Voltage AD



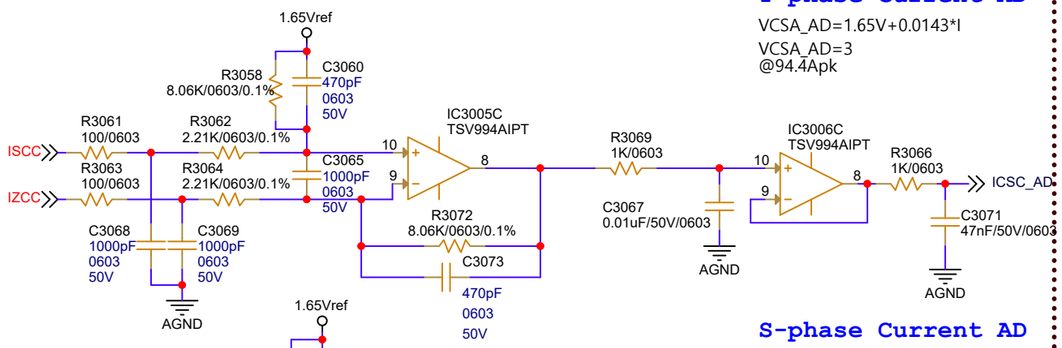
RS-phase Voltage AD



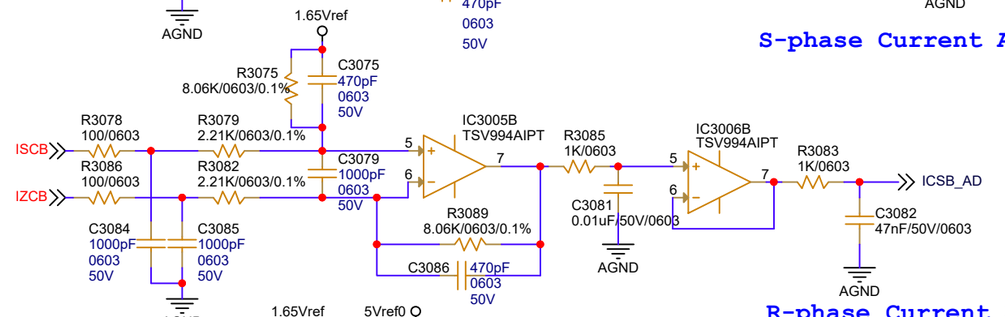
T-phase Current AD

VCSA_AD=1.65V+0.0143*I

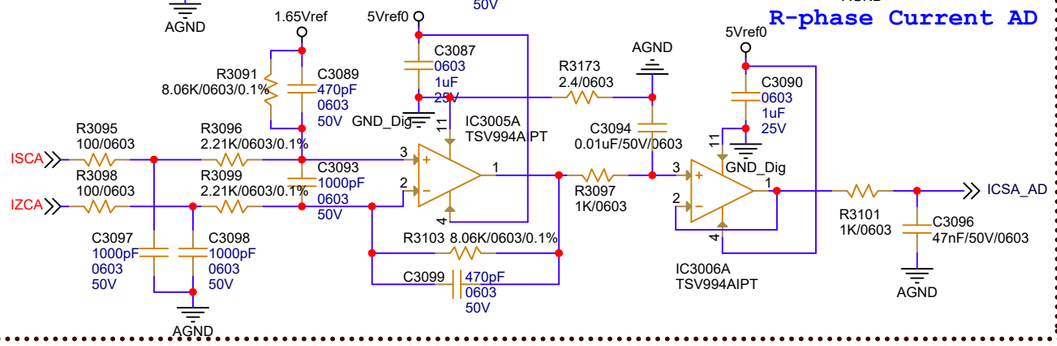
VCSA_AD=3
@94.4Apk

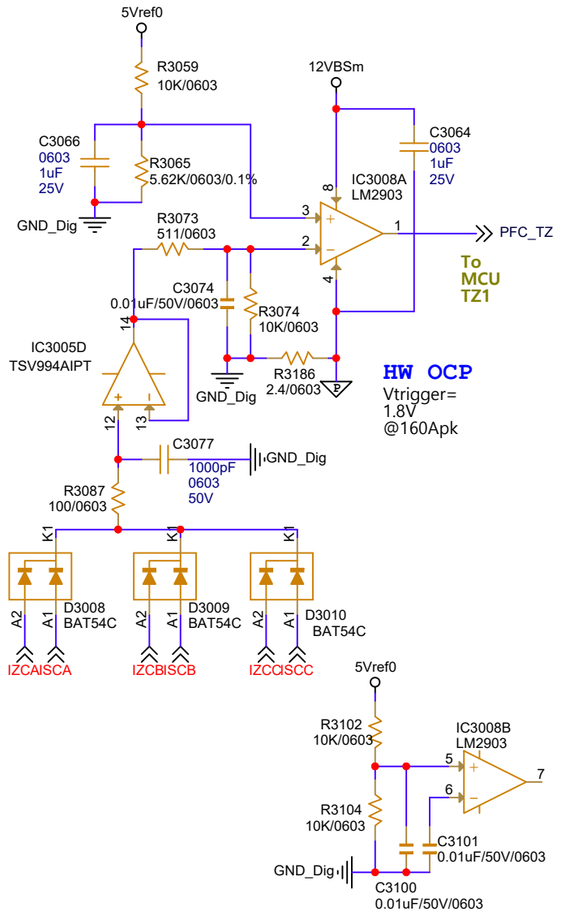


S-phase Current AD



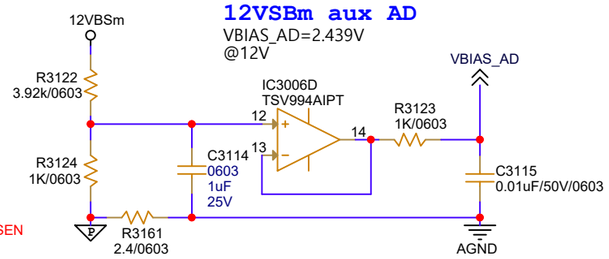
R-phase Current AD



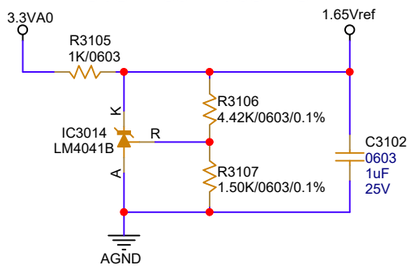


12VSBm aux AD

VBIAS_AD=2.439V
@12V

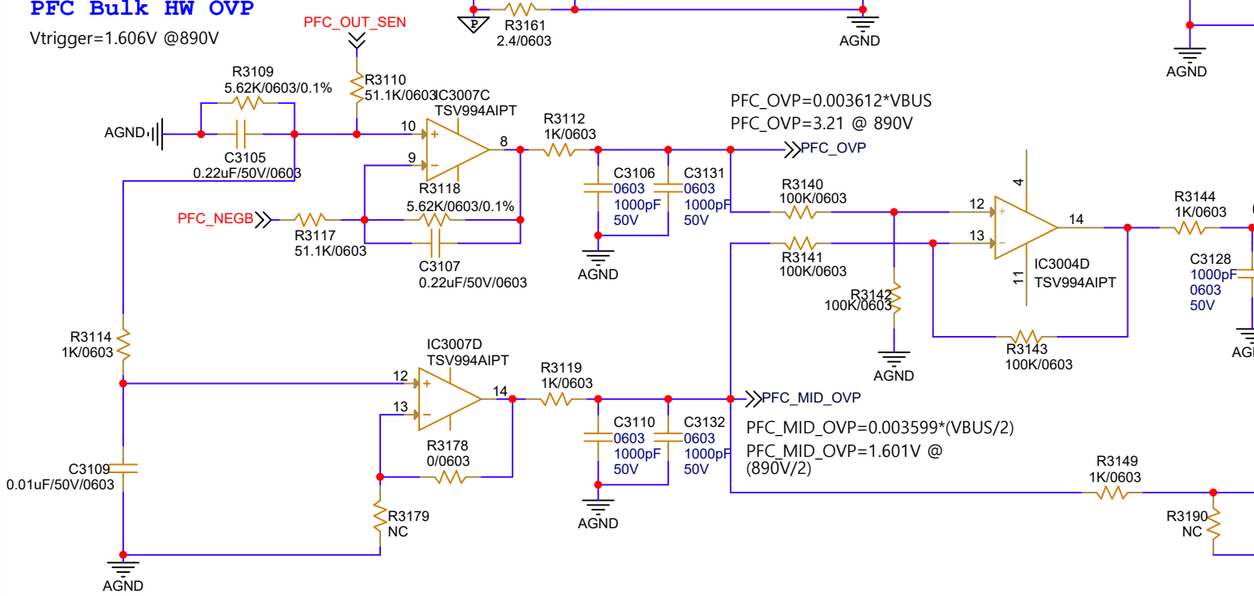


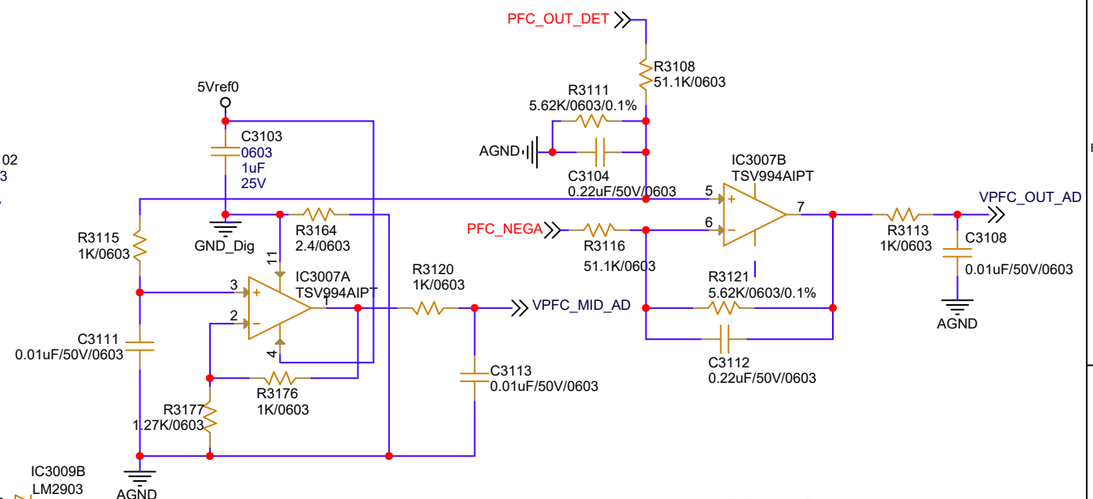
3.3V to 1.65Vref



PFC Bulk HW OVP

Vtrigger=1.606V @890V





PFC Bulk Voltage AD

VPFC_OUT_AD=0.003612*VPFC_OUT

VPFC_OUT_AD=2.889
@800V

VPFC_MID_AD=0.006432*VPFC_MID

VPFC_OUT_AD=2.572
@400V

Title	30KW DC CHARGER	
Size A3	Document Number SB1_SENSE	Rev X3_0
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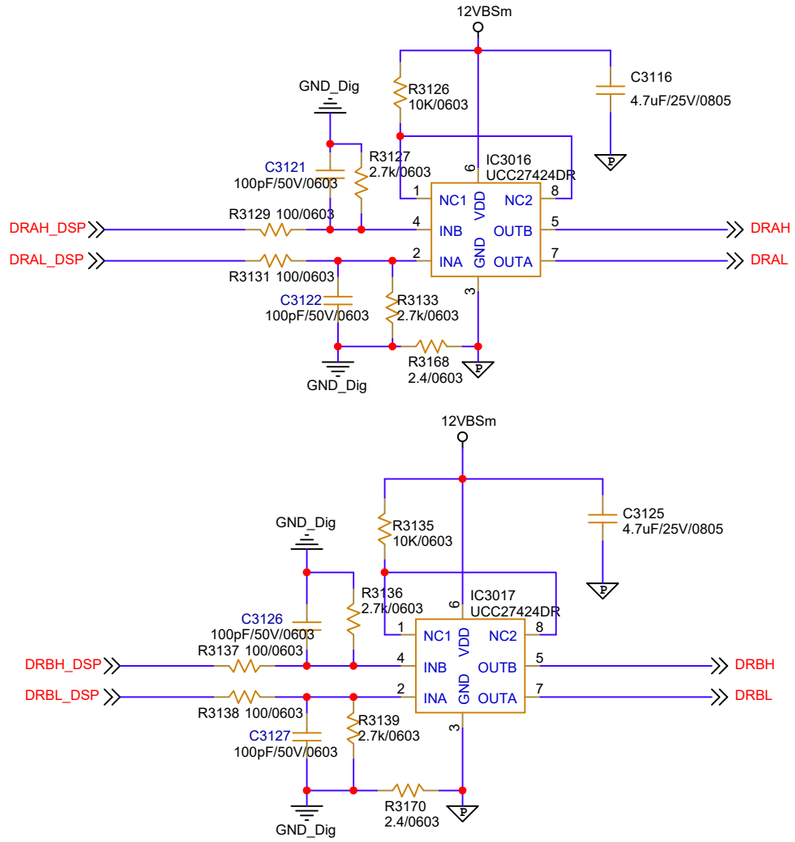

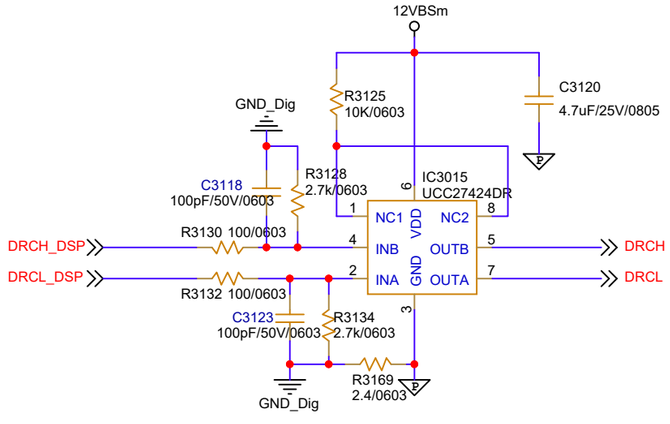

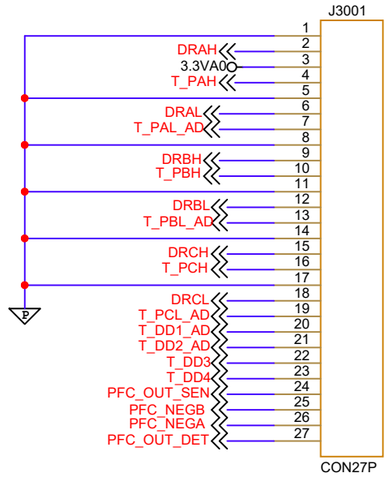

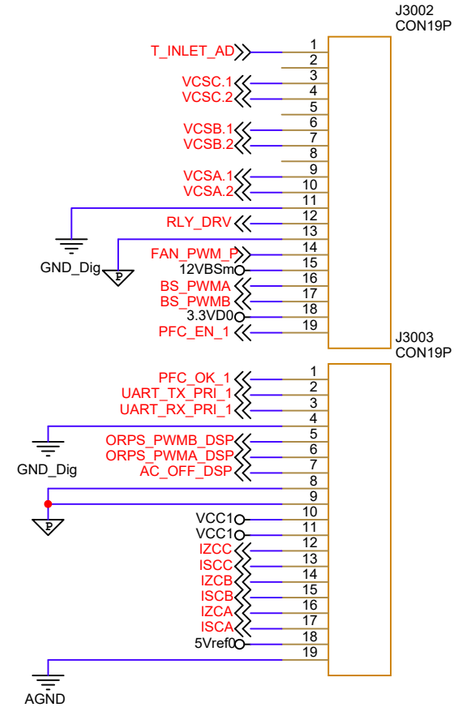

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Size A3	Document Number SB1_DRIVER	Rev X3_0
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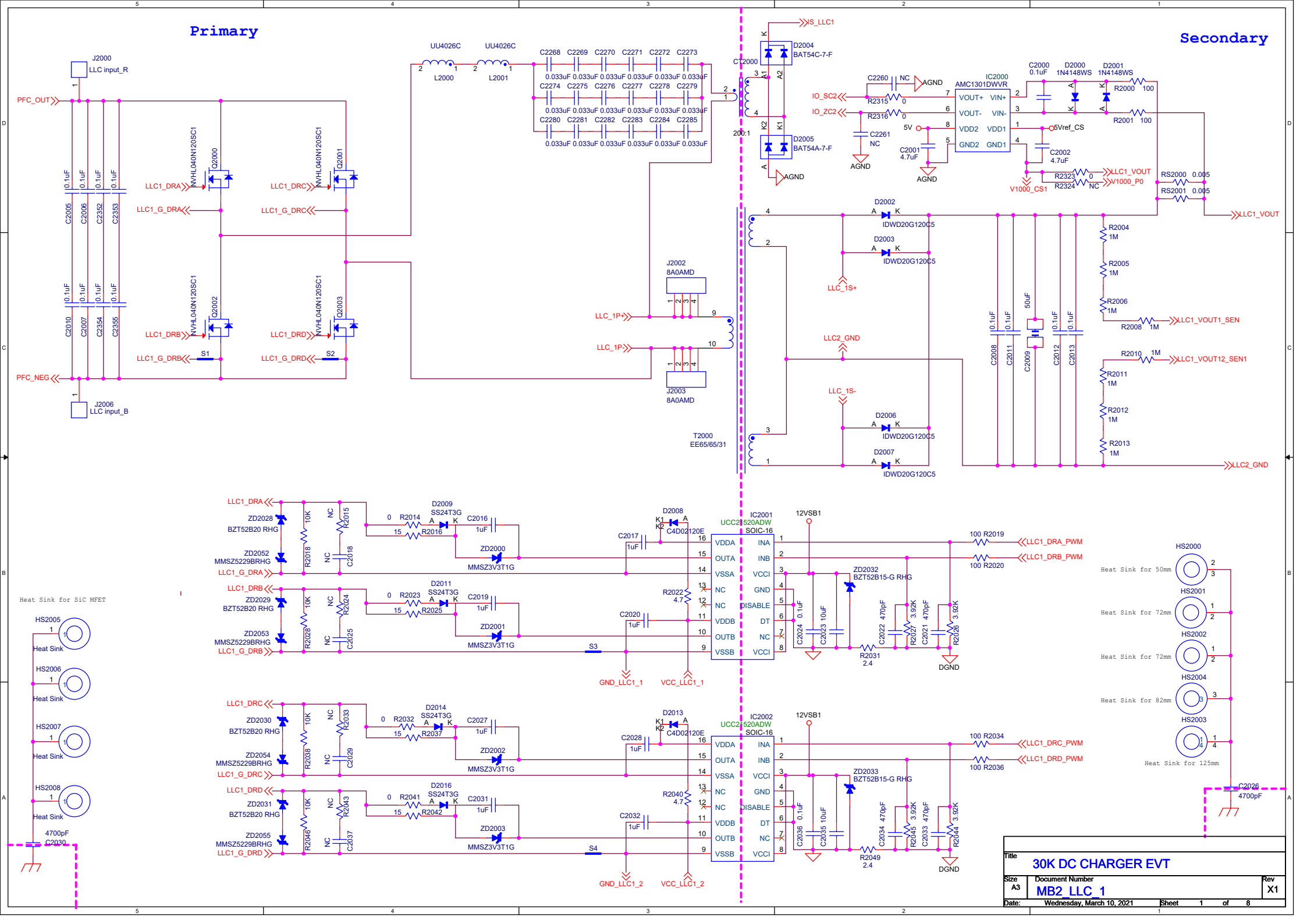
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J2000
LLC input_R
PFC_OUT
PFC_NEG
J2006
LLC input_B
NVHL040N120SC1
Q2000
Q2001
Q2002
Q2003
LLC1_DRA
LLC1_G_DRA
LLC1_DRC
LLC1_G_DRC
LLC1_DRB
LLC1_G_DRB
LLC1_DRD
LLC1_G_DRD
S1
S2
UU4026C
L2000
L2001
200:1
J2002
8A0AMD
J2003
8A0AMD
LLC_1P+
LLC_1P-
T2000
EE65/65/31
IS_LLC1
CT2000
D2004
BAT54C-7-F
D2005
BAT54A-7-F
IO_SC2
IO_ZC2
IC2000
AMC1301DWVR
5Vref_CS
V1000_CS1
LLC1_VOUT
V1000_P0
RS2000
RS2001
D2002
D2003
D2006
D2007
IDWD20G120C5
LLC_1S+
LLC_1S-
LLC2_GND
LLC1_VOUT1_SEN
LLC1_VOUT12_SEN1
Heat Sink for SiC MFET
HS2005
HS2006
HS2007
HS2008
Heat Sink
4700pF
C2030
IC2001
IC2002
UCC21520ADW
SOIC-16
12VSB1
D2008
D2013
C4D02120E
D2009
D2011
D2014
D2016
SS24T3G
MMSZ3V3T1G
ZD2028
ZD2029
ZD2030
ZD2031
BZT52B20 RHG
ZD2052
ZD2053
ZD2054
ZD2055
MMSZ5229BRHG
ZD2032
ZD2033
BZT52B15-G RHG
LLC1_DRA_PWM
LLC1_DRB_PWM
LLC1_DRC_PWM
LLC1_DRD_PWM
GND_LLC1_1
VCC_LLC1_1
GND_LLC1_2
VCC_LLC1_2
DGND
HS2000
HS2001
HS2002
HS2003
HS2004
Heat Sink for 50mm
Heat Sink for 72mm
Heat Sink for 72mm
Heat Sink for 82mm
Heat Sink for 125mm
C2026
4700pF
Title
30K DC CHARGER EVT
Size
A3
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MB2_LLC_1
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X1
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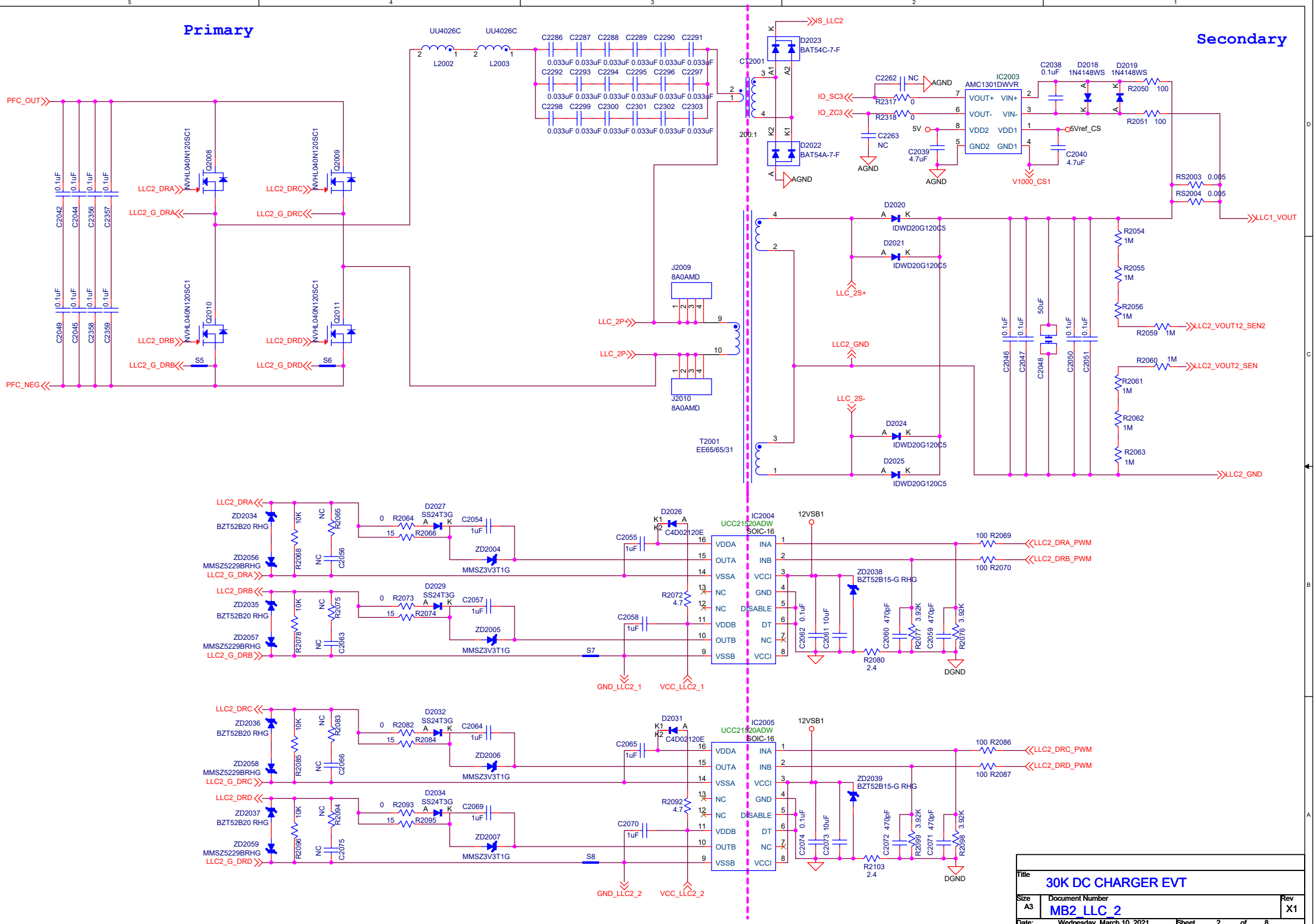

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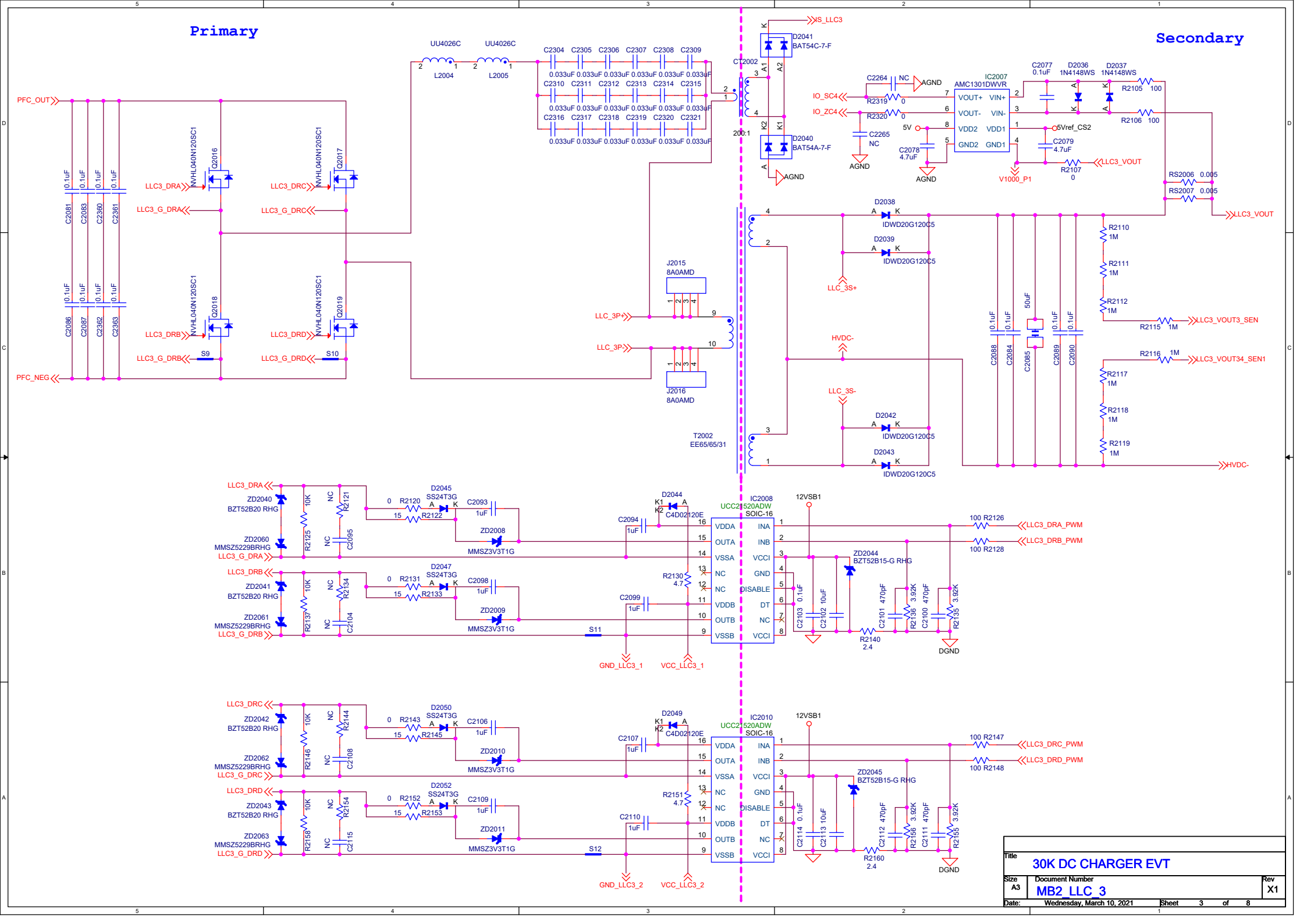
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PFC_NEG
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UU4026C
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L2005
C2304 C2305 C2306 C2307 C2308 C2309
C2310 C2311 C2312 C2313 C2314 C2315
C2316 C2317 C2318 C2319 C2320 C2321
0.033uF
CT2002
200:1
D2041
BAT54C-7-F
D2040
BAT54A-7-F
AGND
IS_LLC3
C2264 NC
R2319 0
R2320 0
C2265 NC
IO_SC4
IO_ZC4
IC2007
AMC1301DWVR
VOUT+ VIN+
VOUT- VIN-
VDD2 VDD1
GND2 GND1
5V
C2078 4.7uF
C2077 0.1uF
D2036 1N4148WS
D2037 1N4148WS
R2105 100
R2106 100
5Vref_CS2
C2079 4.7uF
R2107 0
V1000_P1
LLC3_VOUT
RS2006 0.005
RS2007 0.005
C2081 C2083 C2360 C2361 0.1uF
C2086 C2087 C2362 C2363 0.1uF
NVHL040N120SC1
Q2016
Q2017
Q2018
Q2019
LLC3_DRA
LLC3_G_DRA
LLC3_DRC
LLC3_G_DRC
LLC3_DRB
LLC3_G_DRB
LLC3_DRD
LLC3_G_DRD
S9
S10
J2015
8A0AMD
J2016
8A0AMD
LLC_3P+
LLC_3P-
T2002
EE65/65/31
D2038
D2039
IDWD20G120C5
LLC_3S+
HVDC-
LLC_3S-
D2042
D2043
C2088 C2084 0.1uF
C2085 50uF
C2089 C2090 0.1uF
R2110 1M
R2111 1M
R2112 1M
R2115 1M
LLC3_VOUT3_SEN
R2116 1M
LLC3_VOUT34_SEN1
R2117 1M
R2118 1M
R2119 1M
HVDC-
LLC3_DRA
ZD2040 BZT52B20 RHG
ZD2060 MMSZ5229BRHG
LLC3_G_DRA
R2125 10K
R2121 NC
C2095 NC
D2045 SS24T3G
R2120 0
R2122 15
C2093 1uF
ZD2008 MMSZ3V3T1G
LLC3_DRB
ZD2041 BZT52B20 RHG
ZD2061 MMSZ5229BRHG
LLC3_G_DRB
R2137 10K
R2134 NC
C2104 NC
D2047 SS24T3G
R2131 0
R2133 15
C2098 1uF
ZD2009 MMSZ3V3T1G
S11
GND_LLC3_1
VCC_LLC3_1
D2044 C4D02120E
C2094 1uF
C2099 1uF
IC2008
UCC21520ADW
SOIC-16
VDDA OUTA VSSA NC NC VDDB OUTB VSSB
INA INB VCCI GND DISABLE DT NC VCCI
R2130 4.7
12VSB1
100 R2126
100 R2128
LLC3_DRA_PWM
LLC3_DRB_PWM
ZD2044 BZT52B15-G RHG
C2103 0.1uF
C2102 10uF
C2101 470pF
R2136 3.92K
C2100 470pF
R2135 3.92K
R2140 2.4
DGND
LLC3_DRC
ZD2042 BZT52B20 RHG
ZD2062 MMSZ5229BRHG
LLC3_G_DRC
R2146 10K
R2144 NC
C2108 NC
D2050 SS24T3G
R2143 0
R2145 15
C2106 1uF
ZD2010 MMSZ3V3T1G
LLC3_DRD
ZD2043 BZT52B20 RHG
ZD2063 MMSZ5229BRHG
LLC3_G_DRD
R2158 10K
R2154 NC
C2115 NC
D2052 SS24T3G
R2152 0
R2153 15
C2109 1uF
ZD2011 MMSZ3V3T1G
S12
GND_LLC3_2
VCC_LLC3_2
D2049 C4D02120E
C2107 1uF
C2110 1uF
IC2010
UCC21520ADW
SOIC-16
R2151 4.7
12VSB1
100 R2147
100 R2148
LLC3_DRC_PWM
LLC3_DRD_PWM
ZD2045 BZT52B15-G RHG
C2114 0.1uF
C2113 10uF
C2112 470pF
R2156 3.92K
C2111 470pF
R2155 3.92K
R2160 2.4
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30K DC CHARGER EVT
Size A3
Document Number
MB2_LLC_3
Rev X1
Date: Wednesday, March 10, 2021
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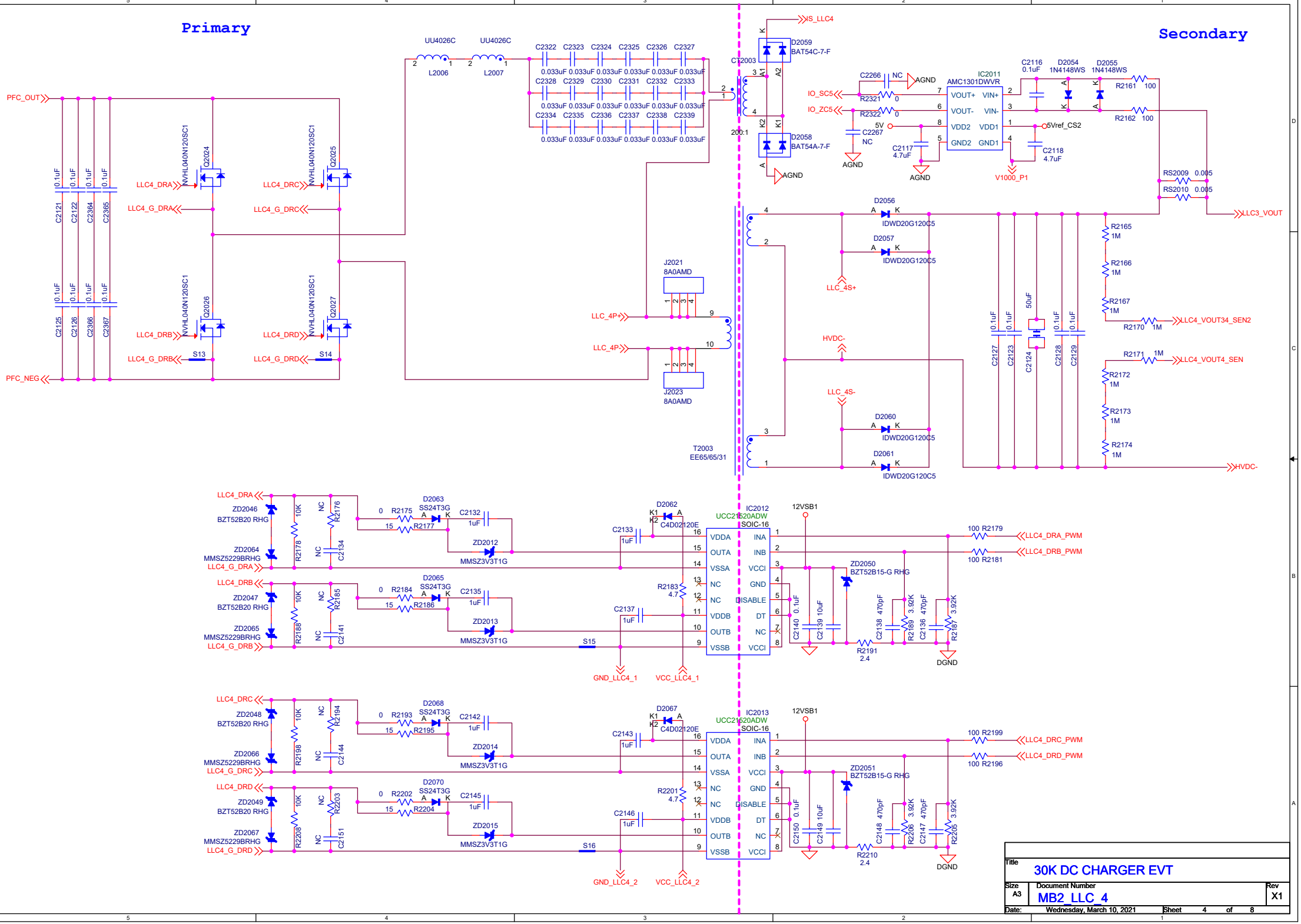
Primary
Secondary
PFC_OUT
PFC_NEG
UU4026C
UU4026C
L2006
L2007
C2322 C2323 C2324 C2325 C2326 C2327
C2328 C2329 C2330 C2331 C2332 C2333
C2334 C2335 C2336 C2337 C2338 C2339
0.033uF
CT2003
200:1
D2059 BAT54C-7-F
D2058 BAT54A-7-F
IS_LLC4
AGND
C2266 NC
IO_SC5
IO_ZC5
R2321 0
R2322 0
5V
C2267 NC
C2117 4.7uF
IC2011 AMC1301DWVR
VOUT+ VIN+
VOUT- VIN-
VDD2 VDD1
GND2 GND1
C2116 0.1uF
D2054 1N4148WS
D2055 1N4148WS
R2161 100
R2162 100
5Vref_CS2
C2118 4.7uF
V1000_P1
RS2009 0.005
RS2010 0.005
LLC3_VOUT
D2056 IDWD20G120C5
D2057 IDWD20G120C5
LLC_4S+
LLC_4S-
D2060 IDWD20G120C5
D2061 IDWD20G120C5
HVDC-
R2165 1M
R2166 1M
R2167 1M
R2170 1M
LLC4_VOUT34_SEN2
R2171 1M
LLC4_VOUT4_SEN
R2172 1M
R2173 1M
R2174 1M
C2127 C2123 C2124 C2128 C2129
0.1uF
50uF
J2021 8A0AMD
J2023 8A0AMD
LLC_4P+
LLC_4P-
T2003 EE65/65/31
C2121 C2122 C2364 C2365
C2125 C2126 C2366 C2367
Q2024 NVHL040N120SC1
Q2025 NVHL040N120SC1
Q2026 NVHL040N120SC1
Q2027 NVHL040N120SC1
LLC4_DRA
LLC4_G_DRA
LLC4_DRC
LLC4_G_DRC
LLC4_DRB
LLC4_G_DRB
LLC4_DRD
LLC4_G_DRD
S13
S14
S15
S16
ZD2046 BZT52B20 RHG
ZD2064 MMSZ5229BRHG
ZD2047 BZT52B20 RHG
ZD2065 MMSZ5229BRHG
ZD2048 BZT52B20 RHG
ZD2066 MMSZ5229BRHG
ZD2049 BZT52B20 RHG
ZD2067 MMSZ5229BRHG
D2063 SS24T3G
D2065 SS24T3G
D2068 SS24T3G
D2070 SS24T3G
ZD2012 MMSZ3V3T1G
ZD2013 MMSZ3V3T1G
ZD2014 MMSZ3V3T1G
ZD2015 MMSZ3V3T1G
D2062 C4D02120E
D2067 C4D02120E
IC2012 UCC21520ADW SOIC-16
IC2013 UCC21520ADW SOIC-16
VDDA OUTA VSSA NC NC VDDB OUTB VSSB
INA INB VCCI GND DISABLE DT NC VCCI
12VSB1
ZD2050 BZT52B15-G RHG
ZD2051 BZT52B15-G RHG
R2191 2.4
R2210 2.4
R2183 4.7
R2201 4.7
100 R2179
100 R2181
100 R2199
100 R2196
LLC4_DRA_PWM
LLC4_DRB_PWM
LLC4_DRC_PWM
LLC4_DRD_PWM
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VCC_LLC4_1
GND_LLC4_2
VCC_LLC4_2
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Size A3
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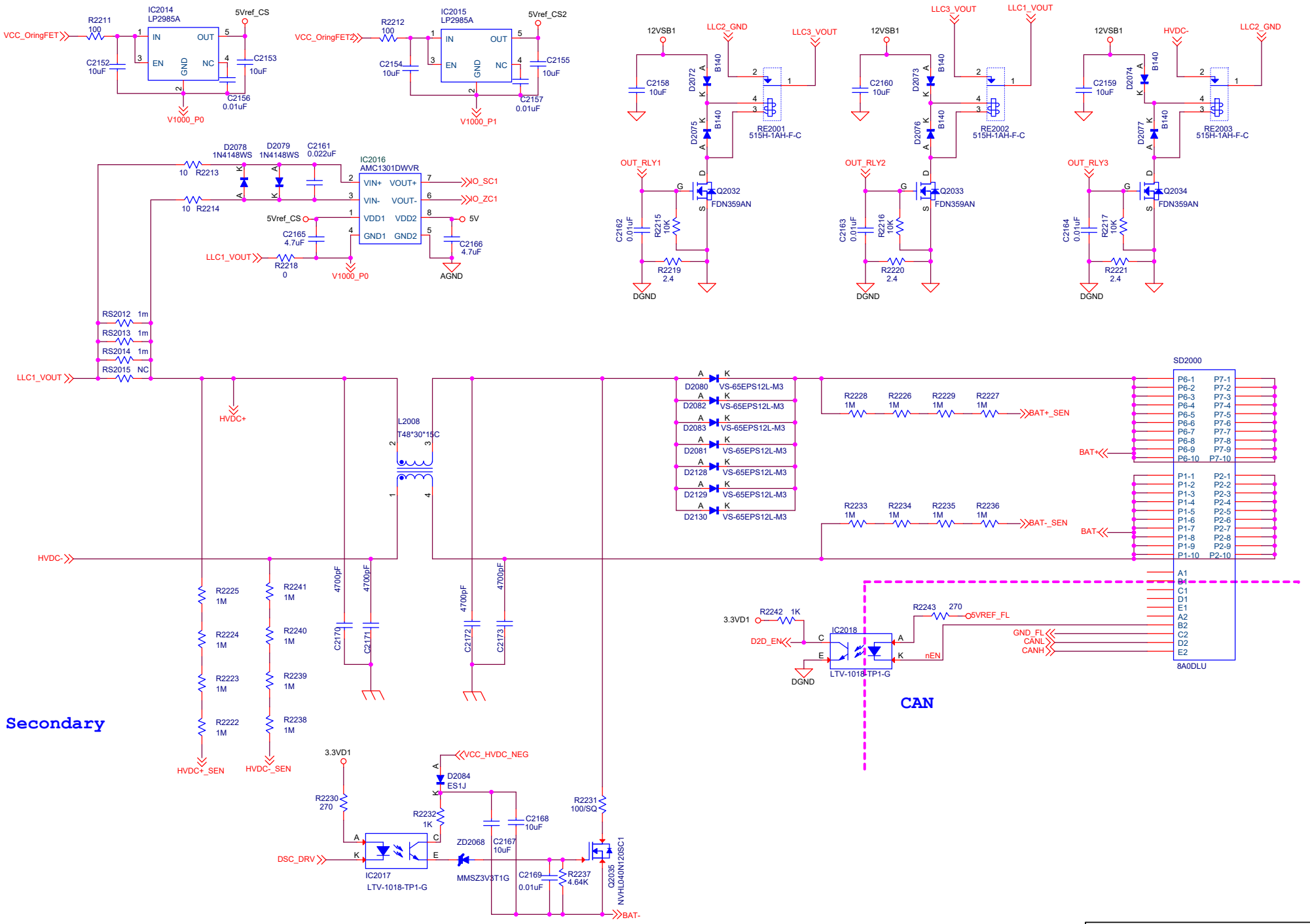
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5Vref_CS
VCC_OringFET1
R2211 100
C2152 10uF
C2153 10uF
C2156 0.01uF
V1000_P0
IC2015 LP2985A
5Vref_CS2
VCC_OringFET2
R2212 100
C2154 10uF
C2155 10uF
C2157 0.01uF
V1000_P1
12VSB1
LLC2_GND
LLC3_VOUT
LLC1_VOUT
HVDC-
C2158 10uF
C2160 10uF
C2159 10uF
D2072
D2073
D2074
D2075
D2076
D2077
B140
RE2001 515H-1AH-F-C
RE2002 515H-1AH-F-C
RE2003 515H-1AH-F-C
OUT_RLY1
OUT_RLY2
OUT_RLY3
Q2032 FDN359AN
Q2033 FDN359AN
Q2034 FDN359AN
C2162 0.01uF
C2163 0.01uF
C2164 0.01uF
R2215 10K
R2216 10K
R2217 10K
R2219 2.4
R2220 2.4
R2221 2.4
DGND
D2078 1N4148WS
D2079 1N4148WS
C2161 0.022uF
R2213 10
R2214 10
IC2016 AMC1301DWVR
VIN+ VOUT+ VIN- VOUT- VDD1 VDD2 GND1 GND2
IO_SC1
IO_ZC1
5V
C2165 4.7uF
C2166 4.7uF
R2218 0
AGND
RS2012 1m
RS2013 1m
RS2014 1m
RS2015 NC
L2008 T48*30*15C
D2080 VS-65EPS12L-M3
D2082 VS-65EPS12L-M3
D2083 VS-65EPS12L-M3
D2081 VS-65EPS12L-M3
D2128 VS-65EPS12L-M3
D2129 VS-65EPS12L-M3
D2130 VS-65EPS12L-M3
R2228 1M
R2226 1M
R2229 1M
R2227 1M
R2233 1M
R2234 1M
R2235 1M
R2236 1M
BAT+_SEN
BAT-_SEN
SD2000
BAT+
BAT-
8A0DLU
R2225 1M
R2224 1M
R2223 1M
R2222 1M
R2241 1M
R2240 1M
R2239 1M
R2238 1M
HVDC+_SEN
HVDC-_SEN
C2170 4700pF
C2171 4700pF
C2172 4700pF
C2173 4700pF
Secondary
3.3VD1
R2242 1K
D2D_EN
IC2018
LTV-1018-TP1-G
R2243 270
5VREF_FL
nEN
GND_FL
CANL
CANH
CAN
VCC_HVDC_NEG
D2084 ES1J
R2230 270
R2232 1K
C2168 10uF
R2231 100/SQ
DSC_DRV
IC2017 LTV-1018-TP1-G
ZD2068 MMSZ3V3T1G
C2167 10uF
C2169 0.01uF
R2237 4.64K
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Size A3
Document Number MB2_OUTPUT&DC EMI
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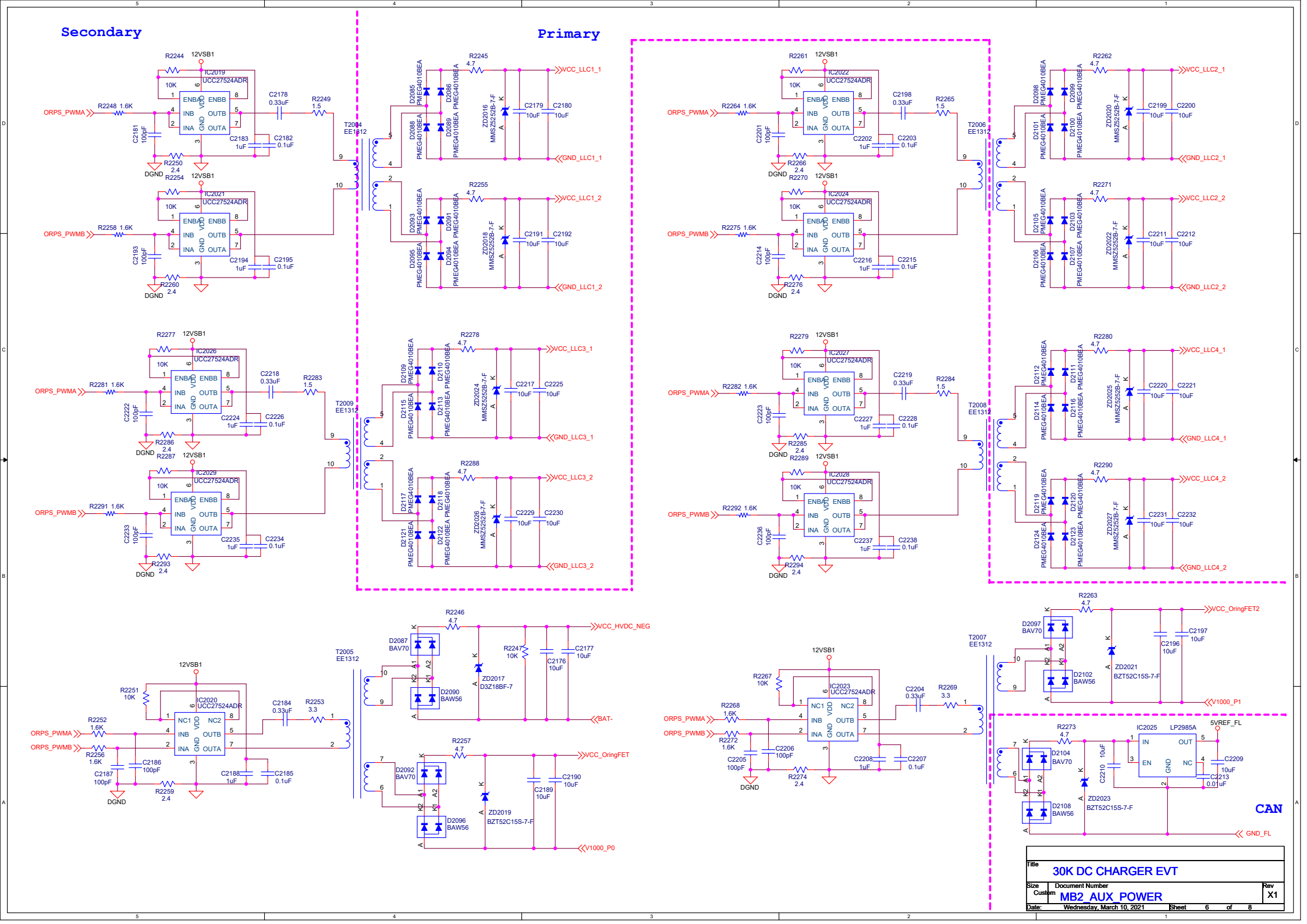
Secondary
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12VSB1
IC2019
UCC27524ADR
IC2021
IC2026
IC2029
IC2022
IC2024
IC2027
IC2028
IC2020
IC2023
ENBA
ENBB
INB
OUTB
INA
OUTA
VDD
GND
NC1
NC2
ORPS_PWMA
ORPS_PWMB
DGND
T2004 EE1312
T2009 EE1312
T2005 EE1312
T2006 EE1312
T2008 EE1312
T2007 EE1312
VCC_LLC1_1
GND_LLC1_1
VCC_LLC1_2
GND_LLC1_2
VCC_LLC3_1
GND_LLC3_1
VCC_LLC3_2
GND_LLC3_2
VCC_HVDC_NEG
BAT-
VCC_OringFET
V1000_P0
VCC_LLC2_1
GND_LLC2_1
VCC_LLC2_2
GND_LLC2_2
VCC_LLC4_1
GND_LLC4_1
VCC_LLC4_2
GND_LLC4_2
VCC_OringFET2
V1000_P1
5VREF_FL
GND_FL
IC2025
LP2985A
IN
OUT
EN
NC
CAN
Title
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Document Number
MB2_AUX_POWER
Rev
X1
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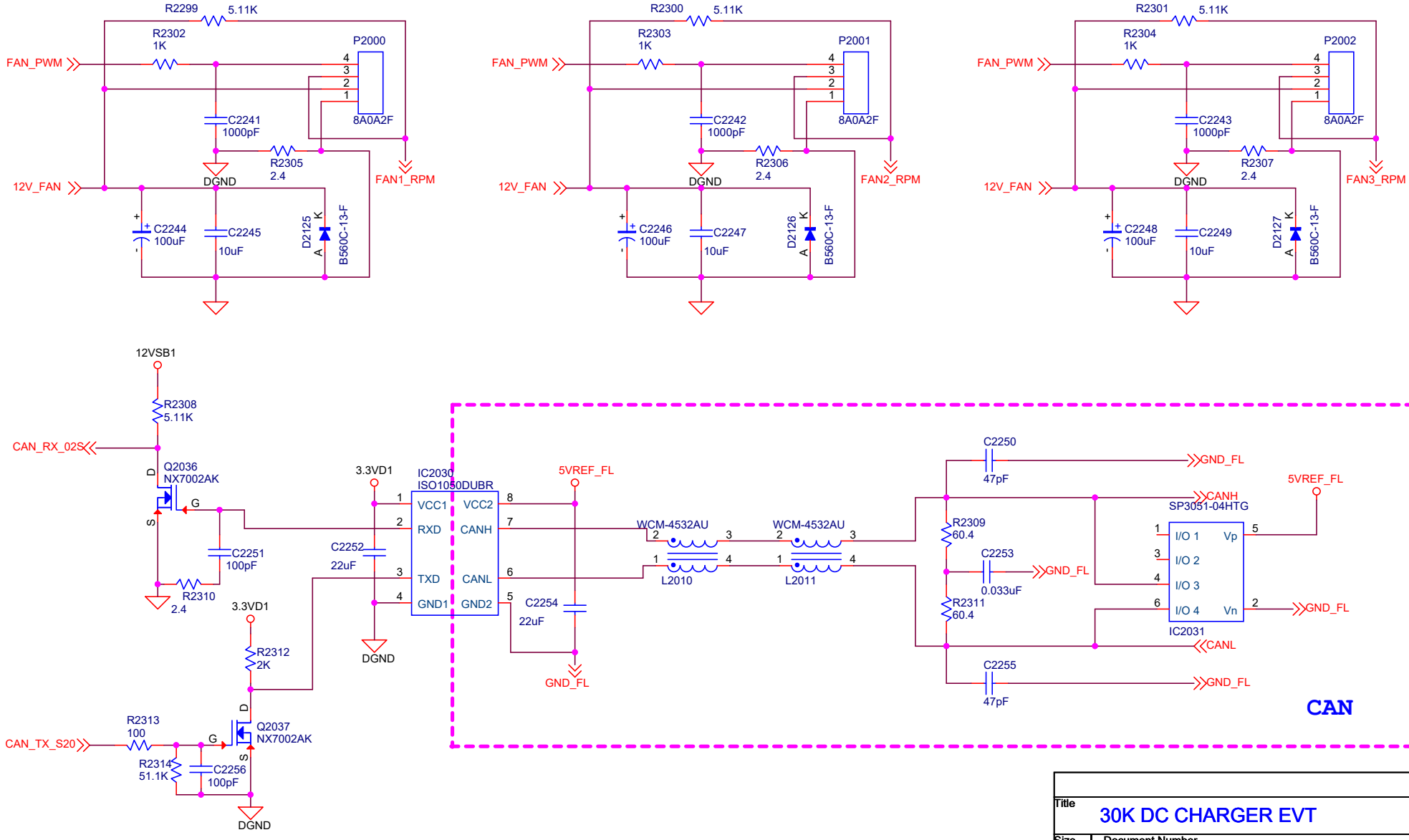
Secondary



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Size: Custom	Document Number: MB2_FAN&COMM	Rev: X1
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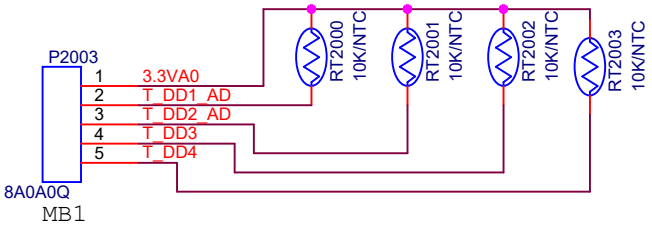
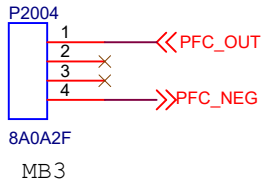
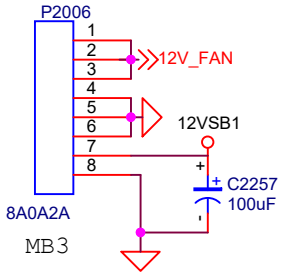
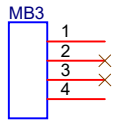
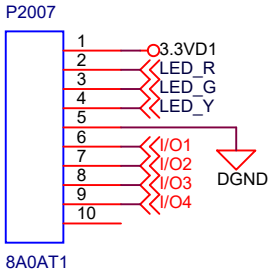
Primary



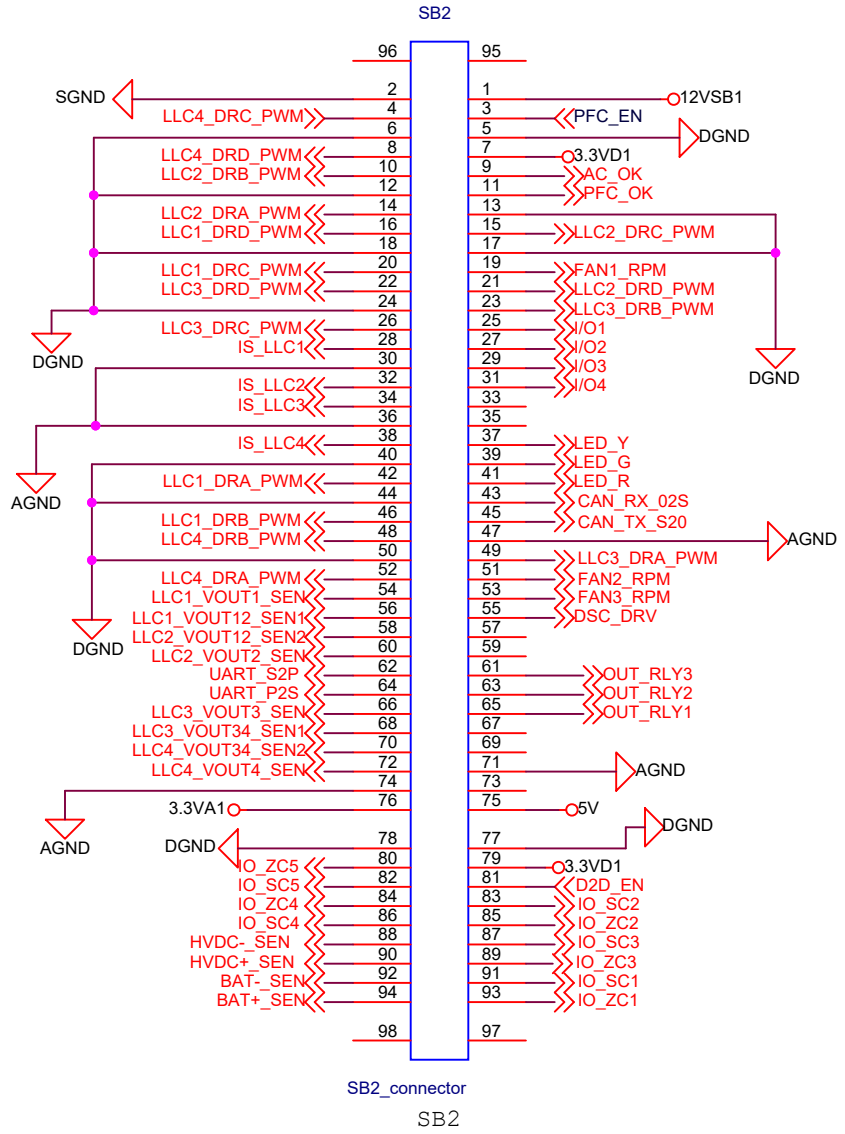




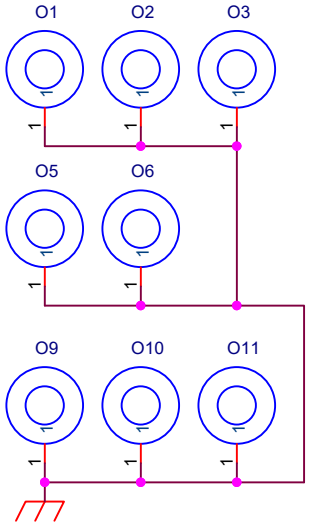


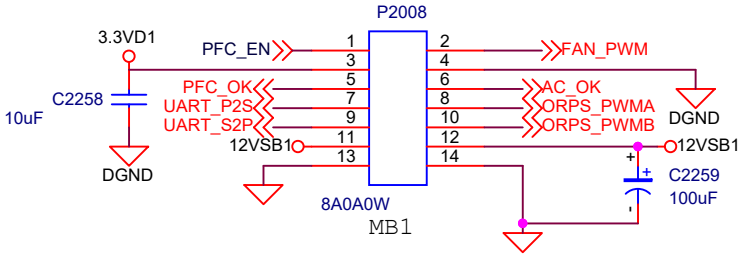


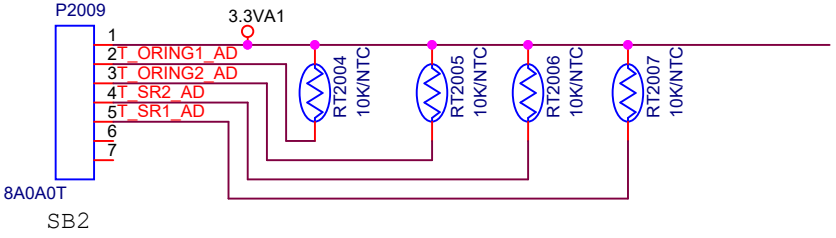
Secondary



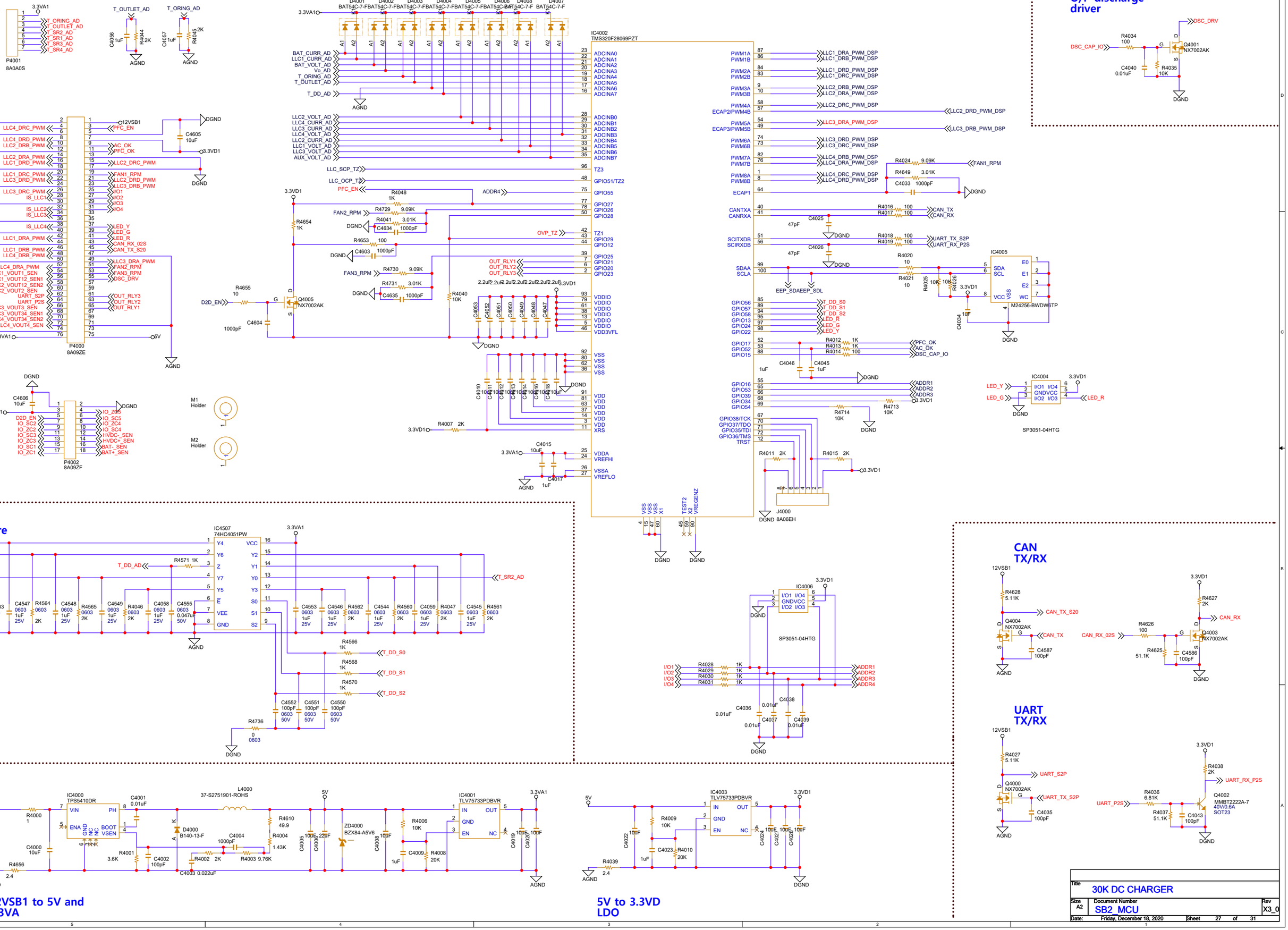
mounting hole



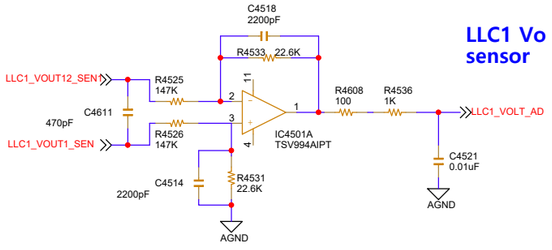




Title	30K DC CHARGER EVT	
Size A4	Document Number MB2_CONNECTOR	Rev X1
Date: Wednesday, March 10, 2021	Sheet 8 of 8	

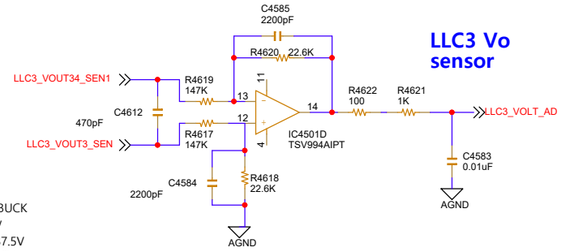

O/P discharge driver
DSC_CAP_IO
DSC_DRV
Heat sink temperature
IC4507 74HC4051PW
T_SR1_AD
T_SR3_AD
T_SR4_AD
T_DD_AD
T_SR2_AD
T_DD_S0
T_DD_S1
T_DD_S2
IC4006
SP3051-04HTG
CAN TX/RX
CAN_TX_S20
CAN_TX
CAN_RX
CAN_RX_02S
UART TX/RX
UART_S2P
UART_TX_S2P
UART_RX_P2S
UART_P2S
12VSB1 to 5V and 3.3VA
5V to 3.3VD LDO
30K DC CHARGER
SB2_MCU
Friday, December 18, 2020

LLC1 Vo sensor

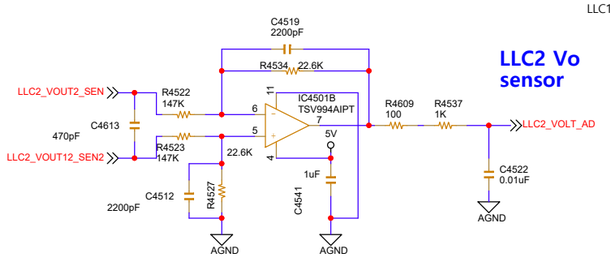


LL1_VOLT_AD=0.005449*VoBUCK
LLC1_VOLT_AD=0.408 @75V
LLC1_VOLT_AD=1.0218 @187.5V
LLC1_VOLT_AD=2.0436 @375V
LLC1_VOLT_AD=2.7248 @500V

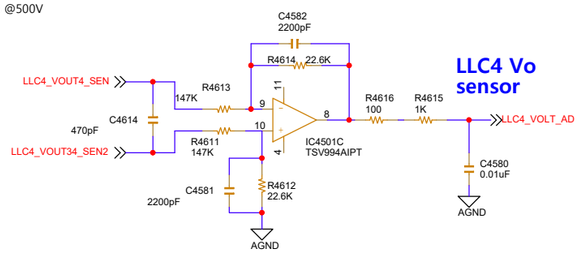
LLC3 Vo sensor



LLC2 Vo sensor

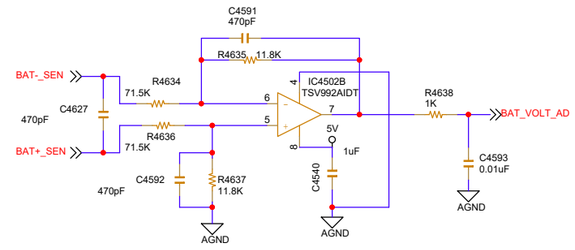


LLC4 Vo sensor



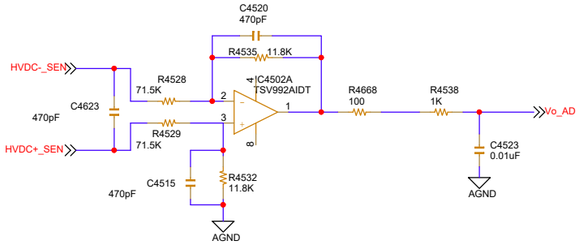
BAT voltage sensor

BAT_VoAD=0.002898*HVDC
BAT_VoAD=0.434 @150V
BAT_VoAD=1.0868 @375V
BAT_VoAD=2.1736 @750V
BAT_VoAD=2.898 @1000V

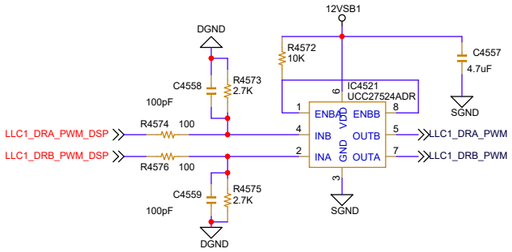


HVDC voltage sensor

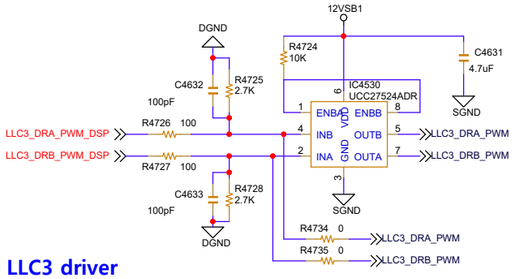
Vo_AD=0.002898*HVDC
Vo_AD=0.434 @150V
Vo_AD=1.0868 @375V
Vo_AD=2.1736 @750V
Vo_AD=2.898 @1000V



LLC1 driver PWM

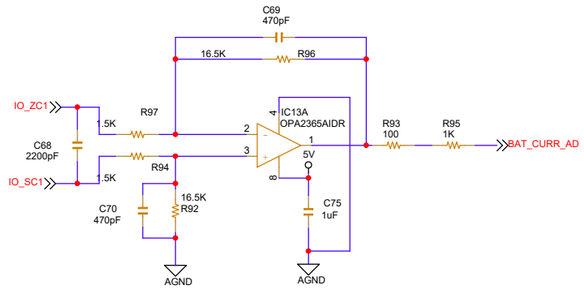


LLC3 driver PWM

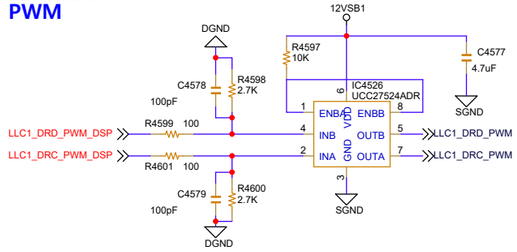


HVDC current sensor

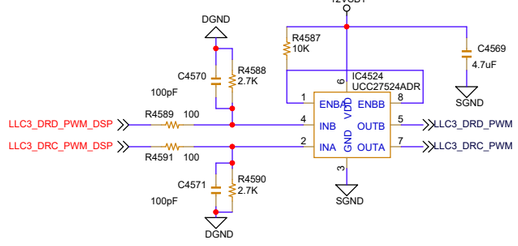
Io_CURR_AD=0.03* Io
Io_CURR_AD=1.2 @40A
Io_CURR_AD=2.4 @80A
Io_CURR_AD=3.2 @106.6A



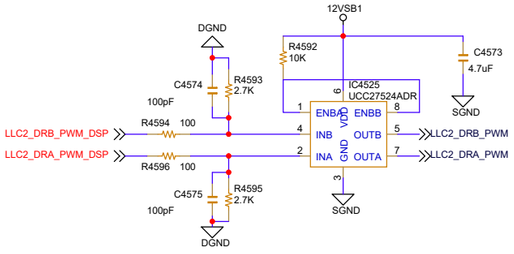
LLC1 driver PWM



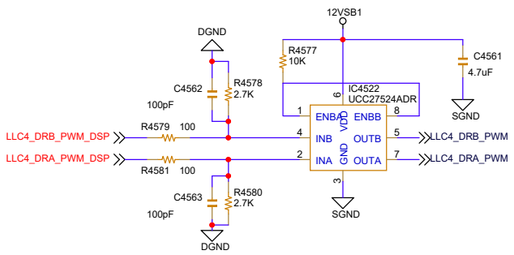
LLC3 driver PWM



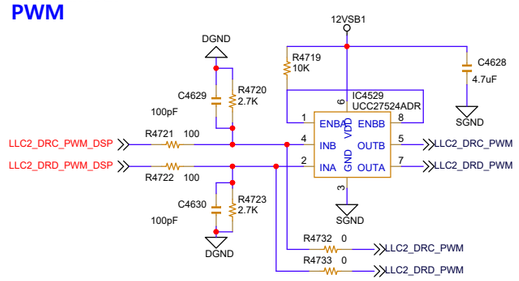
LLC2 driver PWM



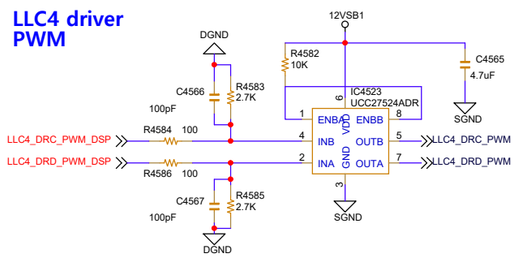
LLC4 driver PWM



LLC2 driver PWM

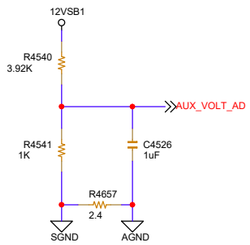


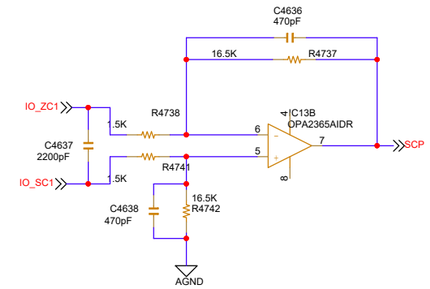
LLC4 driver PWM



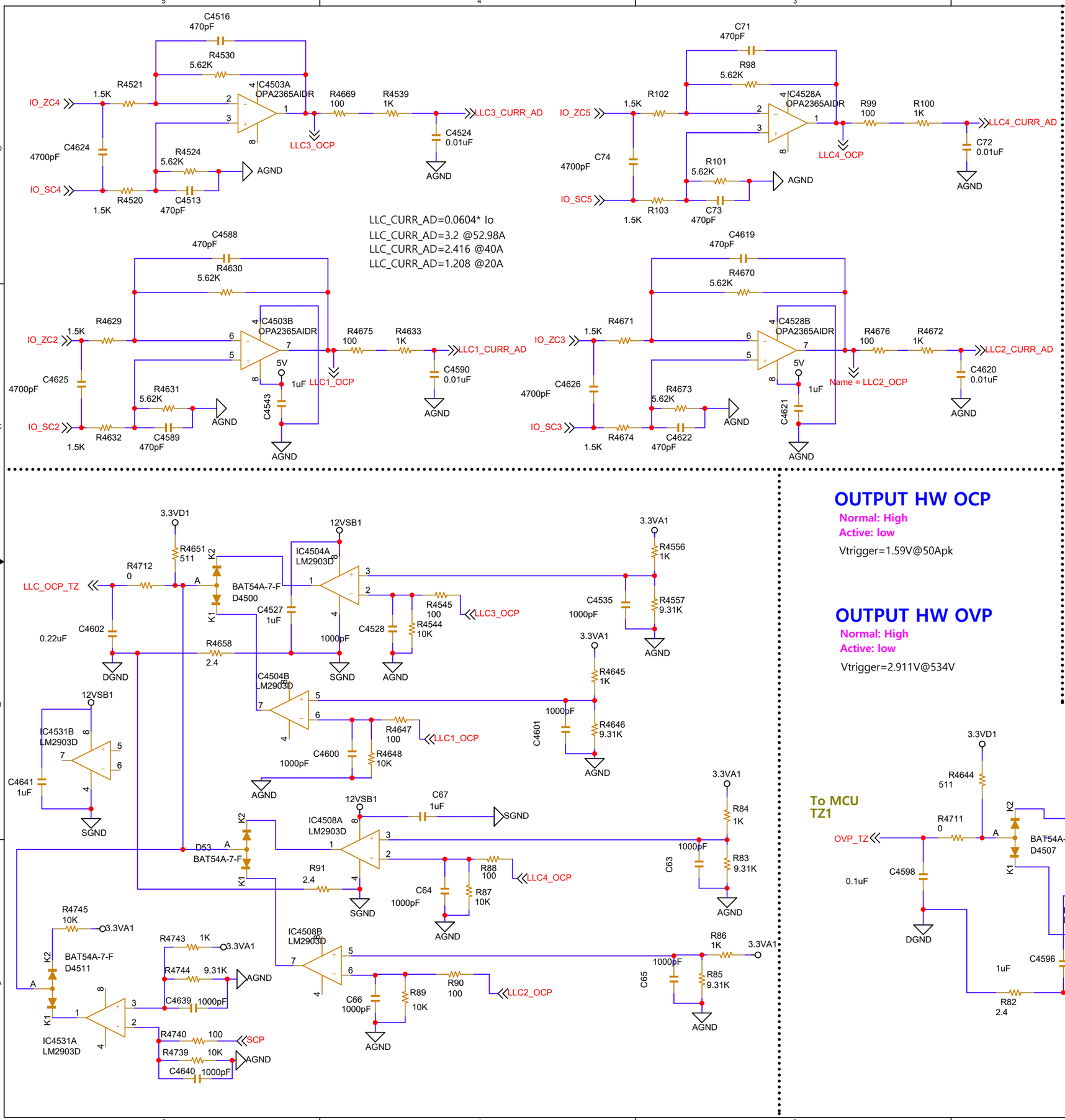
12VSB1 AUX AD

AUX_VOLT_AD=2.439V @12V





Title	30K DC CHARGER	
Size A2	Document Number SB2_SENSE	Rev X3_0
Date: Friday, December 18, 2020	Sheet 28 of 31	



LLC primary HW OCP

Normal: High

Active: low

V=0.005*10*IS_LLC

Vtrigger=2.4935V@49.8Apk

To MCU
TZ3

OUTPUT HW OCP

Normal: High

Active: low

Vtrigger=1.59V@50Apk

OUTPUT HW OVP

Normal: High

Active: low

Vtrigger=2.911V@534V

To MCU
TZ1

Title	30K DC CHARGER		
Size A3	Document Number SB2_PROTECTION		Rev X3_0
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