## 1.8A DC/DC Step-Down Voltage Regulator 5V

U11 IFX91041EJV50 (EN, SYNC, BOOT, BUO, VS, FB, COMP, GNDpad, GND)
ENABLE, V-BAT, R61 0.1, R50 3.74k, R51 23.2k, C59 0.1uF, C57 0.1uF, C61 10uF 50V
Cbot 220nF, D5 PMEG6030EVP 60V 3A, L3 47uH, R54 NI, C60 NI
CBU1 47uF 6.3V, CBU2 1.0uF 0805 6.3V, +5VP
Ccomp 0.022uF, Ccomp2 100pF, Rcomp 9.09k

J13 EXT/ITN 5V, J9 +5V_EXT, +5V EXT, Ipos_5V, TP11 Ipos_5V, R56 0, TP10 Ineg_5V, +5V, C68 10uF 0805 25V, R62 0

## Step up-DC-DC Converter

30V 3A, DB2W31900L, D3, C63 NI, L1 6.8uH, C53 22uF 6.3V
U10 LM2621/LM2623 (SW, BOOT, PGND, SGND, FB, EN, VDD, FREQ)
R55 499, Rfq 390k, Rf1 150k, Rf2 17.4k, CF1 39pF, C62 0.1uF, C54 680uF 16V, VBOOSTP

## U Phase

U6 NL27WZ08 (A1, B1, A2, B2, Y1, Y2, GND, Vcc)
U-H, SD, U-L, 8+5V, C41 0.1uF
IC1 2EDL05N06PF (VDD, VB, HIN, HO, LIN, VS, GND, LO)
V-BOOST, U-HIN, U-LIN, C2 1uF, C3 1uF, 7U-HO, U, U-LO
R3 100k, R6 100k
Q14 IRF7480, Q24 IRF7480, Q23 IRF7480, Q13 IRF7480
C22 2.2uF 50V 0603, C23 2.2uF 50V 0603, C24 2.2uF 50V 0603, C25 2.2uF 50V 0603
R1 4.99, R2 4.99, R4 4.99, R5 4.99
TP1_U2, R34 47k, B12, R35 5.1k

## V Phase

U7 NL27WZ08 (A1, B1, A2, B2, Y1, Y2, GND, Vcc)
V-H, V-L, 8+5V, C42 0.1uF
IC2 2EDL05N06PF (VDD, VB, HIN, HO, LIN, VS, GND, LO)
V-BOOST, V-HIN, V-LIN, C4 1uF, C5 1uF, V-HO, V, V-LO
R9 100k, R12 100k
Q16 IRF7480, Q18 IRF7480, Q17 IRF7480, Q15 IRF7480
C26 2.2uF 50V 0603, C27 2.2uF 50V 0603, C28 2.2uF 50V 0603, C29 2.2uF 50V 0603
R7 4.99, R8 4.99, R10 4.99, R11 4.99
TP1_V2, TP8 T POINT S, TP3 T POINT S, TP4 T POINT S
R36 47k, B11, R37 5.1k
CS+, RS1 1 mOhm 1% 5W, CS-

## W Phase

U8 NL27WZ08USG (A1, B1, A2, B2, Y1, Y2, GND, Vcc)
W-H, W-L, 8+5V, C43 0.1uF
IC3 2EDL05N06PF (VDD, VB, HIN, HO, LIN, VS, GND, LO)
V-BOOST, W-HIN, W-LIN, C6 1uF, C7 1uF, W-HO, W, W-LO
R15 100k, R18 100k
Q20 IRF7480, Q22 IRF7480, Q21 IRF7480, Q19 IRF7480
C30 2.2uF 50V 0603, C31 2.2uF 50V 0603, C32 2.2uF 50V 0603, C33 2.2uF 50V 0603
R13 4.99, R14 4.99, R16 4.99, R17 4.99
TP1_W2, R38 47k, B10, R39 5.1k

## Direction Switch

J14, +5V, R65 10k
U9 PCN10C-32S-2.54DS(72)
W-H, W-L, V-H, V-L, U-H, U-L, B10, B11, B12
Current_Amp_OUT, V-BAT, R63 31.6k, C67 1uF, R64 7.87k, D7 5.1V
T-Sense, C66 1uF, R66 100, RT1 MCP9700T, C1 1uF, R67 200
SD, DR-EN, R43 0

J15 EXT/ITN 12V, TP12 Ipos_12V, TP13 Ineg_12V, R52 0.1, C69 10uF 0805 25V
12V EXT, J10 12V EXT
D1 AM23SGD3-F, R40 1.5k, R42 10k, R41 10k, Q25 IRLML6346

## CURRENT SENSE AMPLIFIER

R68 10, R44 22k 0.5%, C46 0.1uF, OP2 LMV721M5
C47 0.01uF, R33 5.9k 0.5%, R25 47K 0.5%
CS+, R19 1K 0.5%, C34 100pF, R22 4.53k
CS-, R20 1K 0.5%, R21 4.53k
R69 10, C35 0.1uF, OP1 LMV721M5, R24 10, R70 0, C36 1.0nF
C45 100pF, R23 47K 0.5%
Current_Amp_OUT

## CURRENT COMPARATOR & EM SHUTDOWN

R28 47K 0.5%, C38 0.1uF, R32 10K 0.5%, U4 LMV331IDBV
Current_Amp_OUT, C40 1uF, R26 26.1k, R27 1M 0.5%, C44 100pF
U5 SN74LVC2G74 (PRE, D, CLK, CLR, GND, VCC, Q, Q1)
C37 0.1uF, CLR, R29 20K, C39 1uF
R30 10K 0.5%, Q1 IRLML6346, R31 10K 0.5%, SD

J5 stand, J6 stand, J7 stand, J8 stand
H2 heatsink_3phase1

**Note: All caps and resistors are 0603 1% otherwise specified**

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| Title | 3 PhaselDemo Board with ME/MF DirectFETs | |
| Size: Custom | Document Number <Doc> | Rev |
| Date: Monday, June 27, 2016 | Sheet 1 of 1 | |