

Author: PA3AKE

+5V - Buck Converter

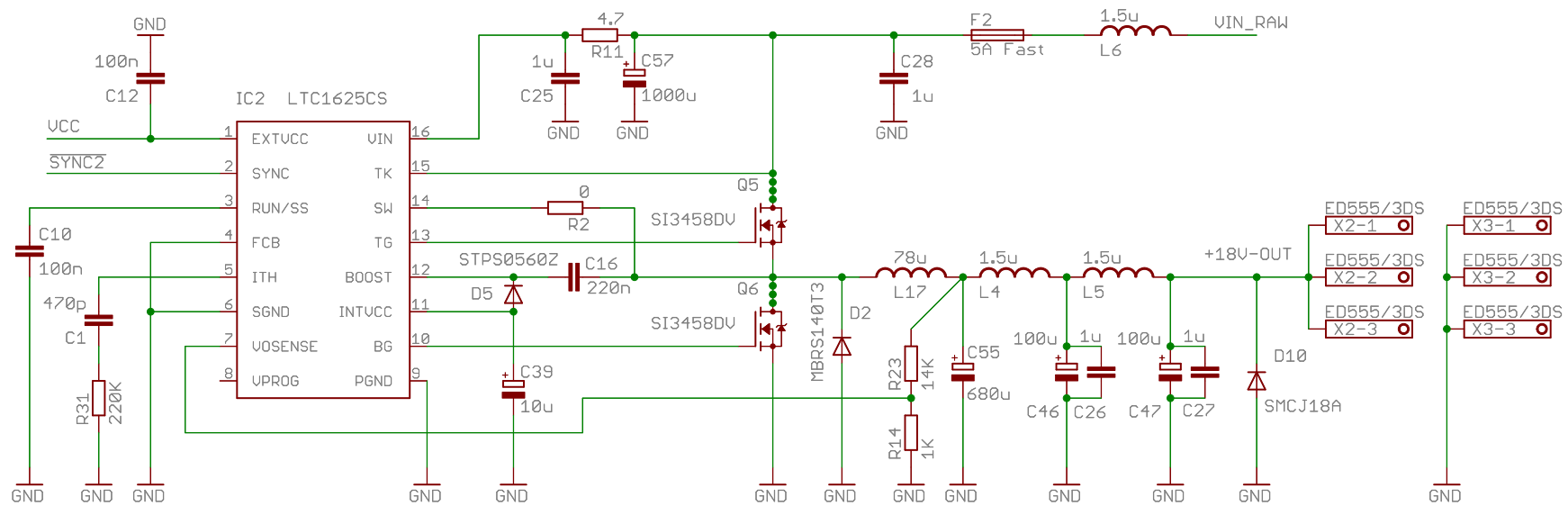
TITLE: SwitcherBoard

Document Number:

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Date: 3-3-2011 21:41:56

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Author: PA3AKE

+18V Buck Converter

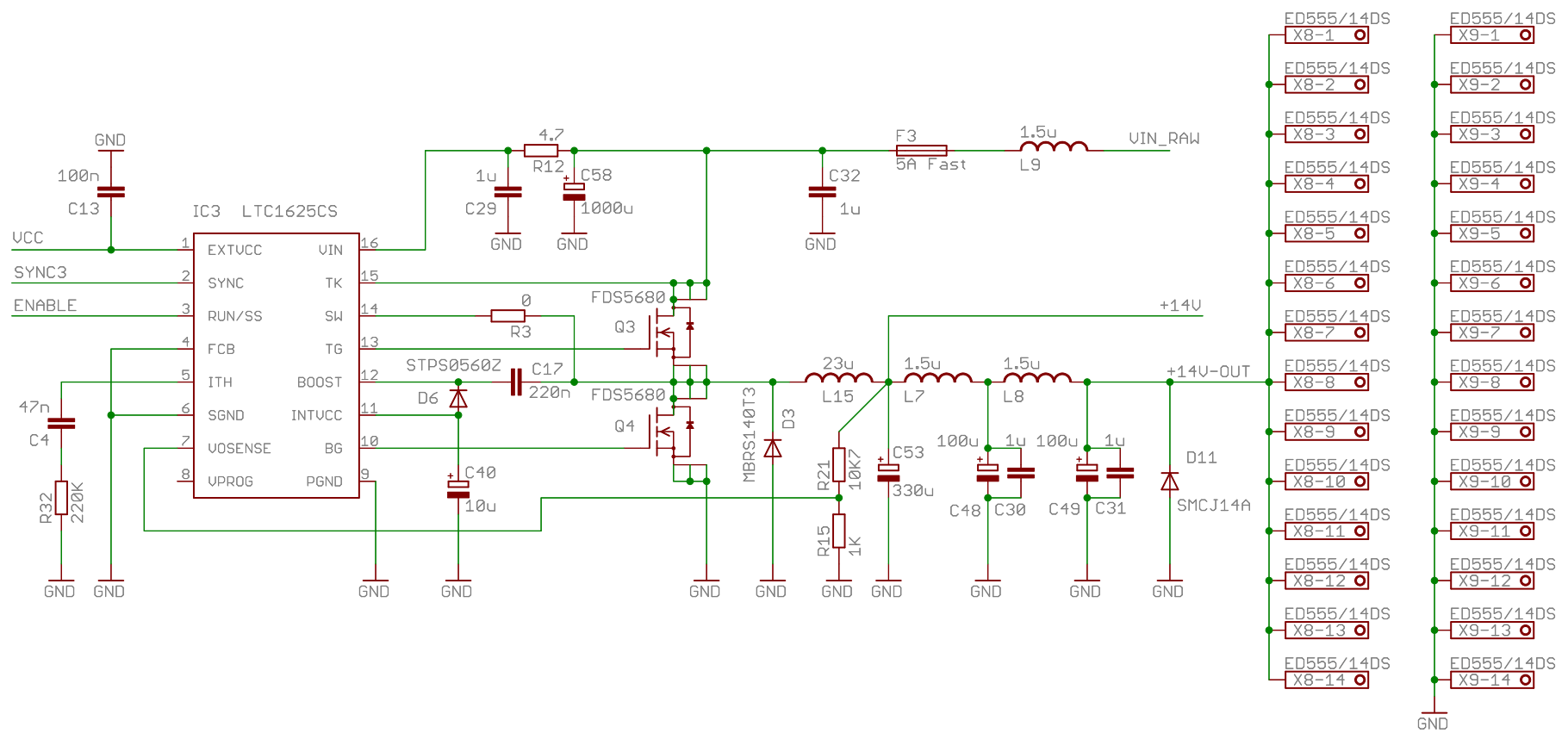
TITLE: SwitcherBoard

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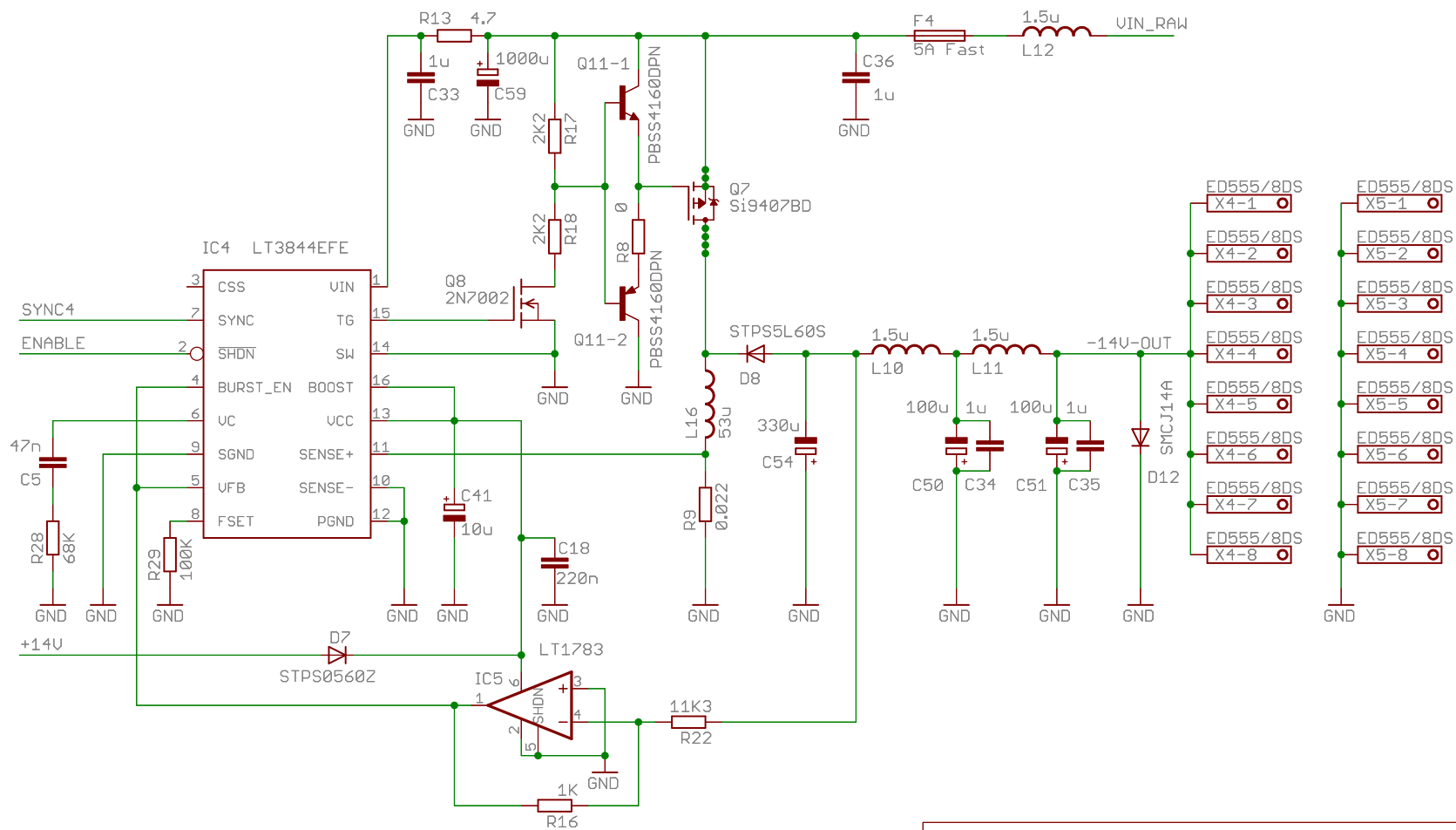


Author: PA3AKE +14V Buck Converter

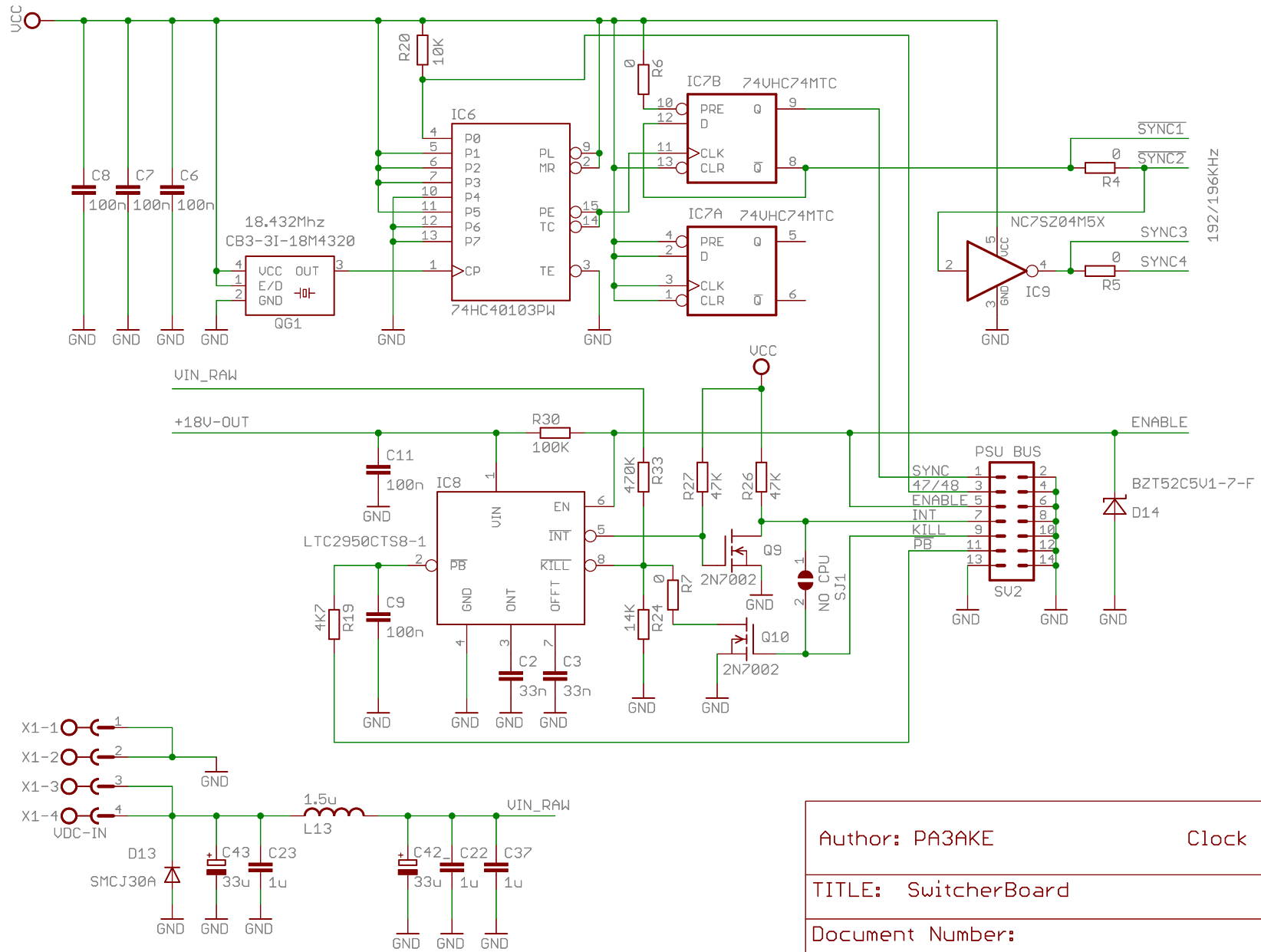
TITLE: SwitcherBoard

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| Author: PA3AKE | | -14V Buck-Boost Inverter | |
| TITLE: SwitcherBoard | | | |
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|-------------------------|--|-----------------|------------|
| Author: PA3AKE | | Clock & Control | |
| TITLE: SwitcherBoard | | | |
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Switcher Board Rev-A Partlist

| Part | Value | Package | Description |
|---------------------|-------------|---------|--|
| -----Resistors----- | | | |
| R1 | 0 | 1206 | (Generic Thick Film resistor) |
| R2 | 0 | 1206 | (Generic Thick Film resistor) |
| R3 | 0 | 1206 | (Generic Thick Film resistor) |
| R4 | 0 | 1206 | (Generic Thick Film resistor) |
| R5 | 0 | 1206 | (Generic Thick Film resistor) |
| R6 | 0 | 1206 | (Generic Thick Film resistor) |
| R7 | 0 | 1206 | (Generic Thick Film resistor) |
| R8 | 0 | 1206 | (Generic Thick Film resistor) |
| R9 | 0.022 1% 1W | 2512 | (Visgay/Dale, Current Sensing resistor, 22mOhm 1% 1W) |
| R10 | 4.7 | 1206 | (Generic Thick Film resistor) |
| R11 | 4.7 | 1206 | (Generic Thick Film resistor) |
| R12 | 4.7 | 1206 | (Generic Thick Film resistor) |
| R13 | 4.7 | 1206 | (Generic Thick Film resistor) |
| R14 | 1K 1% | 1206 | (Generic Thick Film resistor) |
| R15 | 1K 1% | 1206 | (Generic Thick Film resistor) |
| R16 | 1K 1% | 1206 | (Generic Thick Film resistor) |
| R17 | 2K2 | 1206 | (Generic Thick Film resistor) |
| R18 | 2K2 | 1206 | (Generic Thick Film resistor) |
| R19 | 4K7 | 1206 | (Generic Thick Film resistor) |
| R20 | 10K | 1206 | (Generic Thick Film resistor) |
| R21 | 10K7 1% | 1206 | (Generic Thick Film resistor) |
| R22 | 11K3 1% | 1206 | (Generic Thick Film resistor) |
| R23 | 14K 1% | 1206 | (Generic Thick Film resistor) |
| R24 | 14K 1% | 1206 | (Generic Thick Film resistor) |
| R25 | 33K | 1206 | (Generic Thick Film resistor) |
| R26 | 47K | 1206 | (Generic Thick Film resistor) |
| R27 | 47K | 1206 | (Generic Thick Film resistor) |
| R28 | 68K | 1206 | (Generic Thick Film resistor) |
| R29 | 100K | 1206 | (Generic Thick Film resistor) |
| R30 | 100K | 1206 | (Generic Thick Film resistor) |
| R31 | 220K | 1206 | (Generic Thick Film resistor) |
| R32 | 220K | 1206 | (Generic Thick Film resistor) |
| R33 | 470K | 1206 | (Generic Thick Film resistor) |

-----Inductors-----

| | | | |
|----|------|-------|---|
| L1 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L2 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L3 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L4 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L5 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L6 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |

| | | | |
|-----|------|-----------|---|
| L7 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L8 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L9 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L10 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L11 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L12 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L13 | 1.5u | T68-2 | (Micrometals T68-2, 16 turns 1.3mm enameled copper) |
| L14 | 14u | C055310A2 | (Magnetics Inc. C055310A2, 14 turns, 1.6mm enameled copper) |
| L15 | 23u | C055310A2 | (Magnetics Inc. C055310A2, 19 turns, 1.6mm enameled copper) |
| L16 | 53u | C055310A2 | (Magnetics Inc. C055310A2, 28 turns, 1.0mm enameled copper) |
| L17 | 78u | C055310A2 | (Magnetics Inc. C055310A2, 31 turns, 1.0mm enameled copper) |

-Capacitors-----

| | | | |
|-----|----------|------|------------------------|
| C1 | 470p | 1206 | (Generic C0G,NP0 MLCC) |
| C2 | 33n | 1206 | (Generic X7R MLCC) |
| C3 | 33n | 1206 | (Generic X7R MLCC) |
| C4 | 47n | 1206 | (Generic X7R MLCC) |
| C5 | 47n | 1206 | (Generic X7R MLCC) |
| C6 | 100n | 1206 | (Generic X7R MLCC) |
| C7 | 100n | 1206 | (Generic X7R MLCC) |
| C8 | 100n | 1206 | (Generic X7R MLCC) |
| C9 | 100n | 1206 | (Generic X7R MLCC) |
| C10 | 100n | 1206 | (Generic X7R MLCC) |
| C11 | 100n | 1206 | (Generic X7R MLCC) |
| C12 | 100n | 1206 | (Generic X7R MLCC) |
| C13 | 100n | 1206 | (Generic X7R MLCC) |
| C14 | 220n 50V | 1206 | (Generic X7R MLCC) |
| C15 | 220n 50V | 1206 | (Generic X7R MLCC) |
| C16 | 220n 50V | 1206 | (Generic X7R MLCC) |
| C17 | 220n 50V | 1206 | (Generic X7R MLCC) |
| C18 | 220n 50V | 1206 | (Generic X7R MLCC) |
| C19 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C20 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C21 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C22 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C23 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C24 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C25 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C26 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C27 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C28 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C29 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C30 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C31 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C32 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C33 | 1u 50V | 1206 | (Generic X7R MLCC) |
| C34 | 1u 50V | 1206 | (Generic X7R MLCC) |

| | | | | |
|-----|-------|-----|-------------|--|
| C35 | 1u | 50V | 1206 | (Generic X7R MLCC) |
| C36 | 1u | 50V | 1206 | (Generic X7R MLCC) |
| C37 | 1u | 50V | 1206 | (Generic X7R MLCC) |
| C38 | 10u | 16V | SMCB | (Generic Tantalium) |
| C39 | 10u | 16V | SMCB | (Generic Tantalium) |
| C40 | 10u | 16V | SMCB | (Generic Tantalium) |
| C41 | 10u | 16V | SMCB | (Generic Tantalium) |
| C42 | 33u | 35V | 5x10x2mm | (Generic Aluminum) |
| C43 | 33u | 35V | 5x10x2mm | (Generic Aluminum) |
| C44 | 100u | 25V | 5x10x2mm | (Generic Aluminum) |
| C45 | 100u | 25V | 5x10x2mm | (Generic Aluminum) |
| C46 | 100u | 25V | 5x10x2mm | (Generic Aluminum) |
| C47 | 100u | 25V | 5x10x2mm | (Generic Aluminum) |
| C48 | 100u | 25V | 5x10x2mm | (Generic Aluminum) |
| C49 | 100u | 25V | 5x10x2mm | (Generic Aluminum) |
| C50 | 100u | 25V | 5x10x2mm | (Generic Aluminum) |
| C51 | 100u | 25V | 5x10x2mm | (Generic Aluminum) |
| C52 | 330u | 16V | 10x12.5x5mm | (Nichicon, Aluminum Organic Polymer, 7mOhm 6.1A, RR71C331MDN1) |
| C53 | 330u | 16V | 10x12.5x5mm | (Nichicon, Aluminum Organic Polymer, 7mOhm 6.1A, RR71C331MDN1) |
| C54 | 330u | 16V | 10x12.5x5mm | (Nichicon, Aluminum Organic Polymer, 7mOhm 6.1A, RR71C331MDN1) |
| C55 | 680u | 25V | 10x20x5mm | (Panasonic-ECG, Aluminum, 19mOhm 2.18A, EEU-FM1E681) |
| C56 | 1000u | 35V | 12.5x25x5mm | (Panasonic-ECG, Aluminum, 15mOhm 3.19A, EEU-FM1V102) |
| C57 | 1000u | 35V | 12.5x25x5mm | (Panasonic-ECG, Aluminum, 15mOhm 3.19A, EEU-FM1V102) |
| C58 | 1000u | 35V | 12.5x25x5mm | (Panasonic-ECG, Aluminum, 15mOhm 3.19A, EEU-FM1V102) |
| C59 | 1000u | 35V | 12.5x25x5mm | (Panasonic-ECG, Aluminum, 15mOhm 3.19A, EEU-FM1V102) |

-Integrated Circuits-----

| | | | |
|-----|----------------|-----------|---|
| IC1 | LTC1625CS | SOIC-16 | (Linear Technology, Synchronous Buck Converter) |
| IC2 | LTC1625CS | SOIC-16 | (Linear Technology, Synchronous Buck Converter) |
| IC3 | LTC1625CS | SOIC-16 | (Linear Technology, Synchronous Buck Converter) |
| IC4 | LT3844EFE | TSSOP-16 | (Linear Technology, Asynchronous Buck/Boost Converter) |
| IC5 | LT1783IS5 | TSOT23-5 | (Linear Technology, Rail to Rail low power OPAMP) |
| IC6 | 74HC40103PW | TSSOP-16 | (NXP Semiconductors, synchronous 8-bit binary down counter) |
| IC7 | 74VHC74MTC | TSSOP-14 | (Fairchild Semiconductor, Dual D-FF) |
| IC8 | LTC2950CTS8-1 | TSOT23-8 | (Linear Technology, Push Button on/off Controller) |
| IC9 | NC7SZ04M5X | SOT23-5 | (Fairchild Semiconductor, Tiny Logic Inverter) |
| QG1 | CB3-3I-18M4320 | 7mm x 5mm | (CTS-Frequency Controls. 5V 18.432MHz cmos oscillator) |

-Diodes-----

| | | | |
|----|-----------|---------|---|
| D1 | MBRS140T3 | SMB | (ON Semiconductor, Schottky diode 1A 40V) |
| D2 | MBRS140T3 | SMB | (ON Semiconductor, Schottky diode 1A 40V) |
| D3 | MBRS140T3 | SMB | (ON Semiconductor, Schottky diode 1A 40V) |
| D4 | STPS0560Z | SOD-123 | (STMicroelectronics, Schottky diode 0.5A 60V) |
| D5 | STPS0560Z | SOD-123 | (STMicroelectronics, Schottky diode 0.5A 60V) |
| D6 | STPS0560Z | SOD-123 | (STMicroelectronics, Schottky diode 0.5A 60V) |
| D7 | STPS0560Z | SOD-123 | (STMicroelectronics, Schottky diode 0.5A 60V) |

| | | | |
|-----|---------------|---------|--|
| D8 | STPS5L60S | SMC | (STMicroelectronics, Schottky diode 5A 60V) |
| D9 | SM5908 | SMC | (STMicroelectronics, Transient Voltage Suppressor diode, 5V 1500W) |
| D10 | SMCJ18A | SMC | (Littelfuse Inc., Transient Voltage Suppressor diode, 18V 1500W) |
| D11 | SMCJ14A | SMC | (Littelfuse Inc., Transient Voltage Suppressor diode, 14V 1500W) |
| D12 | SMCJ14A | SMC | (Littelfuse Inc., Transient Voltage Suppressor diode, 14V 1500W) |
| D13 | SMCJ30A | SMC | (Littelfuse Inc., Transient Voltage Suppressor diode, 30V 1500W) |
| D14 | BZT52C5V1-7-F | SOD-123 | (Diodes Inc., Zener diode, 500mW 5.1V) |

-Transistors -----

| | | | |
|-----|-------------|---------|--|
| Q1 | FDS5680 | SOIC-8 | (Fairchild Semiconductor, N-Channel Logic Level MOSFET, 8A 60V 20mOhm) |
| Q2 | FDS5680 | SOIC-8 | (Fairchild Semiconductor, N-Channel Logic Level MOSFET, 8A 60V 20mOhm) |
| Q3 | FDS5680 | SOIC-8 | (Fairchild Semiconductor, N-Channel Logic Level MOSFET, 8A 60V 20mOhm) |
| Q4 | FDS5680 | SOIC-8 | (Fairchild Semiconductor, N-Channel Logic Level MOSFET, 8A 60V 20mOhm) |
| Q5 | SI3458BDV | TSOP-6 | (Vishay/Siliconix, N-Channel Logic Level MOSFET, 3.2A 60V 100mOhm) |
| Q6 | SI3458BDV | TSOP-6 | (Vishay/Siliconix, N-Channel Logic Level MOSFET, 3.2A 60V 100mOhm) |
| Q7 | SI9407BDY | SOIC-8 | (Vishay/Siliconix, P-Channel Logic Level MOSFET, 4.7A 60V 120mOhm) |
| Q8 | 2N7002,215 | SOT23-3 | (NXP Semiconductors, N-Channel Logic Level MOSFET, 300mA 60V 50hm) |
| Q9 | 2N7002,215 | SOT23-3 | (NXP Semiconductors, N-Channel Logic Level MOSFET, 300mA 60V 50hm) |
| Q10 | 2N7002,215 | SOT23-3 | (NXP Semiconductors, N-Channel Logic Level MOSFET, 300mA 60V 50hm) |
| Q11 | PBSS4160DPN | SOT457 | (NXP Semiconductors, NPN/PNP transistor pair, 800mA 60V) |

-Fuses-----

| | | | |
|----|---------------|---------|---|
| F1 | 0251005.MRT1L | PICO-II | (Littelfuse Inc., 5A 125V Pico-II fuse) |
| F2 | 0251005.MRT1L | PICO-II | (Littelfuse Inc., 5A 125V Pico-II fuse) |
| F3 | 0251005.MRT1L | PICO-II | (Littelfuse Inc., 5A 125V Pico-II fuse) |
| F4 | 0251005.MRT1L | PICO-II | (Littelfuse Inc., 5A 125V Pico-II fuse) |

-Connectors-----

| | | | |
|-----|------------|--------------------|---|
| SV2 | PSU BUS | ML14L | (14 pin male flatcable connector) |
| X1 | VDC-IN | MSTBA 2.5/4-G-5.08 | (conn header rt ang 4pos 5.08mm, PhoenixContact 1757268) |
| X1 | VDC-IN | MSTB 2.5/4-ST-5.08 | (conn term block plug 4pos 5.08mm, PhoenixContact 1757035) |
| X2 | ED555/3DS | 3-PIN-350 | (On Shore Technology Inc., ED555/3DS, Terminal Block, 3.5mm 3pos PCB) |
| X3 | ED555/3DS | 3-PIN-350 | (On Shore Technology Inc., ED555/3DS, Terminal Block, 3.5mm 3pos PCB) |
| X4 | ED555/8DS | 8-PIN-350 | (On Shore Technology Inc., ED555/8DS, Terminal Block, 3.5mm 8pos PCB) |
| X5 | ED555/8DS | 8-PIN-350 | (On Shore Technology Inc., ED555/8DS, Terminal Block, 3.5mm 8pos PCB) |
| X6 | ED555/12DS | 12-PIN-350 | (On Shore Technology Inc., ED555/12DS, Terminal Block, 3.5mm 12pos PCB) |
| X7 | ED555/12DS | 12-PIN-350 | (On Shore Technology Inc., ED555/12DS, Terminal Block, 3.5mm 12pos PCB) |
| X8 | ED555/14DS | 14-PIN-350 | (On Shore Technology Inc., ED555/14DS, Terminal Block, 3.5mm 14pos PCB) |
| X9 | ED555/14DS | 14-PIN-350 | (On Shore Technology Inc., ED555/14DS, Terminal Block, 3.5mm 14pos PCB) |

