Customer Service Bulletin SD800003
Upgrade to SLP45400 – Low Voltage/High Voltage Power Supply PCB

Continual Improvement is a cornerstone of the Southern Avionics Company Quality Management System. We issue Customer Service Bulletins to inform our valued customers of product upgrades and/or helpful technical information that may enhance the reliability of your equipment.

We recently made improvements to our SLP45400 Low Voltage/High Voltage Power Supply PCB assembly to eliminate potential failure modes and/or increase long-term performance and reliability of your SE125 Transmitter systems.

Application: This bulletin applies to **SLP45400 PCB, Revision E or earlier**. This applies to SE transmitters purchased before 7 November, 2011. The SLP45400 PCB is used in SLE45400 Modules in SE series Transmitters.

The SLE45400 module is used in the SE125 IP66 Single transmitter models with part numbers SLF33300 and SLF33001, and in the SE125 IP66 Dual transmitter models with part numbers SLF33400, SLF33401, and SLF33402.

Identifying Transmitter part numbers listed above:
Locate the serial tag on your transmitter enclosure. The prefix “SLF” plus the first five (5) characters of your serial number indicate the SAC Transmitter Part Number as detailed below. The specific transmitters affected are referenced by the last four (4) characters in your serial number.

For example: A Serial Number of 33010XX0L0024 represents a SAC Transmitter part number of SLF33010.

SLP45400 update details: SAC identified the potential for random failures of the low voltage FETs when the Transmitter is going through its power up sequence. The current design of this PCB has been modified to eliminate this issue by adding pull down resistors to the Gates of the Low Side FETs and removing a time delay capacitor. If your transmitter is equipped with SLP45400 Revision E or earlier, the following field modification should be performed to improve system reliability and availability.

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Tools needed:

Phillips Head Screwdriver #2
Phillips Head Screwdriver #1
Diagonal component cutters
Soldering iron (25 Watt)
Solder RoHS compliant or 60/40

Time required:

0.5 Manhours

Equipment needed:

2 - 10K Ohm 1/4Watt resistors per board

Field update instructions for SLP45400:

1. Disconnect and remove the SLE45400 Module assembly from the transmitter drawer(s) or spares kit.
2. Remove the aluminum cover on the SLE45400 Module assembly.
3. On the back side of the PCB, solder a 10K Ohm resistor (R34) between R6 and T1-4 as illustrated in the diagrams below.
4. On the back side of the PCB, solder a 10K Ohm resistor (R35) between R18 and T3-4 as illustrated in the diagrams below..
5. On the top side of the PCB, remove capacitor C1.
6. Reinstall the aluminum cover on the SLE45400 Module assembly and reconnect the Power Supply assembly into the transmitter drawer(s) or store as part of the spares kit.

Diagrams are included for your assistance. See documents below for your system's diagram and schematic. Please insert this bulletin, including documents below, in your manual. Thank you for choosing Southern Avionics Company for your NDB needs. We appreciate your business.

This Customer Service Bulletin and others may be found at http://www.southernavionics.com/customer-service-bulletins/.

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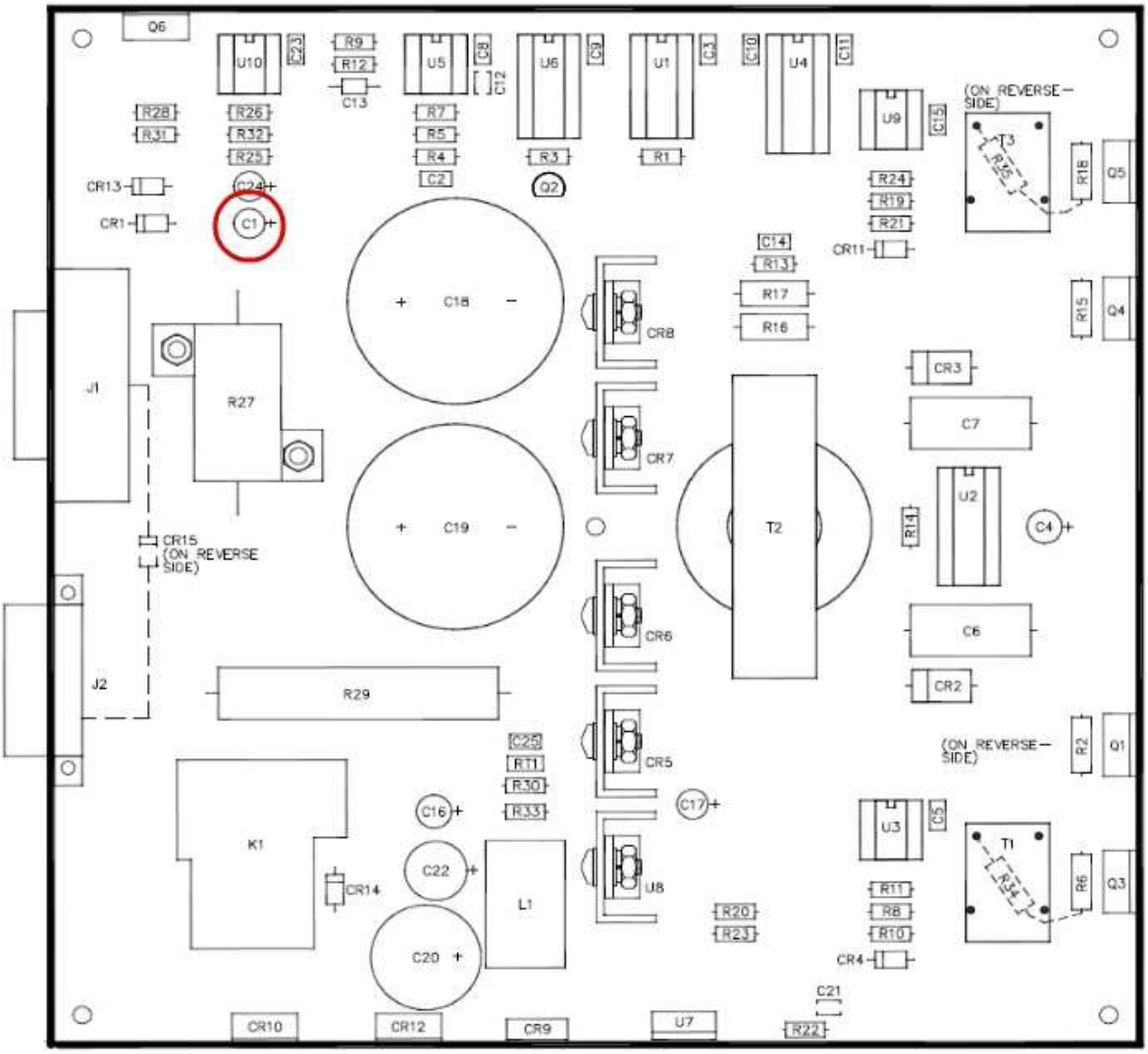

SLP45400 - BEFORE WITH C1 Capacitor

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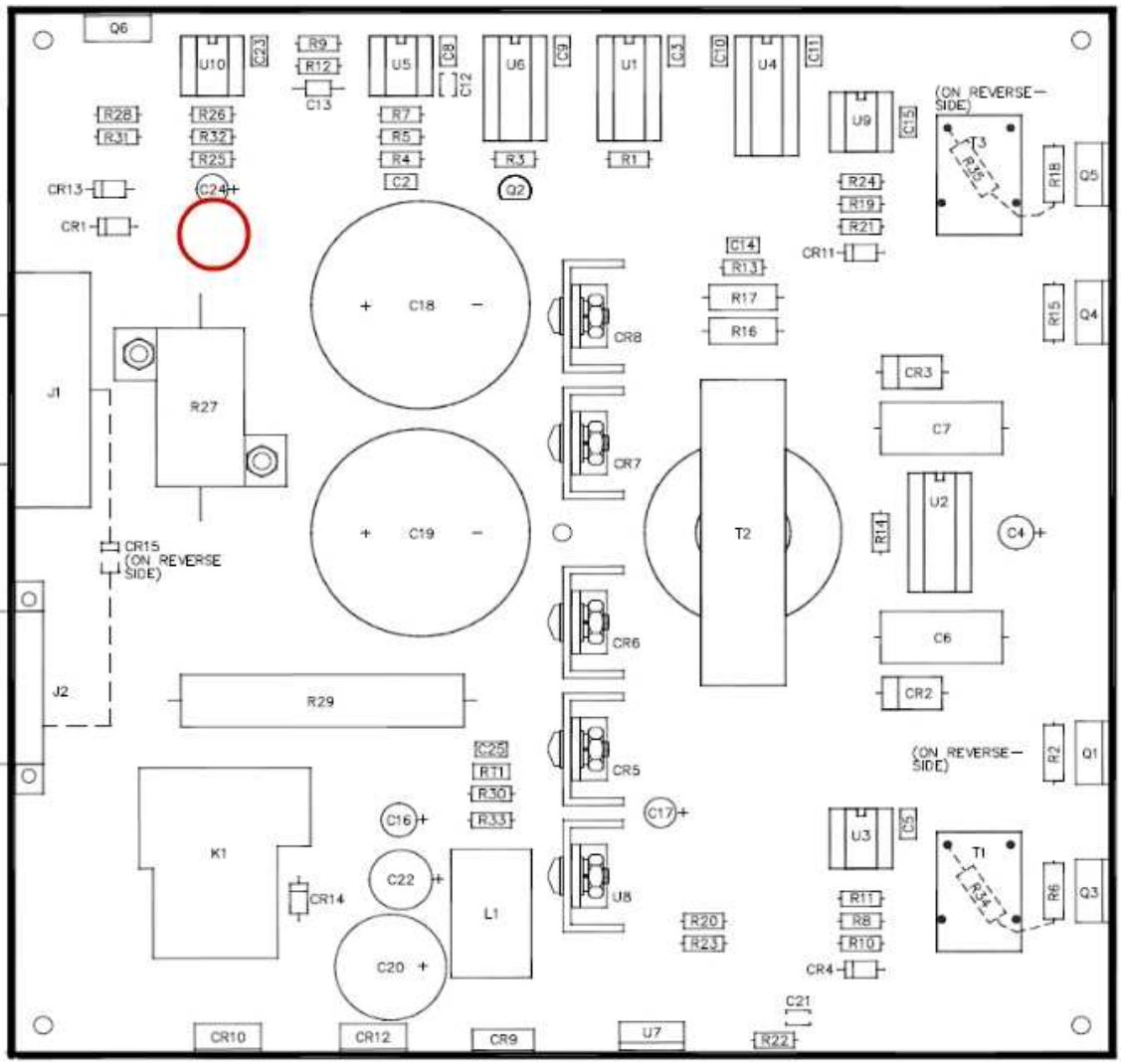

SLP45400 - AFTER C1 Capacitor

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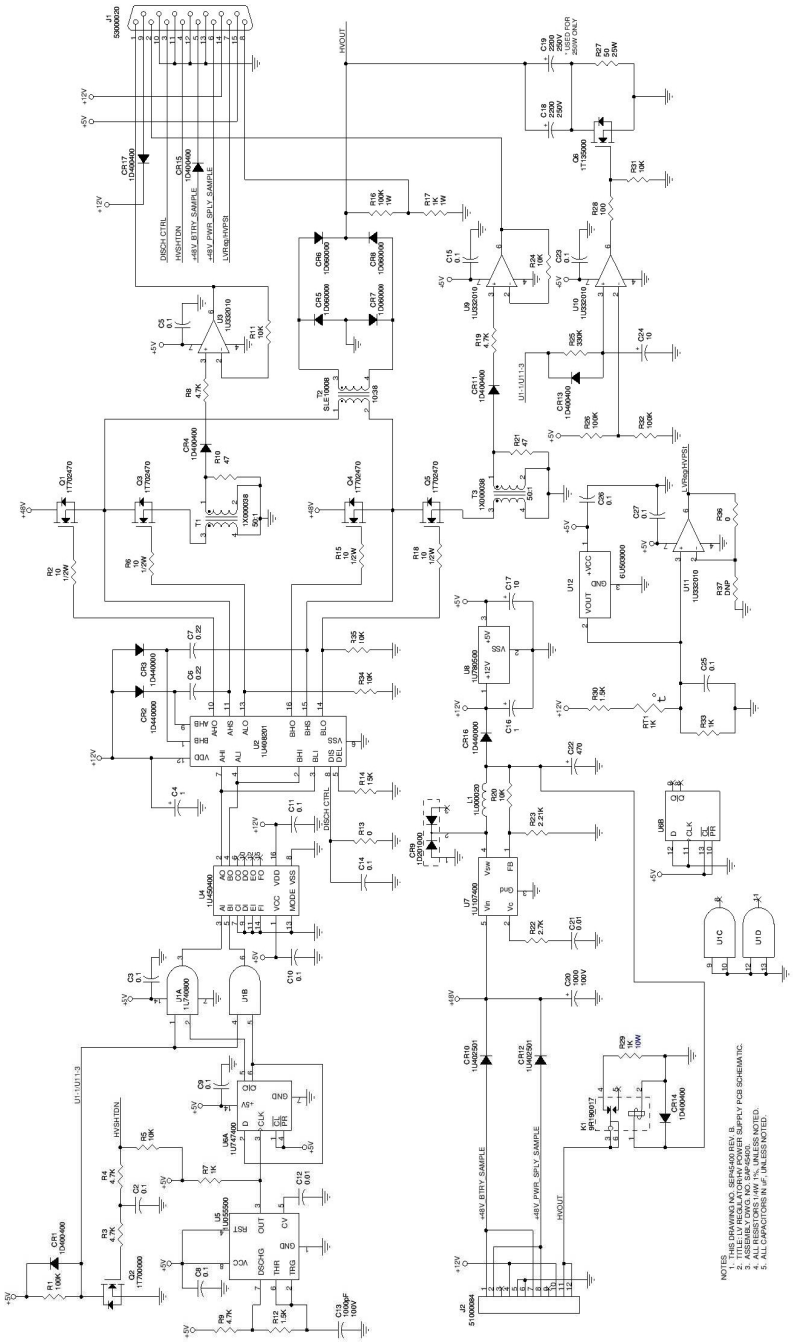
SEP45400 - LOW VOLTAGE/HIGH VOLTAGE REGULATOR SCHEMATIC



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Assembly, LV Regulator/HV Power Supply PCB - SLP45400

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REFERENCE DESIGNATOR	COMPONENT	DESCRIPTION
C2	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C3	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C4	1C361000	CAPACITOR; 1UF, 35V, TANTALUM
C5	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C6	1C252230	CAPACITOR; .22MUF, 80V, METAL FILM
C7	1C252230	CAPACITOR; .22MUF, 80V, METAL FILM
C8	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C9	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C10	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C11	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C12	1C541010	CAPACITOR; .01UF, 50V, 10% CERAMIC MONOLITHIC
C13	1C521040	CAPACITOR; 1000PF, 100V, CERAMIC AXIAL
C14	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C15	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C16	1C361000	CAPACITOR; 1UF, 35V, TANTALUM
C17	1C671010	CAPACITOR; 10UF, 50V, ALUMINUM ELECTROLYTIC
C18	1C092250	CAP; 2200UF, 250V, 20%, ALUMINUM ELECTROYLTIC, RADIAL
C19	1C092250	CAP; 2200UF, 250V, 20%, ALUMINUM ELECTROYLTIC, RADIAL
C20	1C631040	CAPACITOR; 1000UF, 100V ALUMINUM ELECTROYTIC
C21	1C541010	CAPACITOR; .01UF, 50V, 10% CERAMIC MONOLITHIC
C22	1C684700	CAP; 470UF, 35V, 20%, ALUMINUM ELECTROLYTIC, RADIAL
C23	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C24	1C671010	CAPACITOR; 10UF, 50V, ALUMINUM ELECTROLYTIC
C25	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C26	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
C27	1C551010	CAPACITOR; .1UF. 50V, 10%, CERAMIC MONOLITHIC
CR1	1D400400	DIODE, RECT 400V 1A 30 DO41

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CR2	1D440000	DIODE, ULTRAFAST RECOV RCT, 600V,4A
CR3	1D440000	DIODE, ULTRAFAST RECOV RCT, 600V,4A
CR4	1D400400	DIODE, RECT 400V 1A 30 DO41
CR5	1D060000	DIODE, HYPERFAST RECTIFYING, 600V, 8A
CR6	1D060000	DIODE, HYPERFAST RECTIFYING, 600V, 8A
CR7	1D060000	DIODE, HYPERFAST RECTIFYING, 600V, 8A
CR8	1D060000	DIODE, HYPERFAST RECTIFYING, 600V, 8A
CR9	1D201000	DIODE,SCHOTTKY BARRIER, DUAL, 100V, 20A, PLASTIC TO-220
CR10	1U402501	IC, THYRISTOR, SILICON RECTIFIER 400V 25A, TO220
CR11	1D400400	DIODE, RECT 400V 1A 30 DO41
CR12	1U402501	IC, THYRISTOR, SILICON RECTIFIER 400V 25A, TO220
CR13	1D400400	DIODE, RECT 400V 1A 30 DO41
CR14	1D400400	DIODE, RECT 400V 1A 30 DO41
CR15	1D400400	DIODE, RECT 400V 1A 30 DO41
CR16	1D400400	DIODE, RECT 400V 1A 30 DO41
J1	53000020	CONNECTOR; R/A DB15 FEMALE, PCB MOUNT
J2	51000084	CONNECTOR; R/A HEADER, 12 POS (2X6), 0.165 PITCH, NYLON, WH
K1	9R190017	RELAY; SPDT, 12VDC, 20A, PCMT
L1	1L000020	INDUCTOR; 56UH, 15%, HI TEMP HI CURRENT, TORROID
Q1	1T702470	TRANSISTOR, N-CHANNEL POWER MOSFET 70A, 60V .014 OHM
Q2	1T700000	TRANSISTOR N-CHANNEL 60V 5 OHM TO-92
Q3	1T702470	TRANSISTOR, N-CHANNEL POWER MOSFET 70A, 60V .014 OHM
Q4	1T702470	TRANSISTOR, N-CHANNEL POWER MOSFET 70A, 60V .014 OHM
Q5	1T702470	TRANSISTOR, N-CHANNEL POWER MOSFET 70A, 60V .014 OHM
Q6	1T135000	TRANSISTOR; N-CHANNEL MOSFET, 500V, 13A, PLSTIC TO-220
R1	1R751020	RESISTOR; 100K OHM, 1/4W, 1%, METAL FILM

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R2	1R711030	RESISTOR; 10 OHM, 1/2W, 1%, METAL FILM
R3	1R734721	RESISTOR; 4.7K OHM, 1/4W, 1 %, METAL FILM
R4	1R734721	RESISTOR; 4.7K OHM, 1/4W, 1 %, METAL FILM
R5	1R741020	RESISTOR; 10K OHM , 1/4W, 1%, METAL FILM
R6	1R711030	RESISTOR; 10 OHM, 1/2W, 1%, METAL FILM
R7	1R731020	RESISTOR; 1K OHM, 1/4W, 1%, METAL FILM
R8	1R734721	RESISTOR; 4.7K OHM, 1/4W, 1 %, METAL FILM
R9	1R734721	RESISTOR; 4.7K OHM, 1/4W, 1 %, METAL FILM
R10	1R614720	RESISTOR; 47 OHM, 1/4W,10%, CARBON FILM
R11	1R741020	RESISTOR; 10K OHM , 1/4W, 1%, METAL FILM
R12	1R731520	RESISTOR; 1.5K OHM, 1/4W, 1%, METAL FILM
R13	1R530020	RESISTOR; 0 OHM, 1/4W, 5%, CARBON FILM, AXIAL
R14	1R741520	RESISTOR; 15.0K OHM, 1/4W, 1%, METAL FILM
R15	1R711030	RESISTOR; 10 OHM, 1/2W, 1%, METAL FILM
R16	1R651050	RESISTOR; 100K OHM, 1W, 10%, CARBON FILM
R17	1R631050	RESISTOR; 1K OHM, 1W, 10%, CARBON FILM
R18	1R711030	RESISTOR; 10 OHM, 1/2W, 1%, METAL FILM
R19	1R734721	RESISTOR; 4.7K OHM, 1/4W, 1 %, METAL FILM
R20	1R741020	RESISTOR; 10K OHM , 1/4W, 1%, METAL FILM
R21	1R614720	RESISTOR; 47 OHM, 1/4W,10%, CARBON FILM
R22	1R732720	RESISTOR; 2.7K OHM, 1/4W,1%, METAL FILM
R23	1R732221	RESISTOR; 2.21K OHM, 1/4W, 1%, METAL FILM
R24	1R741020	RESISTOR; 10K OHM , 1/4W, 1%, METAL FILM
R25	1R723020	RESISTOR; 330K OHM, 1/4W, 1%, METAL FILM, AXIAL
R26	1R751020	RESISTOR; 100K OHM, 1/4W, 1%, METAL FILM
R27	1R415091	RESISTOR; 50 OHM, 25W, 1 %, WIRE WOUND
R28	1R721020	RESISTOR; 100 OHM, 1/4W, 1%, METAL FILM
R29	1R431081	RESISTOR; 1K OHM, 10W,5%, WIRE WOUND
R30	1R731520	RESISTOR; 1.5K OHM, 1/4W, 1%, METAL FILM
R31	1R741020	RESISTOR; 10K OHM , 1/4W, 1%, METAL FILM
R32	1R751020	RESISTOR; 100K OHM, 1/4W, 1%, METAL FILM

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R33	1R731020	RESISTOR; 1K OHM, 1/4W, 1%, METAL FILM
R34	1R741020	RESISTOR; 10K OHM , 1/4W, 1%, METAL FILM
R35	1R741020	RESISTOR; 10K OHM , 1/4W, 1%, METAL FILM
R36	1R741020	RESISTOR; 10K OHM , 1/4W, 1%, METAL FILM
R13	1R530020	RESISTOR; 0 OHM, 1/4W, 5%, CARBON FILM, AXIAL
RT1	9T300002	THMS 1K DISC
T1	1X000038	TRANSFORMER, CURRENT SENSE ENCAPSULATED
T2	SLE34001	ASSEMBLY, TRANSFORMER SE125/250
T3	1X000038	TRANSFORMER, CURRENT SENSE ENCAPSULATED
U1	1U740800	IC, AND GATE, QUAD 2-INPUT 14-DIP
U2	1U408201	IC, FET DRIVER H-BRIDGE 80V 1.25A PEAK
U3	1U332011	IC; OP AMP, SINGLE 1.8-12V RAIL TO RAIL IO, 8 PIN
U4	1U450400	IC, CMOS HEX VOLTAGE LEVEL SHIFTER
U5	1U055500	IC TIMER 8P PLASTIC DIP
U6	1U747400	IC, DUAL-D FLIP-FLOP
U7	1U107400	IC, SWITCHING REGULATOR; 5A STEP-DOWN TO-220-5
U8	1U780500	IC, +5VR 1.5A 35V T0220
U9	1U332011	IC; OP AMP, SINGLE 1.8-12V RAIL TO RAIL IO, 8 PIN
U10	1U332011	IC; OP AMP, SINGLE 1.8-12V RAIL TO RAIL IO, 8 PIN
U11	1U332011	IC; OP AMP, SINGLE 1.8-12V RAIL TO RAIL IO, 8 PIN
W1	308A0000	WIRE; 14 AWG SOLID TINNED
W2	308A0000	WIRE; 14 AWG SOLID TINNED
XCR5	9H180003	HEATSINK; TO-220, LOW PROFILE CH. STYLE 0.75
XCR5A	9I550000	INSULATOR, THERMALSIL, FOR T0-220
XCR6	9H180003	HEATSINK; TO-220, LOW PROFILE CH. STYLE 0.75
XCR6A	9I550000	INSULATOR, THERMALSIL, FOR T0-220
XCR7	9H180003	HEATSINK; TO-220, LOW PROFILE CH. STYLE 0.75
XCR7A	9I550000	INSULATOR, THERMALSIL, FOR T0-220
XCR8	9H180003	HEATSINK; TO-220, LOW PROFILE CH. STYLE 0.75
XCR8A	9I550000	INSULATOR, THERMALSIL, FOR T0-220
XU10	9S581013	SOCKET, IC ADAPTER, SOIC TO .300 DIP, 8 PIN

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XU2	9S581010	SOCKET, IC, 16 PIN, DIP,
XU3	9S581013	SOCKET, IC ADAPTER, SOIC TO .300 DIP, 8 PIN
XU8	9H180003	HEATSINK; TO-220, LOW PROFILE CH. STYLE 0.75
XU8A	9I550000	INSULATOR, THERMALSIL, FOR T0-220
XU9	9S581013	SOCKET, IC ADAPTER, SOIC TO .300 DIP, 8 PIN

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