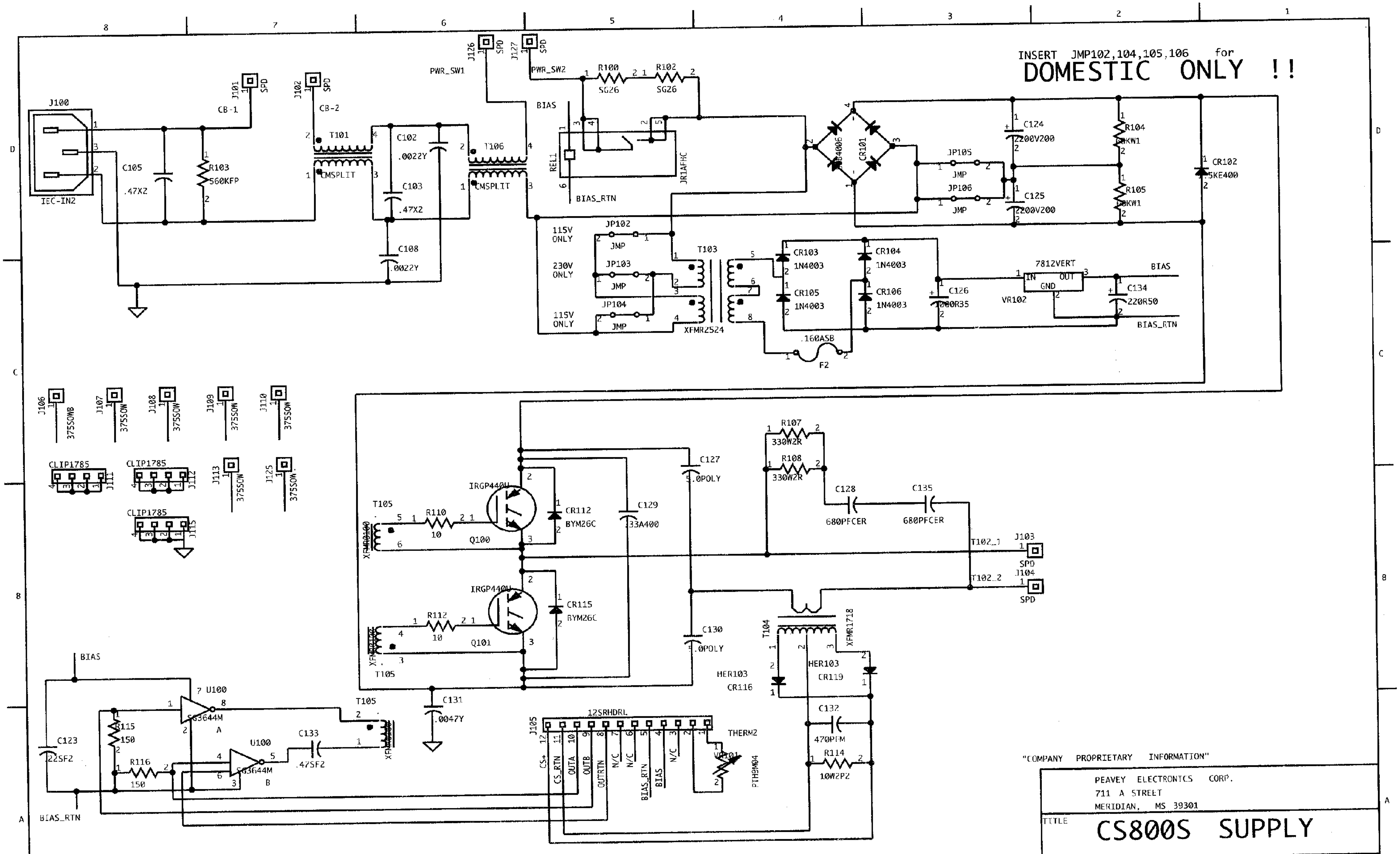


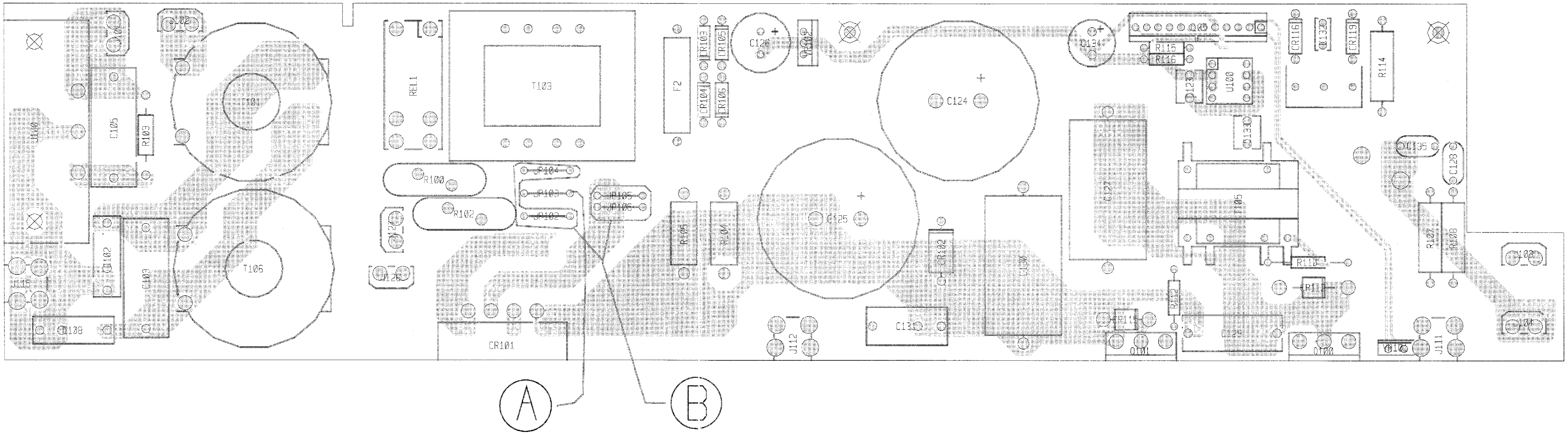
"COMPANY PROPRIETARY INFORMATION"

PEAVEY ELECTRONICS CORP.
711 A STREET
MERIDIAN, MS 39301

TITLE	CS800S SUPPLY		
SIZE B	CODE	NUMBER 81500081	REV
DATE	24-SEP-96	SHEET	1 OF 2

NOTE HIGHEST RLF CR119 R116 C135 Q101 T106 VR102 U100 J127

	Assembly	Assembly P/N
Ⓐ	120 volt	99300142
Ⓑ	230 volt	99300143



CS800SW E.M.I.

BOARD NAME: CS800SW EMI

** QTY.	PART NAME	VALUE	PART NUMBER	DESCRIPTION AND DEVICE DESIGNATIONS *************
1	.0022Y	.0022Y	70320296	.0022 Y-CLASS CAPACITOR C102
2	.47X2	.47X2	70320271	.47MF-20%-275VAC-MP-R/W C103, C105
1	.0022Y	.0022Y	70320296	.0022 Y-CLASS CAPACITOR C108
1	.22SF2	.22SF2	70330114	0.22 MF 5% 100V STCK FILM t&a C123
2	2200V200	2200V200	70320297	2200 MF 20% 200VDC EL R/S SMH C124, C125
1	1000R35	1000R35	70320186	1000MF—20%—35VDC—EL—T&A C126
1	5.0POLY	5.0POLY	CRANE	5.0UF 250VDC AXIAL POLYPROPYLENE C127
1	680PFCER	680PFCER	70320159	680PF-10%-400 VP-CD-R/W C128
1	.33A400	.33A400	70320107	.33MFD @ 400V MYLAR CAP C129
1	5.0POLY	5.0POLY	CRANE	5.0UF 250VDC AXIAL POLYPROPYLENE C130
1	.0047Y	.0047Y	70320270	.0047MF-20%-250VAC-PF-R/W C131
1	470PFM	470PFM	70330118	470pf 5% 50vdc my T&A C132
1	.47SF2	.47SF2	70330148	.47MF 5% 100VDC SF T&A C133
1	220R50	220R50	70320187	220MF—20%—50VDC—EL—T&A C134
1	680PFCER	680PFCER	70320159	680PF-10%-400 VP-CD-R/W C135
1	SDB4006	70404006	70404006	40A, 600V INLINE BRIDGE RECTIFIER CR101
1	1.5KE400	1.5KE400	70415400	1.5KE400A TRANS. VLTG SUPP CR102
4	1N4003	1N4003	70464003	1N4003 200V SILICON DIODE CR103, CR104, CR105, CR106
2	BYM26C	BYM26C	70440105	BYM26C, 600V, 2.25A ULTRAFAST DIODE CR112, CR115
2	HER103	HER103	70400103	HER-103 HI EFF RECT DIODE CR116, CR119
1	.160ASB	.160ASB	70901249	.160 A SB 5X20MM T/R FUSE F2
1	IEC-IN2	70901428	70901428	PWR INLET, RA SCREW MT PC J100
4	SPD	73716194	73716194	.250 PC MNT SPADE .093 PCB J101, J102, J103, J104
1	12SRHDRL	12SRHDRL	73717021	12 PIN HEADER W/LOCK J105
1	375SOWB	70900779	70900779	SPACER, 3/8,R(#4),.187 SWAGE BRASS J106
4	375SOW	70900295	70900295	SPACER, 3/8,R(#4),.187 SWAGE ALUM. J107, J108, J109, J110
2	CLIP1785	70901785	70901785	screw term, 6-32 - pcb mnt. J111, J112
1	375SOW	70900295	70900295	SPACER, 3/8,R(#4),.187 SWAGE ALUM. J113
1	CLIP1785	70901785	70901785	screw term, 6-32 - pcb mnt. J115
1	375SOW	70900295	70900295	SPACER, 3/8,R(#4),.187 SWAGE ALUM. J125
2	SPD	73716194	73716194	.250 PC MNT SPADE .093 PCB J126, J127
2	IRGP440U	IRGP440U	70400440	IRGP440U N CH ULTRA-FAST IGBT T03P Q100, Q101
2	SG26	70240210	70240210	5 OHM, 12 A INRUSH THERMISTOR R100, R102
1	560KFP	560KFP	70230046	560K 1/2W FP RESISTOR T&R R103
2	68KW1	68KW1	70250018	68K—1W—10%—MO—T&R R104, R105
2	330W2R	330W2R	70250074	330—RSS2W—5%—MO—AXL R107, R108
2	10	10	70240003	10—1/4W—5%—CF—T&R R110, R112
1	10.5W2P2	10.5W2P2	70250083	10.5 OHM-2%-2W-MO-T/R R114
2	150	150	70240001	150—1/4W—5%—CF—T&R R115, R116
1	JR1AFHC	JR1AFHC	71322371	15A, 240VAC SPST TAPE SEALED RELAY REL1 SO300
4	1187SOW	70900366	70900366	HEX SPACER 1 3/16 W/4-40 IN SO301, SO302, SO303, SO304
1	187SOWB	70900935	70900935	SPACER, .187 (#4),.187 SWAGE BRASS SO305
2	187SOWD	70900924	70900924	SPACER, .187 R,(#4),.187 SWAGE ALUM. SO306, SO307
1	187SOWB	70900935	70900935	SPACER, .187 (#4),.187 SWAGE BRASS SO308
4	187SOWD	70900924	70900924	SPACER, .187 R,(#4),.187 SWAGE ALUM. SO309, SO310, SO311, SO312

1	CMSPLIT	70538712	70538712	2.5MH COMMON-MODE INDUCTOR T101
1	XFMR2524	XFMR2524	70502524	PL2.5-24 BIAS TRANSFORMER T103
1	XFMR1718	XFMR1718	70551718	CURRENT SENSE TOROID T104
1	XFMR0100	70500100	70500100	GDT100100 NEW GATE XFORMER T105
1	CMSPLIT	70538712	70538712	2.5MH COMMON-MODE INDUCTOR T106
1	SG3644M	SG3644M	70413644	SG3644M 3A DUAL MOSFET DRIVER U100
1	PTH9M04	70240211	70240211	100 DEGREE C, PTC THERM VR101
1	7812VERT	7812VERT	70427812	MC 7812 CT REG VERT MNT VR102

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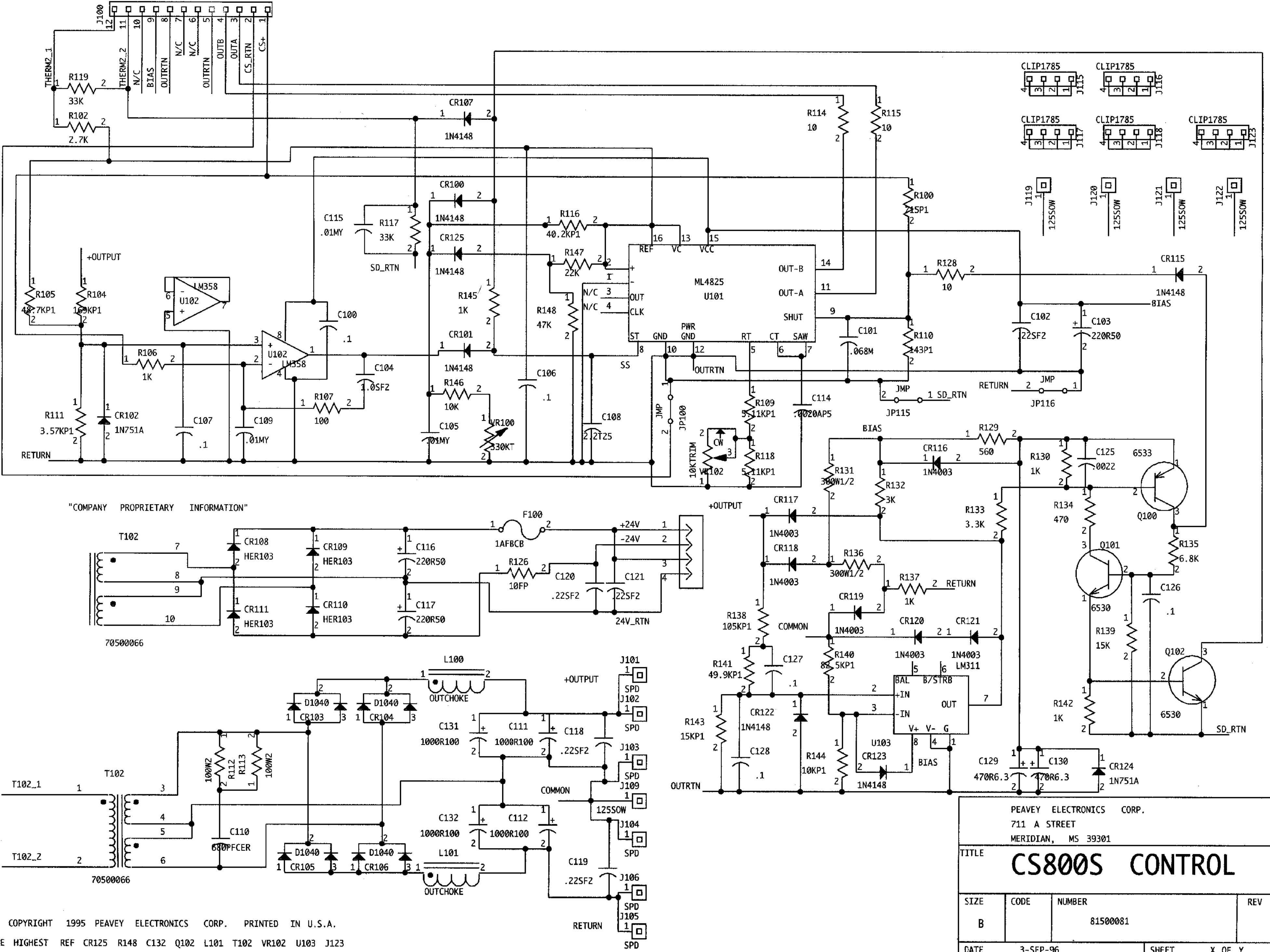
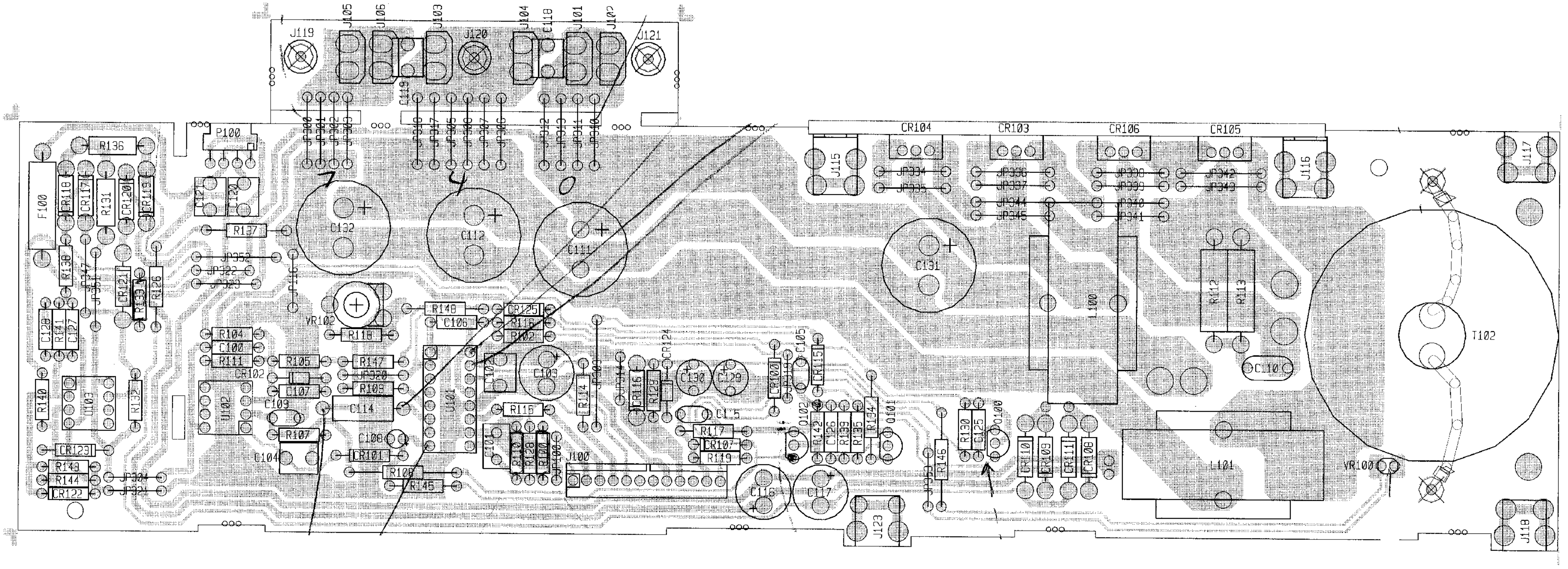


"COMPANY PROPRIETARY INFORMATION"

PEAVEY ELECTRONICS CORP.
711 A STREET
MERIDIAN, MS 39301

TITLE			
CS800S CONTROL			
SIZE	CODE	NUMBER	REV
B		81500081	
DATE	3-SEP-96	SHEET	X OF Y

NOTE HIGHEST REF CR125 R148 C132 Q102 L101 T102 VR102 U103 J123



CS800SW Control

BOARD NAME: CS800SW CONTROL

** QTY.	PART NAME	VALUE	PART NUMBER	DESCRIPTION AND DEVICE DESIGNATIONS *************
1	.1	.1	70340100	.1MF—+80-20%-50VDC—AXL—T&R C100
1	.068M	.068M	70330124	.068M 5% 50vdc my T&A C101
1	.22SF2	.22SF2	70330114	0.22 MF 5% 100V STCK FILM t&a C102
1	220R50	220R50	70320187	220MF—20%—50VDC-EL-T&A C103
1	1.0SF2	1.0SF2	70330150	1.0MF 5% 100VDC SF T&A C104
1	.01MY	.01MY	70320077	.01 UF MYLAR 5% 100V C105
2	.1	.1	70340100	.1MF—+80-20%-50VDC—AXL—T&R C106, C107
1	2.2T25	2.2T25	70340087	2.2 MF,10%,25VDC,TANTALUM T&A C108
1	.01MY	.01MY	70320077	.01 UF MYLAR 5% 100V C109
1	680PFCER	680PFCER	70320159	680PF-10%-400 VP-CD-R/W C110
2	1000R100	1000R100	70320287	1000 MFD 100VDC EL LOW ESR C111, C112
1	.0020AP5	.0020AP5	70340093	.0020MF, 5%, 100V, T&R C114
1	.01MY	.01MY	70320077	.01 UF MYLAR 5% 100V C115
2	220R50	220R50	70320187	220MF—20%—50VDC-EL-T&A C116, C117
4	.22SF2	.22SF2	70330114	0.22 MF 5% 100V STCK FILM t&a C118, C119, C120, C121
1	.0022	.0022	70340004	.0022MF-10%—50VDC—T/C—T&R C125
3	.1	.1	70340100	.1MF—+80-20%-50VDC—AXL—T&R C126, C127, C128
2	470R6.3	470R6.3	70320183	470MF—20%—6.3VDC-EL-T&A C129, C130
2	1000R100	1000R100	70320287	1000 MFD 100VDC EL LOW ESR C131, C132
2	1N4148	4148	70464148	1N4148 75V 10MA SILICON DIODE CR100, CR101
1	1N751A	1N751A	70400751	1N751A 5.1V, .4W, 5% ZENER DIODE CR102
4	D1040	D1040	70401040	D1OLC40 FAST RCVRY DIODE CR103, CR104, CR105, CR106
1	1N4148	4148	70464148	1N4148 75V 10MA SILICON DIODE CR107
4	HER103	HER103	70400103	HER-103 HI EFF RECT DIODE CR108, CR109, CR110, CR111
1	1N4148	4148	70464148	1N4148 75V 10MA SILICON DIODE CR115
6	1N4003	1N4003	70464003	1N4003 200V SILICON DIODE CR116, CR117, CR118, CR119, CR120, CR121
2	1N4148	4148	70464148	1N4148 75V 10MA SILICON DIODE CR122, CR123
1	1N751A	1N751A	70400751	1N751A 5.1V, .4W, 5% ZENER DIODE CR124
1	1N4148	4148	70464148	1N4148 75V 10MA SILICON DIODE CR125
1	1AFBCB	1AFBCB	70901244	1A FUSE 5X15MM T&R F100
1	12SRHDRL	12SRHDRL	73717021	12 PIN HEADER W/LOCK J100
6	SPD	73716194	73716194	.250 PC MNT SPADE .093 PCB J101, J102, J103, J104, J105, J106
1	125SOW	70900788	70900788	SPACER, 1/8,R(#4),.187 SWAGE ALUM. J109
4	CLIP1785	70901785	70901785	screw term, 6-32 - pcb mnt. J115, J116, J117, J118
4	125SOW	70900788	70900788	SPACER, 1/8,R(#4),.187 SWAGE ALUM. J119, J120, J121, J122
1	CLIP1785	70901785	70901785	screw term, 6-32 - pcb mnt. J123
2	OUTCHOKE	70519945	70519945	125 UH +/-20% TOROID INDUCTOR L100, L101
1	4SRHRAU	73717084	73717084	4 PIN RA SQ/P F/LK HD .100 P100
1	6533	6534	70466533	MPS-6533/34 TO-92 PNP TRANS T&A Q100
2	6530	6531	70466531	MPS-6531 TO92 NPN TRANS. Q101, Q102
1	715P1	715P1	70240087	715 OHM 1% 1/4W MF T&R R100
1	2.7K	2.7K	70240021	2.7K-1/4W-5%—CF—T&R R102
1	169KP1	169KP1	70241079	169K-1/4W-1%—MF—T&R R104
1	48.7KP1	48.7KP1	70241068	48.7K-1/4W-1%—MF—T&R R105
1	1K	1K	70240017	1K—1/4W-5%—CF—T&R R106
1	100	100	70240010	100-1/4W-5%—CF—T&R R107
1	5.11KP1	5.11KP1	70240051	5.11K-1/4W-1%—MF-T&R R109
1	143P1	143P1	70240076	143OHM 1% 1/4W MF T&R R110
1	3.57KP1	3.57KP1	70240108	3.57K 1% 1/4W MF T&R R111
2	100W2	100W2	70250080	100-2W-5%-MF-T&R R112, R113
2	10	10	70240003	10—1/4W-5%—CF-T&R R114, R115
1	40.2KP1	40.2KP1	70240047	40.2K-1/4W-1%—MF-T&R R116
1	33K	33K	70240030	33K-1/4W-5%—CF-T&R R117
1	5.11KP1	5.11KP1	70240051	5.11K-1/4W-1%—MF-T&R R118
1	33K	33K	70240030	33K-1/4W-5%—CF-T&R R119
1	10FP	10FP	70240095	10FP-1/4W-5%—FP-T&R R126
1	10	10	70240003	10—1/4W-5%—CF-T&R R128
1	560	560	70240050	560-1/4W-5%—CF-T&R R129
1	1K	1K	70240017	1K—1/4W-5%—CF-T&R R130
1	300W1/2	300W1/2	70230031	300—1/2W-5%-FP-T&R R131
1	3K	3K	70240071	3K-1/4W-5%—CF-T&R R132
1	3.3K	3.3K	70240022	3.3K-1/4W-5%—CF-T&R R133
1	470	470	70240015	470-1/4W-5%—CF-T&R R134
1	6.8K	6.8K	70240024	6.8K-1/4W-5%—CF-T&R R135
1	300W1/2	300W1/2	70230031	300—1/2W-5%-FP-T&R R136
1	1K	1K	70240017	1K—1/4W-5%—CF-T&R R137
1	105KP1	105KP1	70241076	105K-1/4W-1%—MF-T&R R138
1	15K	15K	70240027	15K-1/4W-5%—CF-T&R R139
1	82.5KP1	82.5KP1	70240130	82.5K 1% 1/4W MF T&R R140
1	49.9KP1	49.9KP1	70241072	49.9K-1/4W-1%—MF-T&R R141
1	1K	1K	70240017	1K—1/4W-5%—CF-T&R R142
1	15KP1	15KP1	70241027	15K-1/4W-1%—MF-T&R R143
1	10KP1	10KP1	70241050	10K-1/4W-1%—MF-T&R R144
1	1K	1K	70240017	1K—1/4W-5%—CF-T&R R145
1	10K	10K	70240025	10K-1/4W-5%—CF-T&R R146
1	22K	22K	70240029	22K-1/4W-5%—CF-T&R R147
1	47K	47K	70240031	47K-1/4W-5%—CF-T&R R148
1	J4	J	70600005	22GA JUMPER WIRES T&R SO300
4	1187SOW	70900366	70900366	HEX SPACER 1 3/16 W/4-40 IN SO301, SO302, SO303, SO304
1	187SOWB	70900935	70900935	SPACER, .187 (#4),.187 SWAGE BRASS SO305
2	187SOWD	70900924	70900924	SPACER, .187 R,(#4),.187 SWAGE ALUM. SO306, SO307
1	187SOWB	70900935	70900935	SPACER, .187 (#4),.187 SWAGE BRASS SO308
4	187SOWD	70900924	70900924	SPACER, .187 R,(#4),.187 SWAGE ALUM. SO309, SO310, SO311, SO312
1	70500066	70500066	70500066	CS-800S PWR OUTPUT TRANS. T102
1	ML4825	ML4825	70404825	ML4825-PWM-IC U101
1	LM358	LM358	70400358	LM358 DUAL OP AMP U102
1	LM311	LM311	70420311	LM311 VOLTAGE COMPARATOR U103
1	330KT	330KT	70240208	330K THERMISTOR VR100
1	10KTRIM	10KTRIM	71190009	10K LIN HOR. PC MNT TRIM POT VR102

CS800S Power Supply Protection Circuits

1- Overcurrent Protection

U102 and associated components comprise the overcurrent circuit. The overcurrent amplifier U102 compares its reference voltage generated by dividing the output voltage through R104, R111, and R125. CR102 zener clamps the reference voltage so that the output current is limited at high input voltages. The current signal (+CS) is derived on the EMI assembly and is routed through J100 to R106. When CS+ signal U102-2 is greater than the reference signal U102-3, U102-1 output goes low which Reduces the output current by reducing the voltage on U101-8.

2- Short Circuit Protection

This is comprised of four sections: three detection circuits and a shutdown latch. The latch is comprised of Q100 and Q101 which form a PNP and NPN latch similar to an SCR. When Q100 base is pulled down by either U103, CR121, or CR117, current Flows through the collector which causes Q101 to conduct. In turn, Q101 pulls Q100 Base via R134 and turns on Q102 which resets the soft start. Q100 and Q101 will Remain latched until the bias voltage is removed.

The three detection modes are short 1) +out to com, 2) com to –out, 3) +out to –out. Mode 1 detector consists of U103 and associated circuitry. The +output and common voltages are scaled down by R138, R140-144. Under normal operation, U103-2 voltage is higher than U103-3 reference voltage, so comparator U103-7 output is high. But when + output is shorted to common, U103-2 voltage becomes lower than U103-3, and U103 output goes low which pulls down Q100 base and activates the shutdown latch. R131, R136, and R137 divide down the 12vdc bias voltage so that +output voltage is always greater than common voltage, thus preventing the power supply from latching during start-up.

Mode 2 and 3 detection are very similar. In normal operation the +output and common voltages will be greater than the 12V bias, so CR117, CR120, and CR121 will be reverse biased and Q100 remains turned off. However, if either the +output is shorted to –output, or the common shorted to the –output, CR117 or CR120, CR121 will conduct which will pull down Q100 base, setting the shutdown latch.

3- Overtemperature Protection

This circuit monitors the temperature of T102 main output transformer and the upper IGBT switching transistor on the EMI assembly. VR100 and R116 form a voltage divider as T102 temperature increases. VR100 thermistor decreases, thus the voltage at CR100 cathode decreases which reduces the voltage at U101-8 soft start and the output voltage is reduced. As T102 temperature decreases, VR100 resistance increases allowing the soft start voltage to increase, returning the output voltage to its normal level. The IGBT sensing circuit operates similarly: R102, R119, THERM2, and R117 form a voltage divider. However, THERM2 is in the upper leg of the divider as its resistance increases with temperature. So when the IGBT temperature increases, THERM2 thermistor increases thus reducing the voltage at CR107 cathode.This in turn reduces the voltage at U101-8 soft start and the output voltage is reduced. Likewise, as the IGBT cools down, THERM2 thermistor decreases which raises the Soft start voltage and the output voltage to normal.