8.2 Circuit description of the current mode power supply

8.2.1 Blockdiagram

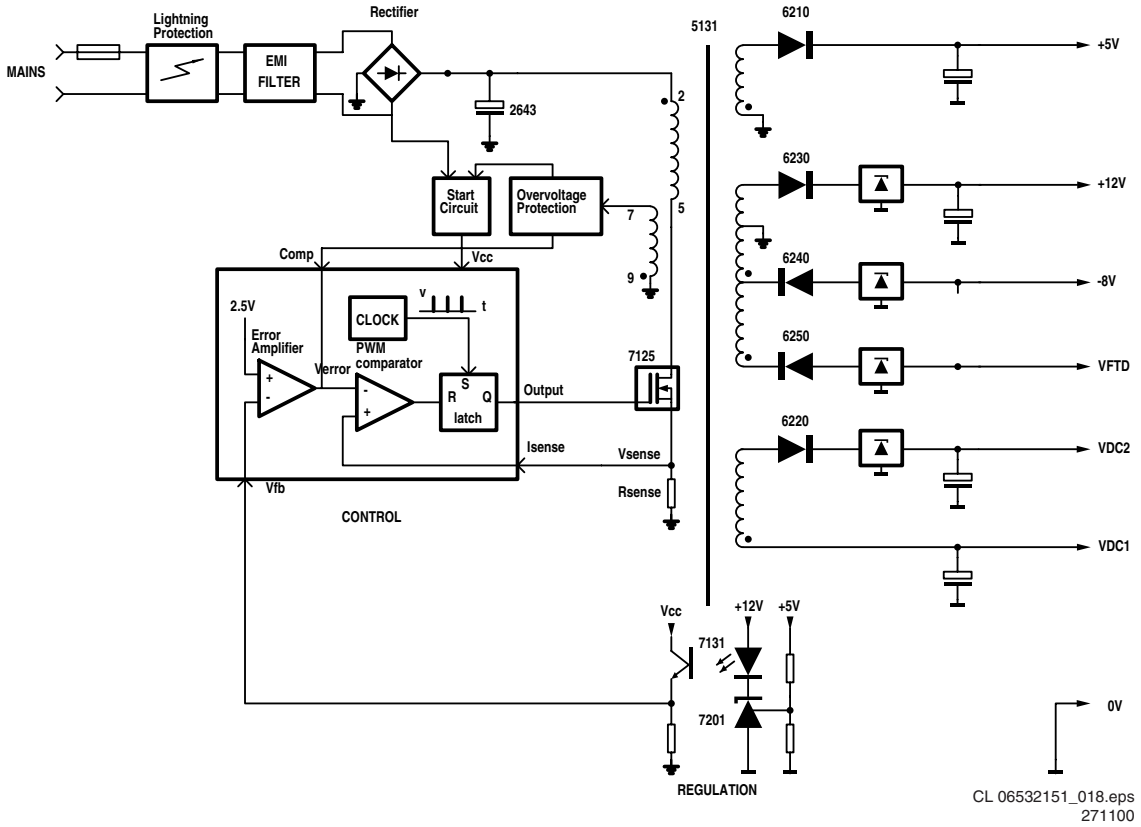


Figure 8-10

8.2.2 Function description

MOSFET 7125 is used as a power switch controlled by the controller IC 7110. When the switch is closed, energy is transferred from mains to the transformer. This energy is supplied to the load when the switch is opened. Through control of the switched-on time, the energy transferred in each cycle is regulated so that the output voltages are independent of load or input voltage variations. The controlling device UC3842 is an integrated pulse width modulator. A clock signal initiates power pulses at a fixed frequency. The termination of each output pulse occurs when a feedback signal of the inductor current reaches a threshold set by the error signal. In this way the error signal actually controls the peak inductor current on cycle-by cycle basis.

8.2.3 Description of UC3842

The input voltage Vcc(pin 7) is monitored by a comparator with hysteresis, enabling the circuit at 16V and disabling the circuit below 10V. The error amplifier compares a voltage Vfb(pin 2) related to the output voltage of the power supply, with an internal 2.5V reference. The current sense comparator compares the output of the error amplifier with the switch current Isense(pin 3) of the power supply. The output of the current sense comparator resets a latch, which is set every cycle by the oscillator. The output stage is a totem pole, capable of driving a MOSFET directly

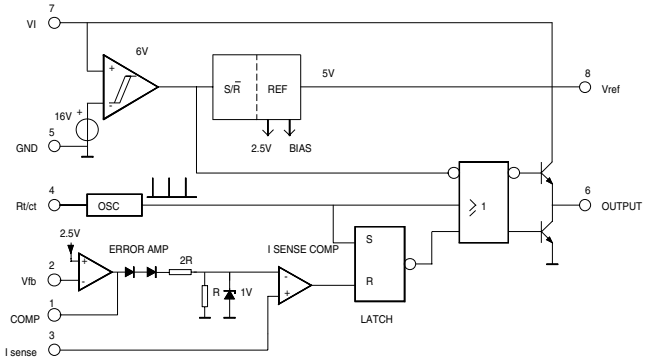


Figure B : Blockdiagram UC3842 CL 06532151_019.eps 271100

Figure 8-11

8.2.4 Start up sequence

t1: Charging the capacitor at Vcc
C2129 wiil be charged via R3123 and R3134, C2133 and C2111 via R3129. The output is switched off
During t1.
t2: Charging of output capacitors
When the input voltage of the IC exceeds 14,5V, the circuit is enabled and starts to produce output pulses. The current consumption of the circuit increases to about 17mA, depending on the external loads of the IC. At first, the

capacitor at the Vcc pin will discharge because the primairy auxiliary voltage, coming from winding7-9 is below the Vcc voltage. At some moment during t2, the primary auxiliary voltages reaches the same level as Vcc.
This primary auxiliary voltage now determines the Vcc voltage
t3: regulation
The output voltage of the power supply is in regulation
t4: overload
When the output is shortened, the supply voltage of the circuit will decrease and after some time drop below the lower threshold voltage. At that moment, the output will be disabled and the process of charging the Vcc capacitor starts again. If the output is still shorted at the next t2 phase, the complete start-and stop sequence will repeat. The power supply comes in a hiccup mode.

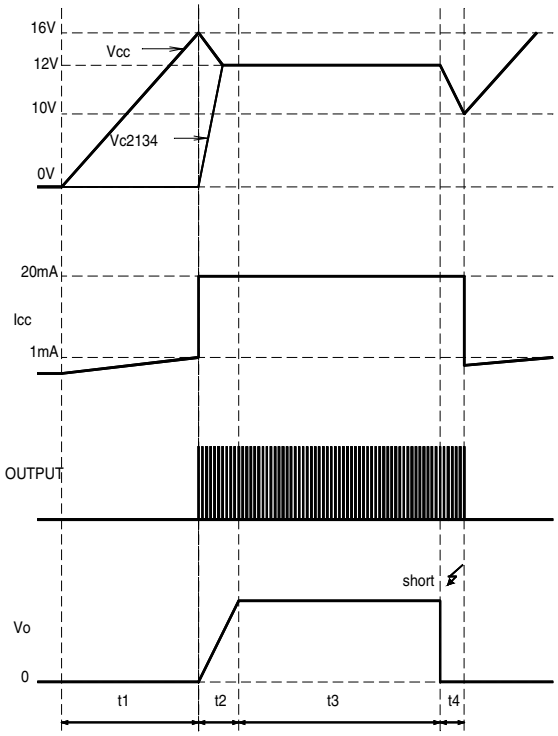


Figure C : Start-up sequence

Figure 8-12

becomes reversed. This results in a current flow through the tranformer's secondary winding via the diodes, electrolytic capacitors and the load. This current is also ramp shaped but decreasing.
TimeDEAD phase : when the stored energy has been supplied to the load, the voltage from the secondary windings falls below the output voltage(held constant by the electrolytic capacitors) plus the threshold voltage of the diodes. The current in the secondary winding stops flowing. At this point, the drain voltage of the MOSFET is not yet zero because C2609 between drain and source contains a certain charge. This charge will start a sine-shaped ringing together with the transformer's self-induction.
The oscillator will start a next cyclus which consists of the described three phases. The time of the different phases depends on the mains voltage and the load.
TimeDEAD is maximum at an input of 400VDC and minimum load, it will be zero at an input of 100VDC and overload.

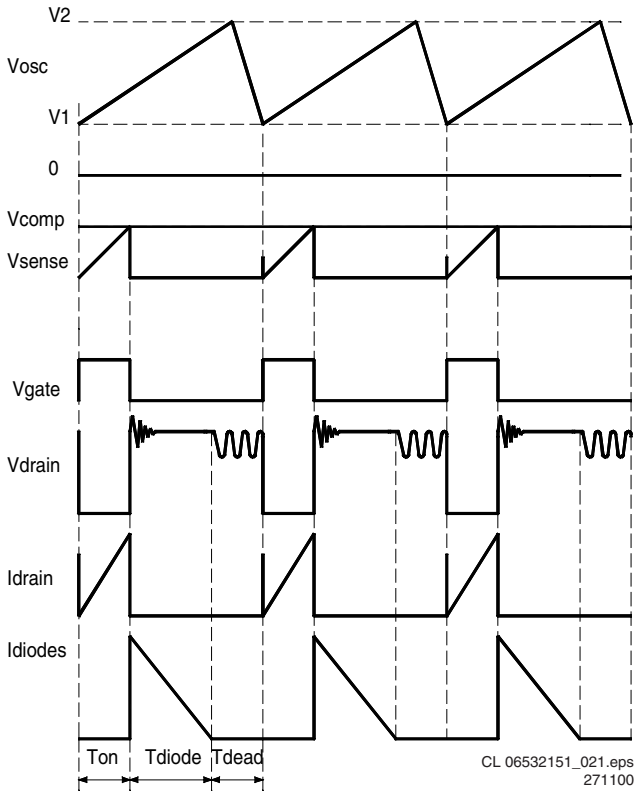


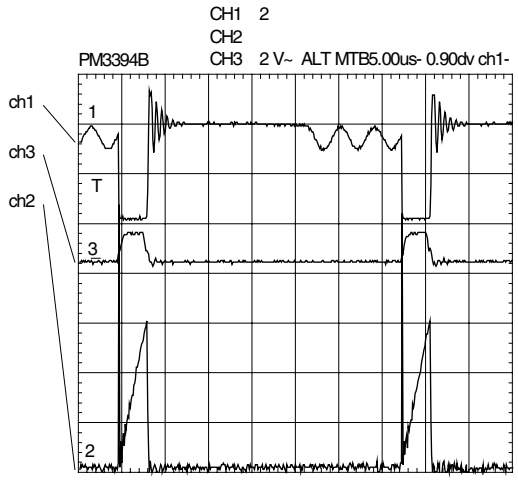
Figure 8-13

8.2.5 Regulation

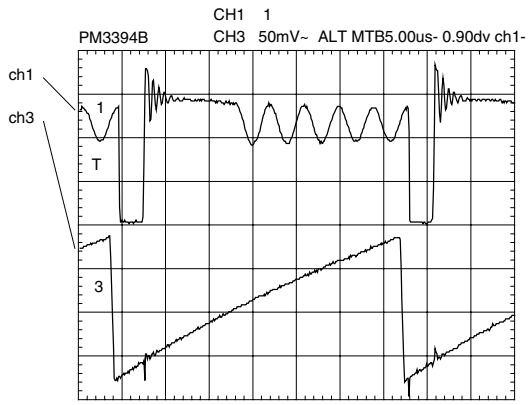
Figure 4 shows the most relevant signals during the regulation phase of the power supply.
The oscillator voltage ramps up and down between V1 and V2. The voltage at the current sense terminal is compared every cycle with the output of the error amplifier Vcomp. The output is switched off when the current sense level exceeds the level at the output of the error amplifier.
TimeON phase : A drain current will flow from the positive supply at pin 1 through the transformer's primary winding, the MOSFET and Rsense to ground. As the positive voltage at pin 1 of the transformer is constant, the current will increase linearly and create a ramp dependent on the mains voltage and the inductance of the primary winding. A certain amount of energy is stored in the transformer in the form of a magnetic field. The polarity of the voltages at the secundary windings is such that the diodes are non-conducting.
TimeDIODE phase : When the MOSFET is switched off, energy is no longer supplied to the tranformer. The inductance of the tranformer now tries to maintain the current which has been flowing through it at a constant level. The polarity of the voltage from the transformer therefore

8.2.6 Oscillograms

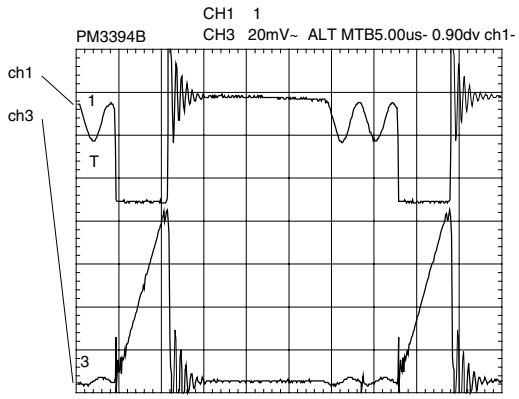
Oscillograms



ch1 : Drain voltage
ch2 : Drain current
ch3 : Gate voltage



ch1 : Drain voltage
ch2 : Oscillator voltage



ch1 : Drain voltage
ch3 : Sense voltage

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301100

Figure 8-14

8.2.7 Circuit description

Input circuit
The input circuit consists of a lightning protection circuit and an EMI filter.
The lightning protection comprises R3120, gasarrestor 1125 and R3124.
The EMI filter is formed by C2120, L5120, C2125 and R3124. It prevents inflow of noise into/from the mains.

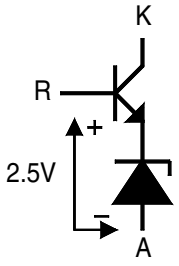
Primary rectifier/smoothing circuit
The AC input is rectified by rectifier bridge 6102 and smoothed into C2121. The voltage over C2121 is approximately 300V. It can vary from 100V to 390V.

Start circuit and Vcc supply
This circuit is formed by R3123, R3134, C2129, D6129, R3129, R3111, C2133 and C2111.
When the power plug is connected to the mains voltage, the stabilised voltage over D6129(24V) will charge C2133 via R3129. When the voltage reaches 14,5V across C2111, the control circuit of IC7110 is turned on and the regulation starts. During regulation, Vcc of IC7110 will be supplied by the rectified voltage from winding 7-9 via L5132, D6132 and C2133.

Control circuit
The control circuit exists of IC7110, C2102, C2104, C2107, C2109, C2110, R3102, R3103, R3104, R3107, R3108, R3109 and R3110. C2102 and R3110 define the frequency of the oscillator.

Power switch circuit
This circuit comprises MOSFET 7125, Rsense 3126, 3127 and 3128, R3125, C2127, L5125, R3112 and R3113. R3125 is a pull-down resistor to remove static charges from the gate of the MOSFET.

Regulation circuit
The regulation circuit comprises opto-coupler 7200 which isolates the error signal from the control IC on the primary side and a reference component 7201. The TL431(7201) can be represented by two components:
- a very stable and accurate reference diode
- a high gain amplifier



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271100

Figure 8-15

TL431 will conduct from cathode to anode when the reference is higher than the internal reference voltage of about 2.5V. If the reference voltage is lower, the cathode current is almost zero.
The cathode current flows through the LED of the opto-coupler. The collector current of the opto-coupler flows through R3106, producing an error voltage, connected to voltage feedback pin 14 of IC7110.

Overvoltage protection circuit
This circuit consist of D6114, C2114, R3115and R3116.

When the regulation circuit is interrupted due to an error in the control loop, the regulated output voltage will increase (overvoltage). This overvoltage is sensed on the primary winding 7-9. When an overvoltage longer than 2.0µs is detected, the output is disabled until Vcc is removed and then re-applied. The power supply will come in a hiccup mode as long as the error in the control loop is present.

Secondary rectifier/smoothing circuit

There are 5 rectifier/smoothing circuits on the secondary side. Each voltage depends on the number of windings of the transformer.
The -8V supply is regulated by voltage regulator 7249.

On/off circuit

In off mode pin 1 and pin 2 of connector 0206 are connected. The high voltage (-8V, +12V) over opto coupler 7200 forces this one to conduct . IC 7110 is switched off

8.2.8 Troubleshooting PSU CDR3-ECO

Faultfinding diagram

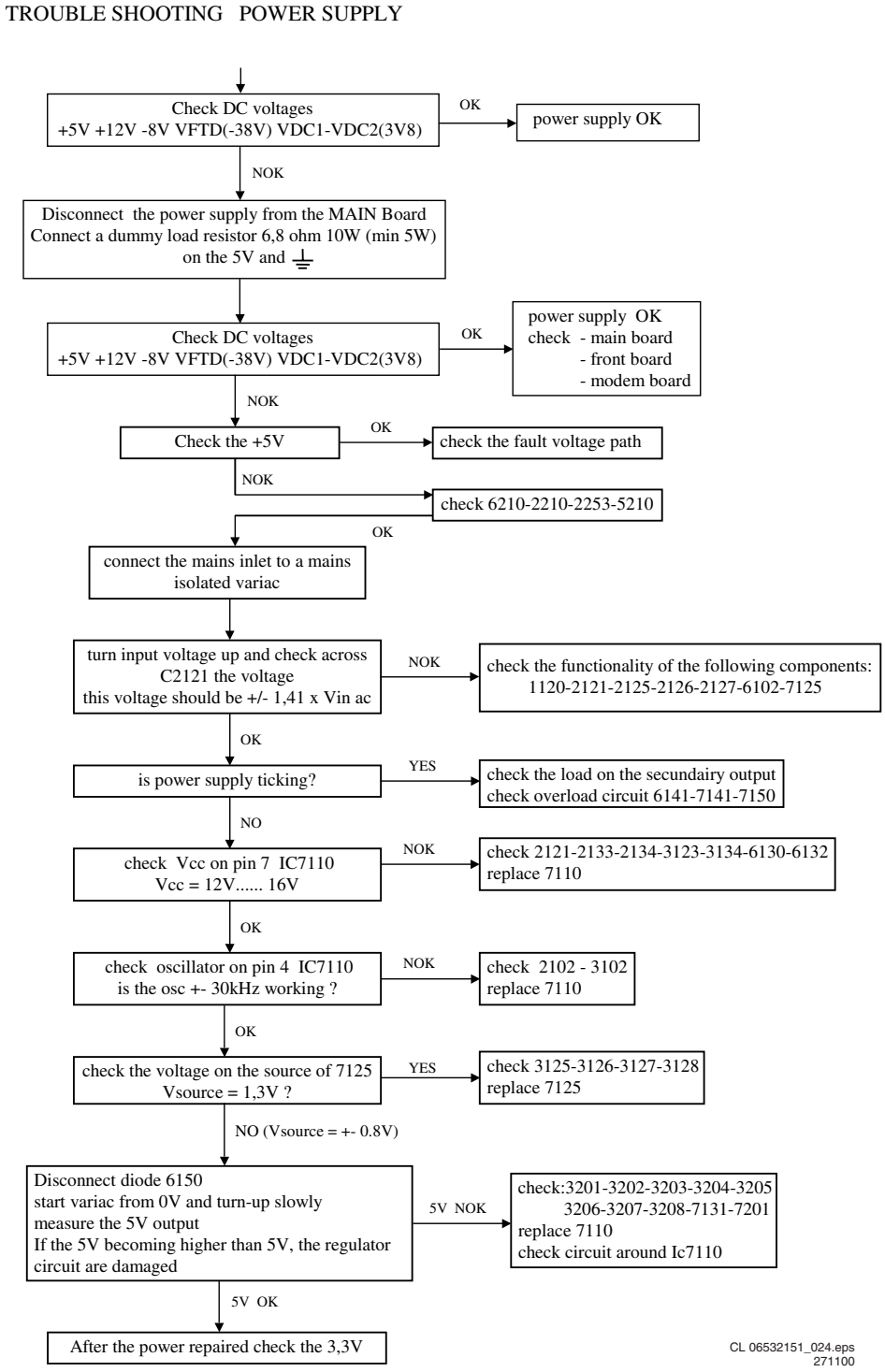
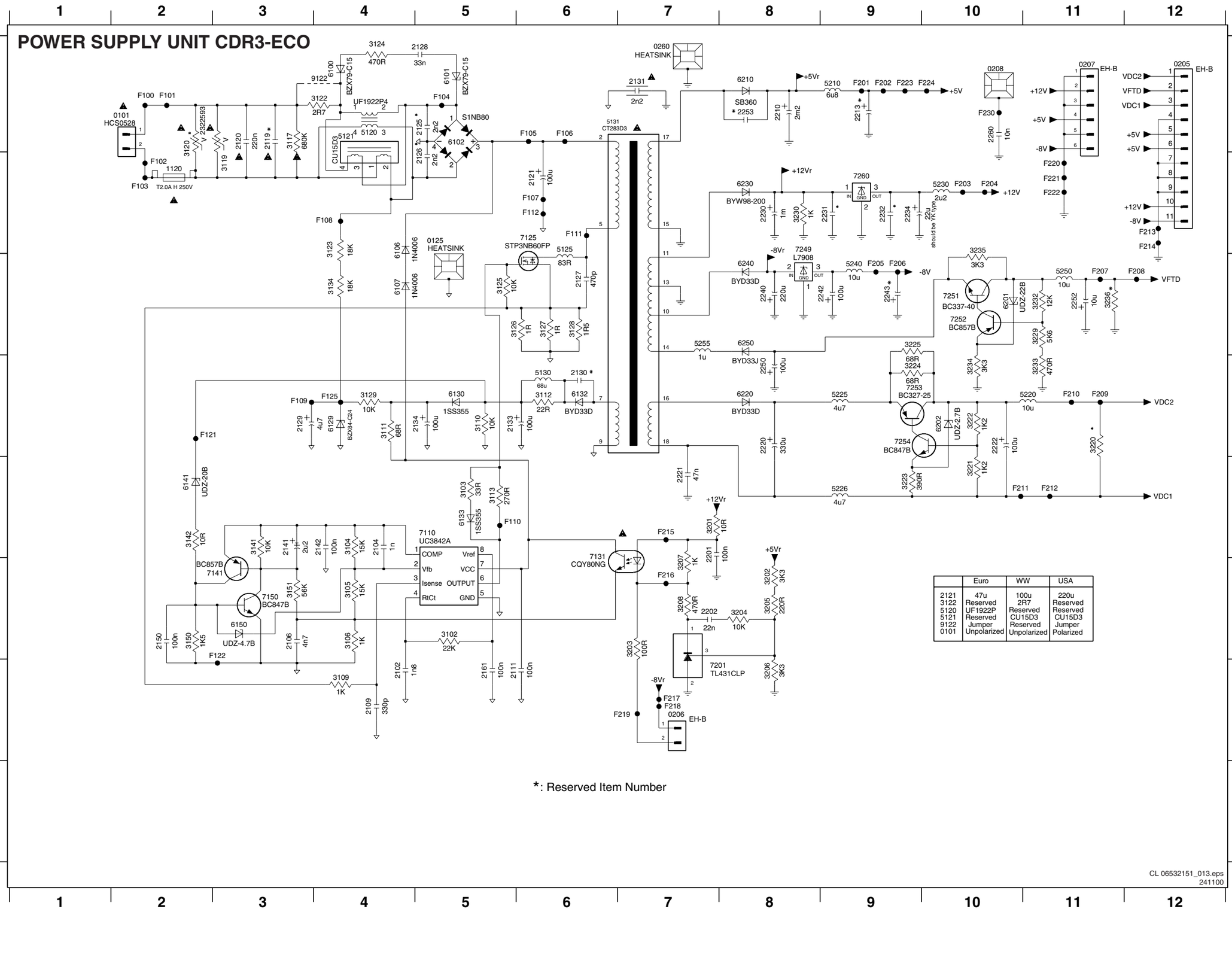


Figure 8-16

PSU CDR3-ECU

POWER SUPPLY UNIT CDR3-ECO



	Euro	WW	USA
2121	47u	100u	220u
3122	Reserved	2R7	Reserved
5120	UF1922P	Reserved	Reserved
5121	Reserved	CU15D3	CU15D3
9122	Jumper	Reserved	Jumper
0101	Unpolarized	Unpolarized	Polarized

*: Reserved Item Number

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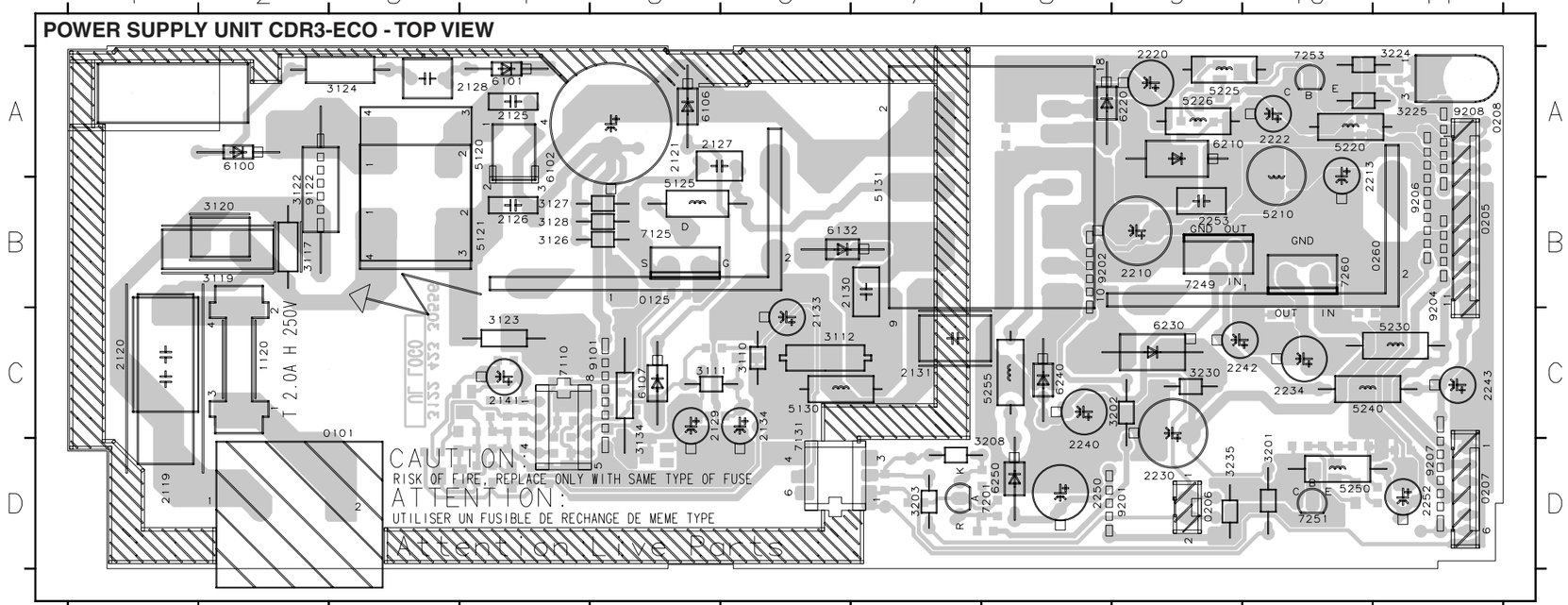
241100

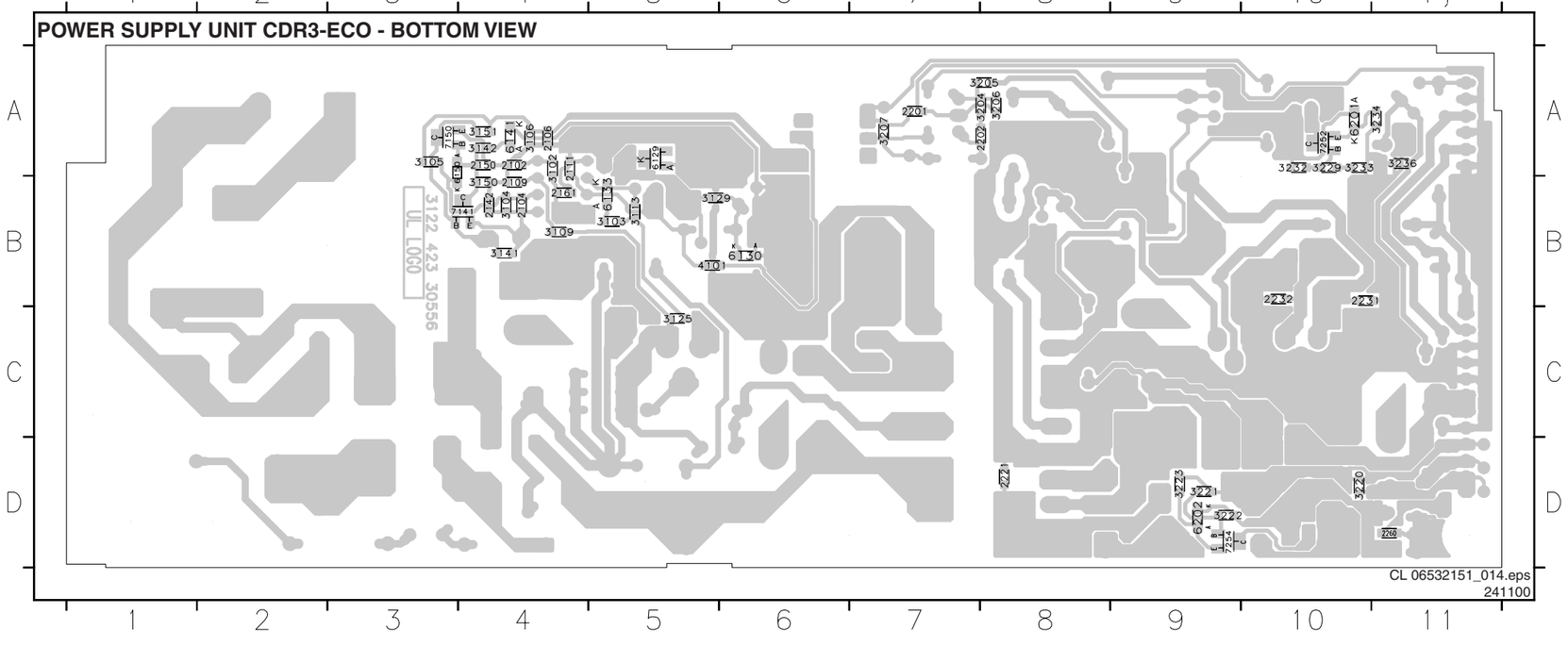
0101 A2
0125 B5
0205 A12
0206 G7
0207 A11
0208 A10
0260 A7
1120 B2
2102 G4
2104 E4
2106 F3
2109 G4
2111 G5
2119 A3
2120 A3
2121 B6
2125 A5
2126 B5
2127 C6
2128 A5
2129 D3
2130 D6
2131 A7
2133 D5
2134 D5
2141 E3
2142 E4
2150 F2
2161 G5
2201 E7
2202 F7
2210 A8
2213 A9
2220 D8
2221 E7
2222 D10
2230 B8
2231 B9
2232 B9
2234 B9
2240 C8
2242 C9
2243 C9
2250 D8
2252 C11
2253 A8
2260 A10
3102 F5
3103 E5
3104 E4
3105 F4
3106 F4
3109 G4
3110 D5
3111 D4
3112 D6
3113 E5
3117 A3
3119 B3
3120 A2
3122 A4
3123 B4
3124 A4
3125 C5
3126 C6
3127 C6
3128 C6
3129 D4
3134 C4
3141 E3
3142 E2
3150 F2
3151 F3
3201 E7
3202 F8
3203 F7
3204 F8
3205 F8
3206 G8
3207 F7
3208 F7
3220 D11
3221 E10
3222 D10
3223 E9
3224 D9
3225 C9
3229 C11
3230 B8
3232 C11
3233 D11
3234 D10
3235 B10
3236 C11
5120 A4
5121 A4
5125 B6
5130 D6
5131 A6
5210 A9
5220 D11
5225 D9
5226 E9
5230 B10
5240 C9
5250 C10
5255 C7
6100 A4
6101 A5
6102 A5
6104 B4
6106 B4
6107 C4
6129 D4
6130 D5
6132 D6
6133 E5
6141 E5
6150 F3
6201 C10
6202 D10
6210 A8
6220 D8
6230 B8
6240 C8
6250 C8
7110 E5
7125 B6
7131 F6
7141 F3
7150 F3
7201 G7
7249 B8
7251 C10
7252 C10
7253 D9
7254 D9
7260 B9
9122 A4
F100 A2
F101 A2
F102 B2
F103 B2
F104 A5
F105 A6
F106 A6
F107 B6
F108 B4
F109 D3
F110 E5
F111 B6
F112 B6
F121 D2
F122 F3
F125 D4
F201 A9
F202 A9
F203 B10
F204 B10
F205 C9
F206 C9
F207 C11
F208 C12
F209 D11
F210 D11
F211 E10
F212 E11
F213 B12
F214 B12
F215 E7
F216 F7
F217 G7
F218 G7
F219 G7
F220 B11
F221 B11
F222 B11
F223 A9
F224 A10
F230 A10

Layout PSU CDR3-ECO

0101 C3, 0125 B5, 0205 B11, 0206 D9, 0207 D11, 0208 A11, 0260 B11, 1120 C2, 2119 D1, 2120 C1, 2121 A5, 2125 A4, 2126 B4, 2127 A5, 2128 A4, 2129 C5, 2130 B6, 2131 C7, 2133 C6, 2134 C6, 2141 C4, 2210 B9, 2213 A10, 2220 A9, 2222 A10, 2230 D9, 2234 C10, 2240 D8, 2242 C9, 2243 C11, 2250 D8, 2252 D11, 2253 B9, 3110 C6, 3111 C5, 3112 C6, 3117 B2, 3119 B2, 3120 B2, 3122 B2, 3123 C4, 3124 A3, 3126 B4, 3127 B4, 3128 B4, 3134 D5, 3201 D10, 3202 C9, 3203 D7, 3208 D8, 3224 A11, 3225 A11, 3230 C9, 3235 D9, 5120 A4, 5121 B4, 5125 B5, 5130 C6, 5131 B7, 5210 B10, 5220 A10, 5225 A9, 5226 A9, 5230 C11, 5240 C10, 5250 D10, 5255 C8, 6100 A2, 6101 A4, 6102 A4, 6106 A5, 6107 C5, 6132 A5, 6210 A9, 6220 A9, 6230 C9, 6240 C8, 6250 D8, 7110 C4, 7125 B5, 7131 C6, 7201 D8, 7249 B9, 7251 D10, 7253 A10, 7260 B10, 9101 C5, 9122 B2, 9201 D9, 9202 B8, 9204 B11, 9206 B11, 9207 D11, 9208 A11



2102 A4, 2104 B4, 2106 A4, 2109 B4, 2111 A4, 2142 B4, 2150 A4, 2161 B4, 2201 A7, 2202 A8, 2221 D8, 2231 B10, 2232 B10, 3102 A4, 3103 B5, 3104 B4, 3105 A3, 3106 A4, 3109 B4, 3113 B5, 3125 C5, 3129 B5, 3141 B4, 3142 A4, 3150 B4, 3151 A4, 3204 A8, 3205 A8, 3206 A8, 3207 A7, 3220 D10, 3221 D9, 3222 D9, 3223 D9, 3229 A10, 3232 A10, 3233 A10, 3234 A11, 3236 A11, 4101 B5, 6129 A5, 6130 B6, 6133 B5, 6141 A4, 6150 A3, 6201 A10, 6202 D9, 7141 B4, 7150 A3, 7252 A10, 7254 D9



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241100

Headphone board

⊣⊢

2100	4822 126 14585	100nF 10% 50V
2101	4822 124 81151	22µF 50V
2102	4822 126 14585	100nF 10% 50V
2103	4822 124 81151	22µF 50V
2104	5322 126 10511	1nF 5% 50V
2105	5322 126 10511	1nF 5% 50V

⊣▭⊢

3100	5322 117 11726	10Ω 5%
3101	5322 117 11726	10Ω 5%
3102	4822 051 20008	0Ω jumper . (0805)
3104	4822 051 20008	0Ω jumper . (0805)
3106	4822 117 11503	220Ω 1% 0.1W
3107	4822 117 11503	220Ω 1% 0.1W
3108	4822 051 20122	1k2 5% 0.1W
3109	4822 051 20122	1k2 5% 0.1W

7102	4822 209 82362	NJM4556D
7103	4822 130 42615	BC817-40
7104	4822 130 42615	BC817-40

PSU CDR3 ECO

Miscellaneous

0025	4822 492 63524	FIX. TRANSISTOR
0060	4822 492 63524	FIX. TRANSISTOR
0101▲	4822 265 31015	HSC0528
1120▲	4822 070 32002	218002.(2A)
1121	4822 265 11253	FUSE HOLDER 2P

⊣⊢

2102	2238 861 15182	50V 1N8 PM5 R
2104	5322 122 31647	1nF 10% 63V
2106	5322 126 10223	4.7nF 10% 63V
2109	5322 122 31863	63V 330pF PM5
2111	4822 126 14585	100nF 10% 50V
2120▲	4822 121 10697	220nF 20% 275V
2121	8222 675 05480	EL 47µF /400V YK KC RUBYCOnF
2127	4822 122 50116	470pF 10% 1KV
2128	4822 121 70141	33nF 5% 400V
2129	4822 124 40769	4.7µF 20% 100V
2131▲	4822 126 14497	2.2nF 20% 250V
2133	4822 124 42084	100µF 20% 35V
2134	4822 124 42084	100µF 20% 35V
2141	4822 124 22652	2.2µF 20% 50V
2142	4822 126 14585	100nF 10% 50V
2150	4822 126 14585	100nF 10% 50V
2161	4822 126 14585	100nF 10% 50V
2201	4822 126 14585	100nF 10% 50V
2202	5322 122 32654	63V 22nF PM10 R
2210	2020 012 93728	EL YK 10V S 2200µF PM20 B
2213	4822 124 41584	100µF 20% 10V
2220	4822 124 40849	330µF 20% 16V
2221	4822 126 13751	47nF 10% 63V
2222	4822 124 42234	100µF 20% 6.3V
2230	4822 124 81144	1000µF 16V
2234	4822 124 81151	22µF 50V
2240	4822 124 40196	220µF 20% 16V
2242	4822 124 41584	100µF 20% 10V
2250	4822 124 40255	100µF 20% 63V
2252	4822 124 40248	10µF 20% 63V
2253	2020 558 90449	DC DE-F 1KV 4N7 P8020 A
2260	4822 122 33177	10nF 20% 50V

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3102	4822 117 10354	22k 1% 0.1W
3103	4822 051 20339	33Ω 5% 0.1W
3104	4822 116 83933	15k 1% 0.1W
3105	4822 116 83933	15k 1% 0.1W
3106	4822 051 10102	1k 2% 0.25W
3109	4822 051 10102	1k 2% 0.25W
3110	4822 050 21003	10k 1% 0.6W
3111	4822 116 52199	68Ω 5% 0.5W
3112	4822 053 11229	22Ω 5% 2W
3113	4822 051 10102	1k 2% 0.25W
3117▲	4822 053 21684	680k 5% 0.5W
3119	2322 595 90023	VDR DC 1M A/423V S MAX 800V B
3123	4822 050 21803	18k 1% 0.6W
3124	4822 117 12181	470Ω 20% 0.5W
3125	4822 117 10833	10k 1% 0.1W
3126	4822 116 80176	1Ω 5% 0.5W
3127	4822 116 80176	1Ω 5% 0.5W
3128	4822 116 80676	1Ω5 5% 0.5W
3129	4822 117 10833	10k 1% 0.1W
3134	4822 050 21803	18k 1% 0.6W
3141	4822 117 10833	10k 1% 0.1W
3142	4822 051 20109	10Ω 5% 0.1W
3150	4822 117 11139	1k5 1% 0.1W
3151	4822 117 11148	56k 1% 0.1W
3201	4822 116 52176	10Ω 5% 0.5W
3202	4822 050 13302	3k3 1% 0.4W
3203	4822 116 52175	100Ω 5% 0.5W
3204	4822 117 10833	10k 1% 0.1W
3205	4822 117 11503	220Ω 1% 0.1W
3206	4822 051 20332	3k3 5% 0.1W
3207	4822 051 10102	1k 2% 0.25W
3208	4822 116 83883	470Ω 5% 0.5W
3221	4822 051 20122	1k2 5% 0.1W
3222	4822 051 20122	1k2 5% 0.1W
3223	4822 117 11596	390Ω 1% 0.1W
3224	4822 116 52199	68Ω 5% 0.5W
3225	4822 116 52199	68Ω 5% 0.5W
3229	4822 117 13085	5k6 1% RC12H 0.1W 0805
3230	4822 050 21002	1k 1% 0.6W
3232	4822 117 11383	12k 1% 0.1W
3233	4822 051 20471	470Ω 5% 0.1W
3234	4822 051 20332	3k3 5% 0.1W
3235	4822 116 52269	3k3 5% 0.5W
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)

⊣≈⊢

5120	4822 157 11846	µH 1922P4
5125	4822 157 11411	100mH z
5130	4822 157 51312	68µH
5131▲	3128 138 38950	SM TRANSFORMER - CT283D3
5210	4822 157 11722	6.8µH 20% 7.7X9.5
5220	4822 157 51462	10µH 10% 4X9.8MM LAL04T100K
5225	4822 157 53139	4.7µH
5226	4822 157 53139	4.7µH
5230	4822 157 50963	2.2µH
5240	4822 157 51462	10µH 10% 4X9.8MM LAL04T100K
5250	4822 157 51462	10µH 10% 4X9.8MM LAL04T100K
5255	4822 157 51195	1 µH 20% 4X9.8MM AXIAL

⊣▶⊢

6100	4822 130 34281	BZX79-B15
6101	4822 130 34281	BZX79-B15
6102	4822 130 83707	SINB80
6106	4822 130 31603	1N4006
6107	4822 130 31603	1N4006
6129	5322 130 80122	BZX84-C24
6130	4822 130 83649	1SS355
6132	4822 130 42488	BYD33D
6133	4822 130 83649	1SS355
6141	4822 130 10656	UDZ20B
6150	4822 130 11148	UDZ4.7B
6201	9322 107 43685	UDZ22B
6202	9322 102 64685	DIO REG SM UDZ2.7B (RHM0) R
6210	4822 130 83865	SB360
6220	4822 130 42488	BYD33D
6230	4822 130 11415	BYV28-400/20
6240	4822 130 42606	BYD33J
6250	4822 130 32896	BYD33M

7110	9322 145 88682	UC3842A
7125	4822 130 11417	STP3NB60FP
7131▲	4822 130 91451	CQY80NG
7141	4822 130 60373	BC856B
7150	5322 130 60159	BC846B
7201	4822 209 81397	TL431CLPST
7249	4822 209 82112	MC7908CT
7251	4822 130 41344	BC337-40
7252	4822 130 60373	BC856B
7253	4822 130 41246	BC327-25
7254	5322 130 60159	BC846B
7260	8222 675 06290	VOLT.REG.BA12T ROHM

CD MAINBOARD

Miscellaneous

1000	2422 025 11704	CON BM H 16P F 1.00 FFC 0.3 R
1004	2422 543 00896	RES XTL SM 8M4672 30P CX-5F R
1006	4822 267 51454	CONN. 11P FEMALE
1205	5322 242 73686	CST12,00MTW-TF01
1206	4822 252 51173	19398E1(1,000A)
1207	4822 252 51173	19398E1(1,000A)
1208	4822 267 60409	CONN 22P FEMALE
1209	4822 265 30987	BMT 7SR>CBL0,3-1,25
1210	2422 025 11704	CON BM H 16P F 1.00 FFC 0.3 R

⊣⊢

2100	4822 126 14585	100nF 10% 50V
2102	4822 126 14585	100nF 10% 50V
2103	5322 122 31647	1nF 10% 63V
2104	4822 126 14585	100nF 10% 50V
2105	4822 124 81286	47µF 20% 16V
2106	4822 126 14585	100nF 10% 50V
2107	4822 124 81286	47µF 20% 16V
2109	5322 122 32654	63V 22nF PM10 R
2110	4822 126 14585	100nF 10% 50V
2111	4822 126 14585	100nF 10% 50V
2112	4822 126 14585	100nF 10% 50V
2113	4822 126 14585	100nF 10% 50V
2114	4822 126 14585	100nF 10% 50V
2115	4822 126 14585	100nF 10% 50V
2116	4822 124 41796	22µF 20% 16V
2117	4822 126 13561	220nF 10% 16V
2118	4822 126 14585	100nF 10% 50V
2119	4822 126 14585	100nF 10% 50V
2120	4822 124 41796	22µF 20% 16V
2121	4822 126 14585	100nF 10% 50V
2122	4822 126 12104	12nF 5% 50V
2123	5322 122 31863	63V 330pF PM5
2124	4822 126 14585	100nF 10% 50V
2125	4822 124 81286	47µF 20% 16V
2126	5322 122 34098	10nF 10% 63V
2127	5322 122 31863	63V 330pF PM5
2128	4822 124 80483	47µF 20% 6.3V
2130	4822 126 14305	100nF 10% 16V 0603
2131	4822 126 14585	100nF 10% 50V
2132	4822 124 80483	47µF 20% 6.3V
2133	4822 126 13482	470nF 80/20% 16V
2134	4822 126 14305	100nF 10% 16V 0603
2135	4822 124 41796	22µF 20% 16V
2137	4822 126 14494	22nF 10% 25V 0603
2138	4822 126 14494	22nF 10% 25V 0603
2139	4822 126 14305	100nF 10% 16V 0603
2140	4822 126 14508	180pF 5% 50V 0603
2141	4822 126 14238	0603 50V 2N2 COL R
2142	5322 122 32654	63V 22nF PM10 R
2143	4822 126 14241	0603 50V 330P COL R
2145	4822 126 13692	47pF 1% 63V
2146	4822 126 14247	0603 50V 1N5 COL R
2147	4822 126 13482	470nF 80/20% 16V
2148	4822 124 22726	4.7µF 35V
2149	3198 016 36810	0603 25V 680P COL R
2150	4822 126 12105	50V 33nF PM5
2151	5322 124 11919	47µF 20% 6.3V
2152	4822 126 14305	100nF 10% 16V 0603
2153	4822 122 33777	47pF 5% 63V
2154	4822 124 81286	47µF 20% 16V
2155	4822 126 14585	100nF 10% 50V
2156	5322 124 11919	47µF 20% 6.3V
2157	4822 126 14305	100nF 10% 16V 0603
2158	4822 122 33777	47pF 5% 63V
2159	3198 017 34730	0603 16V 47nF COL
2160	4822 126 14494	22nF 10% 25V 0603
2161	5322 124 11919	47µF 20% 6.3V
2162	4822 122 31765	100pF 2% 63V
2163	4822 126 14549	33nF 16V O6O3
2164	4822 126 14508	180pF 5% 50V 0603
2165	4822 122 33777	47pF 5% 63V
2166	3198 017 34730	0603 16V 47nF COL
2167	4822 126 14585	100nF 10% 50V
2168	4822 126 13883	220pF 5% 50V
2169	5322 126 10794	220pF 5% 63V
2170	5322 126 10794	220pF 5% 63V
2171	5322 126 10794	220pF 5% 63V
2172	5322 126 10794	220pF 5% 63V
2173	5322 126 10794	220pF 5% 63V
2174	4822 126 14494	22nF 10% 25V 0603
2175	4822 124 81286	47µF 20% 16V
2176	4822 122 33777	47pF 5% 63V

CDR MAIN BOARD - CIRCUIT DIAGRAM 7 : POWER PART TESTPOINTS

7

TO DISPLAY BOARD

FROM PSU

1500 F815 VDC2 F816 VFTD F817 VDC1 F820 F822 F823 5500 2500 2n2 GND_CASE F827 5502 BLM21 F828 5501 BLM21 5503 BLM21 2501 2n2 EH-B GND_CASE 2502 2n2 GND_CASE F831 5709 BLM21 -8VA 2577 100n 2572 100n 2571 100n

5556 BLM21 2568 100u F800 +5VA

1542 1A MP 7535 LD1117 IN OUT GND 2536 100n 2535 100n 2537 47u F802 D3V3

1543 1A MP 5543 5544 2543 100n 2544 47u F805 D5V

P12V 3537 10K 3538 100K 7520 STD17N05 F806 D5VS 5546 BLM21 F807 L5V 2546 47u 7523 BC847B

0.7V F813

POWER_UP 3538 10K F814 3539 100K 7524 BC847B

P12VKILL

5541 BLM21 1541 1A MP 5555 BLM21 F821 +12VA 2565 100n GNDA

5542 BLM21 2541 100n 2548 100u F839 P12V

BCP69 7527 3554 10K F840 12VPWR

7558 L78M09 IN GND OUT F841 +9SRVPWR 2574 100n 2575 220u

3542 12R 3541 12R F843 L12V 2547 47u

POWER_UP F844 10K 3556 0.7V F845 3555 1K2 7528 BC847B F842 11V 3557 100K

+5VA 3544 47K F830 5V

12VPWR 12VCP 3545 6R8 11.8V F838 2551 22u 7521-A MC34072 3546 100R F836 5V 5.2V F812

12VCP 7526 BC847B F846 F491 5.2V 7522 BC857B

3547 15K 2552 1n

3552 47K 12VCP 7548 BC847B 4.5V F493 F494 7529 BC857B 4.6V

3548 47K 5V F835 3551 3K3 7521-B MC34072 3549 100R F834 4.6V

+5VA 3553 100R F837 5.2V

10V 23.2V 2562 100n F496 2563 100n 2550 100n 2553 100n F492 6501 BAV99 27.5V F499 2507 10u 5554 47u F498 3550 100R F497 P12V 27.4V

6554 BAV99 2508 100n 2509 100n F495 17.8V

6500 BAV70W F819 FS30V 2505 10u 2506 33n

6502 BZX284-C22

P12VKILL 6553 BAS216 F801 11.8V 3570 100R 2504 220u BC857B 7560 3533 100K F803 11.8V BC857B 7561 F804 KILL 6 -8V during normal operation 3559 5K6 3562 5K6 3560 100K F808 F809 0.7V F810 5K6 3532 F811 7563 BC847B 7562 BC847B 3531 5K6 -8VA

KILL_OUT

12VPWR 3540 10K 3566 100K F818 7525 BC857B F832 3567 22K F825 7549 BC847B -8VA F824 2561 100n 5551 BLM21 F826 2558 100u 2555 10n

7556 MC79L05ABD OUT IN NC GND F829 L-5V 2557 100n 100n 2556 A-8V

PB CDRW
MAIN-4228-CDR99
3104 123 4228

4 {POWER_UP,KILL_OUT}

CL06532018_082.eps
010300

1500 D1
1541 D4
1542 A4
1543 B4
2500 E2
2501 F1
2502 F2
2504 A11
2505 H12
2506 H12
2507 H9
2508 I8
2509 I8
2535 B5
2536 B4
2537 B5
2541 D5
2543 B4
2544 B4
2546 C7
2547 F6
2548 D5
2550 H8
2551 G4
2552 H3
2553 H8
2555 F12
2556 G13
2557 F14
2558 F12
2561 F11
2562 H8
2563 H8
2565 D6
2568 A5
2571 D3
2572 E2
2574 E8
2575 E9
2577 F2
3531 C12
3532 C12
3533 A13
3536 C6
3537 C6
3538 C4
3539 D5
3540 E10
3541 F6
3542 E6
3544 F3
3545 G4
3546 G4
3547 H5
3548 H6
3549 I7
3550 H10
3551 I6
3552 F5
3553 I6
3554 E5
3555 E5
3556 E4
3557 F4
3559 B12
3560 B14
3562 B13
3566 E10
3567 E11
3570 A12
5500 D2
5501 E2
5502 E2
5503 E2
5541 D4
5542 D4
5543 B3
5544 B3
5546 C7
5551 F11
5554 H10
5555 D6
5556 A5
5709 F2
6500 G11
6501 G9
6502 I11
6553 A11
6554 H9
7520 C6
7521-A G4
7521-B I6
7522 H5
7523 C6
7524 C5
7525 E11
7526 G5
7527 E5
7528 F4
7529 I8
7535 A4
7548 I8
7549 F11
7556 F13
7558 E8
7560 B12
7561 B14
7562 C13
7563 C12
F491 G5
F492 H8
F493 I7
F494 I8
F495 I9
F496 H8
F497 H10
F498 H10
F499 I
F800 A
F801 A
F802 A
F803 I
F804 I
F805 I
F806 I
F807 I
F808 I
F809 I
F810 I
F811 I
F812 I
F813 I
F814 I
F815 I
F816 I
F817 I
F818 I
F819 I
F820 I
F821 I
F822 I
F823 I
F824 I
F825 I
F826 I
F827 I
F828 I
F829 I
F830 I
F831 I
F832 I
F834 I
F835 I
F836 I
F837 I
F838 I
F839 I
F840 I
F841 I
F842 I
F843 I
F844 I
F845 I
F846 I

CDR MAIN BOARD - CIRCUIT DIAGRAM 7 : POWER PART TESTPOINTS

7 POWER PART

TO DISPLAY BOARD

FROM PSU

3104 123 4228.7

9 4 {POWER_UP,KILL_OUT}

CL06532018_052.eps 290200

1500 D1
1541 D4
1542 A4
1543 B4
2500 E2
2501 F1
2502 F2
2504 A12
2505 H12
2506 H12
2507 H10
2508 I8
2509 I8
2535 B5
2536 B4
2537 B5
2541 D5
2543 B4
2544 B4
2546 C7
2547 F6
2548 D5
2550 H8
2551 G4
2552 H4
2553 H8
2555 F12
2556 G13
2557 F14
2558 F12
2561 F11
2562 H8
2563 H8
2565 D6
2568 A5
2571 D3
2572 E2
2574 E8
2575 E9
2577 F2
3013 H13
3531 C12
3532 C12
3533 A13
3536 C6
3537 C6
3538 C4
3539 D5
3540 E10
3541 F6
3542 E6
3544 F4
3545 G4
3546 G4
3547 H5
3548 H6
3549 I7
3550 H10
3551 I6
3552 F5
3553 I6
3554 E5
3555 E5
3556 E4
3557 F4
3559 B12
3560 B14
3562 B13
3566 E10
3567 E11
3570 A12
5500 D2
5501 E2
5502 E2
5503 E2
5541 D4
5542 D4
5543 B3
5544 B3
5546 C7
5551 F11
5554 H10
5555 D6
5556 A5
5709 F3
6500 G11
6501 G9
6502 I11
6553 A11
6554 H9
7520 C6
7521-A G4
7521-B I6
7522 H5
7523 C6
7524 C5
7525 E11
7526 G5
7527 E5
7528 F5
7529 I8
7535 A4
7548 I8
7549 F11
7556 F13
7558 E8
7560 B12
7561 B14
7562 C13
7563 C12
F491 G5
F492 H9
F493 I7
F494 I8
F495 I9
F496 H8
F497 H11
F498 H10
F499 H9
F800 A6
F801 A12
F802 A6
F803 B13
F804 B14
F805 B6
F806 C8
F807 C8
F808 B13
F809 B12
F810 C11
F811 C12
F812 B4
F813 C5
F814 C5
F815 D2
F816 D2
F817 D2
F818 E10
F819 H12
F820 D1
F821 D7
F822 D2
F823 D2
F824 F11
F825 F11
F826 F12
F827 E2
F828 E2
F829 F14
F830 F4
F831 F3
F832 E11
F834 I7
F835 I6
F836 H4
F837 I7
F838 G4
F839 E6
F840 E6
F841 E9
F842 E9
F843 I7
F844 H9
F845 I8
F846 H8
F847 H11

CDR MAIN BOARD - CIRCUIT DIAGRAM 7 : POWER PART TESTPOINTS

7 POWER PART

TO DISPLAY BOARD

FROM PSU

3104 123 4228.8

CL06532018_065.eps
010300

1500 D1
1541 D4
1542 A4
1543 B4
2500 E2
2501 F1
2502 F2
2504 A12
2505 H12
2506 H12
2507 H10
2508 I8
2509 I8
2535 B5
2536 B4
2537 B5
2541 D5
2543 B4
2544 B4
2546 C7
2547 F6
2548 D5
2550 H8
2551 G4
2552 H4
2553 H8
2555 F12
2556 G13
2557 F14
2558 F12
2561 F11
2562 H8
2563 H8
2565 D6
2568 A5
2571 D3
2572 E2
2574 E8
2575 E9
2576 D6
2577 F2
2910 E7
3013 H13
3531 C12
3532 C12
3533 A13
3536 C6
3537 C6
3538 C4
3539 D5
3540 E10
3541 F6
3542 E6
3544 F4
3545 G4
3546 H4
3547 H5
3548 H6
3549 I7
3550 H10
3551 I6
3552 F5
3553 I6
3554 E5
3555 F5
3556 E4
3557 F4
3559 B12
3560 B13
3562 B13
3563 B14
3566 E10
3567 E11
3570 A12
3571 A11
5500 D2
5501 E2
5502 E2
5503 E2
5541 D4
5542 D4
5543 B3
5544 B3
5546 C7
5551 F11
5554 H10
5555 D6
5556 A5
5557 D6
5709 F3
6500 G11
6501 G9
6502 I1
6553 A11
6554 H8
6555 A10
6556 A11
6557 A11
7520 C6
7521-A G4
7521-B I6
7522 H5
7523 C6
7524 C5
7525 E11
7526 G5
7527 E5
7528 F5
7529 I8
7535 A4
7548 I8
7549 F11
7556 F13
7558 E8
7560 B12
7561 B14
7562 C13
7563 C12
F491 H5
F492 H9
F493 I7
F494 I8
F495 I9
F496 H8
F497 H11
F498 H10
F499 H9
F800 A6
F801 A12
F802 A6
F803 B13
F804 B14
F805 B6
F806 C8
F807 C8
F808 B13
F809 B12
F810 C11
F811 C12
F812 H3
F813 C5
F814 C5
F815 D2
F816 D2
F817 D2
F818 E10
F819 H12
F820 D1
F821 D7
F822 D2
F823 D2
F824 F11
F825 F11
F826 F12
F827 E2
F828 E2
F829 F14
F830 F4
F831 F3
F832 E11
F834 I7
F835 I6
F836 H4
F837 I7
F838 G4
F839 E6
F840 E6
F841 E9
F842 F5
F843 F7
F844 E3
F845 F4
F846 H5