DiVA

Service Manual

Issue 1.0

A80 Amplifier
P80 Power Amplifier

ARCAM
Bringing music & movies to life

Contents List

Circuit description.

Power supply.

The mains input to the unit is supplied at **SK200** and is filtered the Y Caps and locations C200 /C201 and X cap at location C209, these are in-place to reduce mains born HF interference and to prevent bridge rectifier noise from leaving the unit.

The mains select switch at location **SW200** works in conjunction with the dual primaries on the 115/230v transformers, the switch allows for the units to be used in territories running a 115v or 230v grid when the switch is set to the 115v position the primary windings are connected in parallel.

Fig 1. Fuse value information.

Fuse location.	Value.
FS200	T2.5A (20mm)
FS201	T2.5A (20mm)
FS200 (100v)	T3.15A (20mm)
FS201 (100v)	T3.15A (20mm)
FS202 (s.m standby 9v a.c rms)	T500mA (s.m)
FS203 (D.C inline)	T2.0A (20mm)
FS204 (D.C inline)	T2.0A (20mm)

The standby Transformer TX200 continuously powers the **digital** circuitry (+4.8v(**D**)) when power is connected to the unit, this supply powers the Micro via a regulating circuit based around regulator **REG 201** special mention should be made of fuse **FS202** as any interruption to this supply will render the unit completely lifeless and as such this circuit should be checked before inspecting any other areas of the board.

We will see that the main power transformer **TX200** supplies a separate secondary winding for the **+15** and **–15v analogue** regulation stages via the two fuses at board locations FS203 and FS204, the failure of either of these fuses will cause the op-amps connected to the regulated rails to swing D.C. The regulator at location REG 200 regulates the +15 rail and intern supplies the +5V(A) analogue supply via the reference Zener at location **DZ200** and drive transistor **TR200.**

The high level power amp A.C supplies arrive at Con204 as a 4-wire supply this allows us to implement a dual bridge network circuit with 4 individually smoothed D.C rails these are labelled as +45(L), +45(R) and -45(L), -45(R) we pull a –38v rail from this point to form the VFD cathode bias voltage via R211 Con205 delivers the 3.3 V A.C supply to the main board and then onto the display VFD via R203 (2R2 f.u).

Fig 2. Supply identification and related components.

Supply	Related components
+ 45v L	Left power amp positive rail.
+ 45v R	Right power amp positive rail.
- 45v L	Left power amp negative rail.
- 45v R	Right power amp negative rail.
- 38v VFD	Display cathode rail derived from –45v(R)
+15v (A)	IC 300, 301, 302, 303, 304, 305, 306, 307, 308, 309 also including the input clamp diodes all within the pre-amp stage.
- 15v (A)	IC 300, 301, 302, 303, 304, 305, 306, 307, 308, 309 also including the input clamp diodes all within the pre-amp stage.
+ 5v (A)	IC309 volume control
+4.8 (D)	Input trigger stages, signal detect IC700, delayed off IC703, IC701. Main micro IC600.Remote pickup, Master reset IC601, Over current detect-AC detect – thermal cut-out IC600
Fil 1/Fil 2	3.3v~ filament supply.

Pre-amp.

The A80 Pre-amp has inputs for Phono, Aux, CD, Tuner, AV, DVD and Tape. All inputs except Phono have a simple resistor-capacitor 340Khz low pass filter to remove any unwanted high frequency noise from the input signal/local area, a pair of diodes on each input connected to the +15/-15v rails prevent damage to the CMOS input switching chips at locations IC300 and IC301, if any offset is seen at the input the switching chips on a given input we may suspect the failure of one of the input diodes.

Fig 3. Logic status of IC302 and 303 (switching chip).

Low= 0V High=4.8 (Cmos).

Input.	A0 (pin 1)	A1 (pin 16)	A2 (pin 15)
Phono	Low	Low	Low
Aux	Low	High	Low
CD	High	High	Low
Tuner	Low	Low	High
AV	High	Low	High
DVD	Low	High	High
Tape	High	Low	Low

The outputs of IC300 (L) and IC301(R) can be seen on pin 8 as a current signal and such this can not be viewed via CRO although a 100 ohm resistor inline with the scope probe may yield some results, from here we drive into line drive op-amp IC307 (L) and IC308 (R) signal can be seen at the output pin (1) and travelling into the volume control chip (IC309) on pins 16 (L) and 9 (R) the output from the Volume control is driven into IC307 at pin 6 (L) and IC308 pin 6 (R) and seen again on pins 7 on both IC307 and IC308. After the Con 302 and Con 303 we drive directly

Into the power amp stages but from this point we can configure the unit as a separate Pre amp/Power amp by moving the jumpers to the pin 2 and 3 of Con 304 and Con 305, and then remove the jumpers at Con 302 and Con 303 this may also be of use when fault finding as we can effectively isolate the and D.C offset/distortion problems coming from the Pre amp stage to the power amp stages and test these stages as a separate entity.

The Pre amp power up mute and power down mute is controlled by the relay at location RLY300 A/B the relay also triggers to mute the switching noise when switching between inputs (see micro control/protection and display section).

Power amp stages.

The main power amplifiers are of a Class A/B design which use SAP "audio" transistors in a asymmetrical current feedback configuration, Input and feedback paths are D.C coupled and there is a active integrating servo to remove D.C offsets from the outputs.

The basic principle of operation is as follows: Left channel description given only, read all references as 5xx for the right channel.

The input level of the power amp stage is clamped by the 3V9 zener diodes at positions DZ402 and DZ403 this protects the power amp input stages from gross overload and subsequent damage R410 and R402 and C416 in parallel form a 340khz filter.

IC400A is a V-I converter with a gain of 2 it's output will be a accurate amplification of it's input voltage (i.e the output voltage at pin 1 will be identical to the input at pin 3 but twice the amplitude) the output voltage is driven unto a 44 ohm load formed by R445 and R446 this op-amp is used in a slightly unusual configuration in that it's power supply pins are used as a current output and the output pin is used as a current feedback. Transistors TR404 and TR408 supply the +/- 15v rails and act as cascades to pass it's supply pin currents through to the current mirrors.

The "feedback current" flows back from the power amp output via R447-R450 to allow IC400A to swing it's output, this is why the term current feedback is used – it's is the current flowing in the feedback resistors that sets the overall gain of the amplifier.

IC400B acts as an inverting integrator and it's purpose is to remove DC from the loudspeaker outputs. Any positive D.C offset will cause the output of IC400B to go negative thus increasing the current in it's negative supply pin and pulling the output voltage back to zero R420 and C442 set the time constant of the integrator so that audio frequencies are ignored

The transistors found at locations TR400 and TR401/TR402 form the PNP Wilson mirrors and TR416 and TR411/TR417 form the Wilson NPN current mirrors, emitter degeneration is provided by R405, R406 (+) and R407, R408 (-).

R415 and R416 decouple the current mirror stages from the main power supply stages to allow the bootstrap circuit to operate this circuit is formed by C423 and C424 and the Metal film 1 watt resistors at locations R452/R453, the boots strap is provided to allow the output stage rails to go up and down slightly with the output signal to the loudspeaker, this enables the driver stage to fully saturate the output drivers giving the greatest output and the best thermal efficiency.

TR405 and TR407 are the Pre-drivers, TR412/TR414 and R411/R434 provide a current limit of about 30mA under fault conditions. R423 and R428 loosely couple the outputs of the output drivers to the inputs of the SAP output devices, this allows the output devices inbuilt temperature sensing diodes to accurately control the quiescent current of the output drivers as the temperature varies, C425 and C405 ensure that both halves of the output stage receive an equal A.C component.

The output transistors are TR413 and TR415 these are specially designed for audio power use Sanken SAP15N and SAP15P devices they provide a inbuilt 0W22 thick film power resistor and temperature sensing diodes that track the V_{BE} versus temperature characteristics of the power transistors allowing for accurate control of the quiescent current.

R459 and C427 form the Zobel network which is provided to ensure that the amplifier see a constant and resistive load at high frequencies C421 locally couples the "High frequency" and signal grounds together at the input stage for the same reason. Any signs of burning or scorching of R459 will indicate that the unit amplifier channel(s) have been running unstable or oscillating.

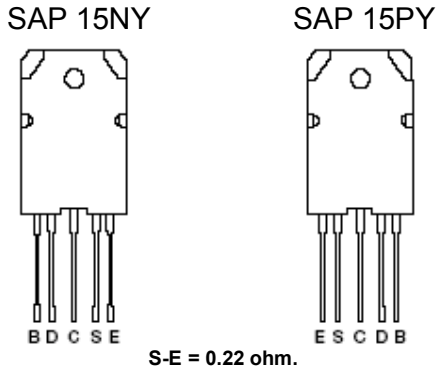
The Bias should be set for minimum distortion (THD+N) using a 0.5v rms 20 Khz sine wave into the CD input with the amplifier set for full gain, the absolute maximum level of Bias acceptable is 22mV measure across CON401 (L) or CON 501 (R) the adjustment is made using RV400 and RV500 we set the bias at the factory using an extremely accurate Audio Precision-audio analyser.

If you do not have access to a distortion level meter capable of 0.05% or better accuracy you may be able to rough set the amplifier to a typical reading of 15mV (at cold switch on).

Fig 4. Suggested blanket replacement parts for power amp failures.

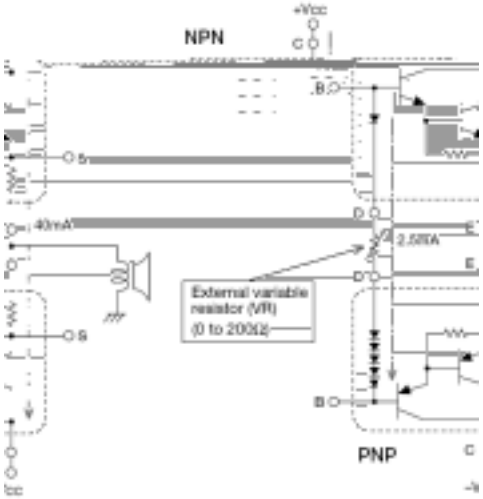
Location	Description	Model	Part no.
TR413	Output driver +	SAP15NY	4CSAP15N
TR415	Output driver -	SAP15PY	4CSAP15P
TR410	Predriver +	FMMT 497	4AFMMT497
TR412	Predriver +	ZDT 6758	4AZDT6758
TR414	Predriver -	ZDT 758	4AZDT758
TR405	Predriver -	FMMT 597	4AFMMT597
TR401	Current mirror PNP	BC859B	4A859
TR402	Current mirror PNP	FMMT 597	4AFMMT597
TR411	Current mirror NPN	FMMT 497	4AFMMT497
TR417	Current mirror NPN	BC849B	4A849B
TR412	Driver bias +	ZDT 6758	4AZDT758

Fig 4a. SAP NY/PY output driver information.



S-E = 0.22 ohm.

Under output driver failure conditions the **0.22** internal emitter resistor will usually go open, the resistor should be measured between pins S and E.



Micro control/protection and display.

The micro is tasked with providing an instantaneous safe operating area for both the amplifier and loudspeaker by monitoring the below areas.

- **D.C** at both left and right channel outputs.
- **Over current** within either power amp stage.
- **Over temp** detection for both power amp stages.
- **A.C present** detection.

Please see fig 5. For voltage readings with regards to the protection operations.

Within the A80 integrated amplifier these tasks are performed by the H8 type micro at circuit location IC602, within the P80 power amp version the tasks are performed by the PIC micro at location IC603, the protection lines are "daisy chained" to both micros regardless of witch one is fitted.

To operate both micros require a constant stable supply voltage, this is derived from the **+4.8v(D)** rail from transformer TX200 and via regulator REG201 this supply should be constant at anytime mains appears at the amplifier power input.

Please note: This supply is protected from over-current and over-voltage operation by the surface mount fuse at location **FS202** T500mA and as such if the Amplifier fails to power up this supply should be checked before making any further investigations.

We also need to see a **4.00 Mhz** clock at crystal location **X600**.

The micro interfaces with the pre-amp stage input selection **(see Fig 3)** and the volume control level adjustment we also drive the VFD via the display drive/keyboard scan micro at location IC800.

IC602 receives Keyboard scan data and RC5 from the remote pick-up diode at location RX800. The **master** power on **reset** can be found on the display board and switches **HI** (4.8v) after mains in.

Fig 5. Working status of protection lines and fault status.

Low =0v High = 4.8 (Cmos).

Location	Fault Line	Output pin	Working
IC 601A	AC present	2	High
IC 600A	Over current	3	Low
IC 600B	Therm prot (L)	6	High
IC 600D	Therm prot (R)	11	High
IC 600C	Therm prot main	8	Low
R634	D.C prot (L)	N/A	Low (D.C)
R635	D.C prot (R)	N/A	Low (D.C)
R663	D.C prot combined	N/A	Low

The Protection is live at all times that even in standby due to the fact that all chips related with these functions are driven from the **4.8(D)** supply rails.
As we can see from **Fig 4** we can isolate the left and right channel protection lines for both over current and D.C offset by looking at the protection lines before they are mixed into single fault status lines for the micro at location IC600 this will allow us to identify the channel that is "flagging the fault".

Both versions of the Amplifier have the ability to warn the user and/or engineer of a internal fault, the A80 will use both the Power LED and front panel display, the P80 has no display and as such uses the sequence of LED flash codes listed below in **Fig 7**.

Fig 6. A80 fault alert information.

Power LED status	Fault indicated
LED red during start up	DC offset fault
Led red during normal use	Fault as shown on display

Fig 7. P80 fault alert information.

Power LED status	Fault indicated
LED flashing green	DC offset (left or right)
Flashing red	Short circuit fault (over current)
Flash amber	Thermal fault (heatsink L or R)
Red on flash green	Multiple protection lines triggered

The Micro has direct control over all internal relays for protection and output control, the speaker relay control lines can be seen on the diagram as SPKR1 for SP1 and the SPKR2 for SP2 outputs, these lines switch High to engage the relay.

The A80 pre-amp relay should disengage when switching inputs to prevent any chip switching noise from leaving the pre-amp stage the control line can be seen on R385 and switches High to engage the relay.

Signal Detect and Delayed off – P80 only.

Signal detection is achieved by amplifying the signal present at the power amp inputs by a large amount using two channels of a quad op-amp at location IC700 A/B the outputs of this op-amp are summed by a non-inverting comparator formed using the two remaining op-amp channels these will produce a active High reset pulse at the output pin 14.

When mains is plugged into the P80, the master *Reset line goes low and the 0.38Hz clock starts ticking. The *Reset pulse resets the latch effecting a HIGH *Q output and thus a LOW circuit output. When the signal detect Latch and Counter Reset go HIGH (an input is detected), the *SD latch input is driven LOW by the inverter and *Q goes LOW the circuit output then goes high switching the Amplifier on.

If the Amplifier does not see audio on it's Power amp inputs for either 12 or 45 minutes (this can be user configured by moving the jumper at position CON702) the Amplifier will auto switch into standby.

Jumper settings.

If you want to turn the A80 into a separate Pre-Power amp (make the Line out become a Pre-amp out and make the pre-out become a power amp in) adjust the setting of the following links.

Remove the jumpers from Con 302 and Con 305 (this disconnects the pre-amp output from the power amp input) Fit jumpers on pins 2 & 3 of Con 304 & Con 305 (disconnects the line output buffer from the line out sockets and connects the pre out sockets to the line out sockets)

You can change the Phono input of the A80 into a AUX2 input by fitting jumpers on pins 2 & 3 of Con 306 an Con 307 this routes the signal directly from the Phono inputs into a separate set of inputs on the pre-amp switches IC302 and IC303.

We need to enable the AUX2 input by pressing AV,TAPE and PHONO now use the rotary encoder to change the selection, press confirm to select the new setting.

Con 400 and Con 500 are for the Bias setting and should not be altered, if in doubt you should not measure more than 22mV across Con 401 and Con 501 when the amplifier is idle and this should be adjustable using RV400 and RV500 (L&R channels).

Con 601 and Con 602 are for re-programming (move the jumper from Con 601 to Con 602 when reprogramming otherwise the jumper should be on Con 601).

Con 700 and Con 701 are used to set the P80 signal detect sensitivity as default the link is fitted giving a input sensitivity of roughly ~500uV if the jumpers are removed the sensitivity decreases roughly x4 to 2mV this setting can be used for operation with noisy source equipment.

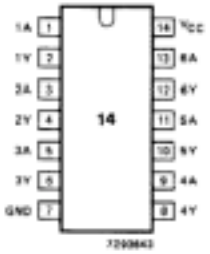
Con 702 is used to set the time coefficient of the auto power off delay, the default pins are 1 & 2 this gives a delay of 12 minutes until the amp powers down under a no signal period, if we place the jumpers on pin 2 & 3 this time increases to 45 minutes +/- 20%.

Fig 8. Jumper settings.

Jumper	A80	P80
Con 300, Con 301	Not fitted	Fitted
Con 302, Con303	Fit (NF for pre/pwr)	Not fitted
Con 304, Con 305	1&2 (2&3 for pre/pwr)	Not fitted
Con 306, Con 307	1&2Phono;(2&3 Aux2)	Not fitted
Con 400,Con 500	Factory set	Factory set
Con 601	Fit (NF to program)	Not fitted
Con 602	Fit (NF to program)	Not fitted
Con 700, Con 701	Not fitted	Fit (0.5mv), NF (2mV)
Con 702	Not fitted	1&2 (12 mins; 2&3 45mins).

Fig 9. Major components pin identification.

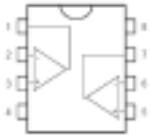
74HC14



ZDT 758/ZDT 6758

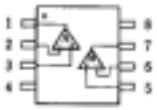
1=Collector 1
2=Collector 1
3=Collector 2
4=Collector 2
5=Emitter 2
6=Base 2
7=Emitter 1
8=Base 1

TLO 72

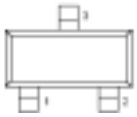


FMMT 497/597

NJM2114

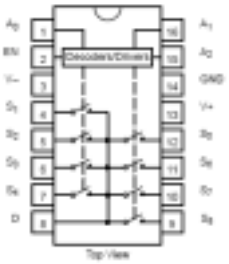


BC849/BC859



1=Base
2=Emitter
3=Collector

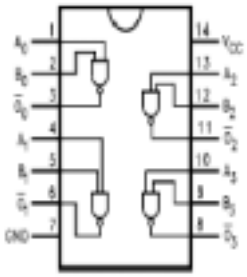
DG408DY



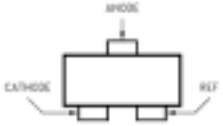
BAV99 Diode package

1=Anode
2=Cathode
3=Common connection

74HC00D



LM431 Adjustable Zener shunt regulator



Technical Specifications.

Continuous Power output

Both channels driven 8 ohms 20 Hz – 20 kHz = 65 Watts

Single Channel driven 4 ohms 20 Hz – 20 kHz = 80 Watts

Distortion 8 ohms at 80% power output 1Khz = 0.008%

Input stage specifications.

RIAA input stage sensitivity (M.M) = 2.5 mV

Line input sensitivity = 630 mV (Default)

Input impedance = 22k ohms

Signal to noise ratio CCIR weighted (2 volt input) = 105dB

Pre-amp output specifications.

Nominal output level = 610 mV

Output impedance = < 3 ohms

ITEM101	1	F205	Tape D/Sided 12MM X 70MM DS Polyester 4965	Placed between VFD and PCB; NF ON P80
ITEM102	1	8M101	Earth Lead Assy 75MM	Soldered to SKT200
ITEM103	2	E802AP	Pad Damping 15x6x3MM Sorbothane	Placed on output relays
ITEM104	4	F232	13/16 inch O-Ring	Rubber O-Rings fitted over main power supply caps

ANNOTATION

GENERAL NOTES

This is the Master Schematic for A80 (L943AY) and P80 (L944AY) PCB assemblies. Any changes to the schematics in this document must be reflected in the relevant child documents.

When generating BOMs for L943AY or L944AY, ensure that the relevant components are fitted or not fitted (those with "NF" or "FIT" in the nearby text).

These schematics follow a simple heirarchy scheme. Sheet symbols on the top sheet represent a child or sub-sheet. Net labels on sub-sheets are local or specific to that sheet. Ports on the sub-sheets connect to sheet entries on the parent sheet, where they are connected together.

Primary power nets are denoted by type in parenthesis, e.g. 0V(D). Secondary nets are denoted by underscores, e.g. 0V_LS_L.

To perform an electrical rule check or synchronise with the PCB, set Net Identifier Scope to Sheet Symbols/Port Connections.

FD100 FD101

FIX100 Dia 3.5mm
FIX101 Dia 3.5mm
FIX102 Dia 3.5mm
FIX103 Dia 3.5mm
FIX104 Dia 3.2mm

P101
C101 100N 50V 0805
0V(D)

Power Supplies

Power Amp Left L943C4_5.1.SCH
PRE_OUT_L, +45V_L, VIPROT_L, OUTPUT_L, 0V_LS_L, 0V_HF_L, -45V_L, 0V_FB_L

R100 5R6 2W CF
L100 2U2
RLY100A Omron G5Z-2AE +4.8V(D)
LS100 G P PRECISION

R101 5R6 2W CF
L101 2U2
LS101 G P PRECISION

+45V_L, 0V_FB_L, -45V_L, 0V_HF_L, +45V_R, 0V_FB_R, -45V_R, 0V_HF_R, 0V_SIG_2, +4.8V(D), 0V(D), FIL_1, FIL_2, +15V(A), +5V(A), -15V(A), -38V_VFD, 0V_LS_L, 0V_LS_R, 0V(PSU), 0V(SIG), 0V(SIG_2), 9VRMS

Power Supplies L943C2_5.1.SCH
PWR_ON, 9VRMS, +4.8V(D), +45V_R, +45V_L, 0V(D), 0V_LS_L, 0V_HF_L, 0V_FB_L, 0V(SIG), 0V(SIG_2), 0V_FB_R, 0V_HF_R, 0V_LS_R, 0V(PSU), -45V_L, -45V_R, -38V_VFD, FIL_1, FIL_2, +15V(A), +5V(A), -15V(A)

A80/P80 Protection & Micros L943C6_5.1.SCH
OUTPUT_L, OUTPUT_R, +45V_L, +45V_R, +4.8V(D), 0V(D), 0.38Hz_CLK, 0V(SIG), -45V_L, -38V_VFD, FIL_1, FIL_2, TAPE_0, TAPE_1, TAPE_2, VOL_SCLK, 0V_SER, VOL_SDATA, LISTEN_0, LISTEN_1, LISTEN_2, +4.8V_D_PRE, 0V_D_PRE, *PRE_MUTE, VOL_*CS, VIPROT_L, VIPROT_R, 9VRMS, REMOTE_P, REMOTE_N, TRIG_IN, SPKR2_ON, SPKR1_ON, PWR_ON, *RESET

A80 Trigger, RC5 & P80 Sig Detect L943C7_5.1.SCH
+45V_L, +4.8V(D), 0V(D), 0V_CHASS, 0.38Hz_CLK, *RESET, PRE_OUT_L, 0V_PREOUT, PRE_OUT_R, REMOTE_P, REMOTE_N, TRIG_IN

A80 PreAmp L943C3_5.1.SCH
0V_PREOUT, *PRE_MUTE, 0V_D_PRE, TAPE_0, TAPE_1, TAPE_2, VOL_SCLK, 0V_SER, VOL_SDATA, VOL_*CS, LISTEN_0, LISTEN_1, LISTEN_2, +15V(A), +5V(A), +4.8V_D_PRE, *PRE_RLY, 0V(SIG), 0V(SIG_2), -15V(A), PRE_OUT_L, PRE_OUT_R

PreAmp Controls
TAPE_0, TAPE_1, TAPE_2, VOL_SCLK, 0V(SER), VOL_SDATA, LISTEN_0, LISTEN_1, LISTEN_2, 0V(D), *PRE_MUTE, VOL_*CS, +15V(A), +5V(A), 0V(SIG), 0V(SIG_2), -15V(A)

Flexfoil

A80 & P80 Display Circuitry L943C8_5.1.SCH

HEADPHONE OUTPUT & MUTE
(NF ON P80)

R105 330R 1W CF
R104 330R 1W CF
CON100 AMP CT
CON101 AMP CT
Q106 Q111 Q118 Q121 Q125
Q113 Q114 Q115 Q116 Q117
R107 100R 1W CF
R106 100R 1W CF
NF R102 0R0 0W125 0805
NF R103 0R0 0W125 0805
RLY102A NEC EB2-5NU
RLY102B NEC EB2-5NU
RLY102C NEC EB2-5NU
D102 BAS16 SOT-323

D100 1N4003 DO-41
SPKR2_ON, SPKR1_ON
R108 220R 0W25 MF
R109 220R 0W25 MF
TR100 BD179 TO-126
TR101 BD179 TO-126
R110 220R 0W25 MF
R112 2K2 0W125 0805
R111 220R 0W25 MF
R113 2K2 0W125 0805
R114 0R0 0W25 MF

DRAWING TITLE: A80/P80 - Top Level Sheet	03_E264	MJT	09 Sept 03	None to this sheet. Remove EMC can from around IEC inlet.	5.1
	03_E230	MJT	04 Aug 03	Changed P80 s/w & fitted IC socket for IC603 (P80 only). Display snapoff fixing holes reduced to 3.2mm	5.0
2 3 4 2 5	03_E147	MJT	23 May 03	None to this sheet. PCB change.	4.0
Filename: L943C1_5.1.SCH	03_E120	TGP	13 May 03	LEDs, BIAS & DOCUMENTATION CHANGE	3.0
Notes: A80	03_E116	TGP	17 APR 03	NO CHANGE TO THIS SHEET	2.1
	ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE

A & R Cambridge Ltd.
Pembroke Avenue
Waterbeach
Cambridge CB5 9PB

Contact Engineer: Mark Tweedale | Contact Tel: (01223) 203 200 | Printed: 9-Sep-2003 | Sheet 1 of 8 | DRAWING NO. L943C1

ITEM203	1	F006	Clip For SW Profile Heatsink	

MAINS WIRING AND AUXILIARY SUPPLY

ANNOTATION

NEUTRAL

SH200
EMC Shield NF
SKT200
N
E
L
BULGIN
PX0580
1

C200
3N3
250V
CER

EARTH

C201
3N3
250V
CER

C209
220N
275V
PP X2

LIVE

2A
2B
115V
230V
1A
1B
SW200
18-000-0019

FS201
T2.5A
S506
FHLDR201
20mm HLDR

FS200
T2.5A
S506
FHLDR200
20mm HLDR

This EMC can should now not appear on any BoM as there is a safety issue regarding the can shorting to a live mains track on the top layer.

Consider removing the holes for the can or perhaps move mains tracks onto bottom layer for next PCB revision.

TX200
PCB Mount Frame
7A9301
1
2
3
4
5
6
7
8
115V
115V
9V
9V

FS202
T500mA
R452

C221
100N
100V
MKS2

DBR203
3BDF01M

C225
1000UF
25V
YK

D214
BAS16
SOT-323

REG201
LM317T
ADJ
TO-220
HS201A
SW50-2
8.8C/W

R218
220R
0W25
MF

R219
22R
0W125
0805

R217
680R
0W125
0805

C226
1000UF
10V
YK

9VRMS
+4.8V(D)
+4.8V(D)
+4.8V(D)
0V(D)
0V(D)

RLY200A
Takamisawa
F1CA005V

C202
3N3
250V
CER

RLY200B
Takamisawa
F1CA005V

C203
3N3
250V
CER

CON201
WAGO
256
BLUE
DK GREY
ORANGE
GREEN

CON202
WAGO
256

RLY200C
Takamisawa
F1CA005V

D215
BAS16
SOT-323

PWR_ON
R216
2K2
0W125
0805
P202
TR202
FMMT497
SOT-23

L916TX (CHASSIS-MOUNTED)

BLUE
WHITE
BLACK
GREY
WHITE
3.2Vac
WHITE
ORANGE
16Vac
BLUE
16Vac
ORANGE

BLUE
115V ac
BLACK

ORANGE
115V ac
GREEN

GREEN/YELLOW
Interwinding Screen

FIX200
Dia 3.2mm

CON203
GREEN
WAGO
256

POWER AMP SUPPLIES

CON204
BLUE
LT GREY
DK GREY
GREY
WAGO
256

C205
470N
100V
MKS2

C206
470N
100V
MKS2

SP200

DBR200
GBU8D

DBR201
GBU8D

C228
3,300UF
63V
USR

C229
3,300UF
63V
USR

C230
3,300UF
63V
USR

C231
3,300UF
63V
USR

PCB Traces to route as shown here

SP202

SP201

R221 0R0
0W125 0805

+45V_R
+45V_L
0V(SIG)
0V(SIG)
0V(D)
0V(D)
0V_FB_R
0V_FB_R
0V_LS_L
0V_LS_L
0V_LS_R
0V_LS_R
0V_HF_R
0V_HF_R
0V_HF_L
0V_HF_L
0V(PSU)
0V_FB_L
0V_FB_L
-45V_L
-45V_R

ANALOGUE OP-AMP SUPPLIES

(NF ON P80)

CON200
ORANGE
BLUE
ORANGE
WAGO 256

FS203
T2A
R452

FS204
T2A
R452

C204
470N
100V
MKS2

C210
100N
50V
0805

C211
100N
50V
0805

D200
1N4003
DO-41

D201
1N4003
DO-41

D202
1N4003
DO-41

D203
1N4003
DO-41

R204
0R0
0W125
0805

R205
0R0
0W125
0805

C215
1000UF
35V
YK

C216
1000UF
35V
YK

C213
100N
50V
0805

C214
100N
50V
0805

D210
BAS16
SOT-323

REG200
LM317T
ADJ
TO-220
HS200A
6043PB
23C/W

P200

R207
100R
0W125
0805

R208
100R
0W125
0805

D212
BAS16
SOT-323

C217
100UF
25V
YK

C218
100UF
25V
YK

R213
2K2
0W125
0805

R214
2K2
0W125
0805

C207
22UF
20V
OSCON

C208
22UF
20V
OSCON

R206
10R
0W125
0805

C224
1000UF
25V
YK

TR200
BC849B
SOT-23

R215
2K2
0W125
0805

DZ200
BZX84C
5V6
SOT-23

C219
100UF
25V
YK

C220
100UF
25V
YK

+15V(A)
+5V(A)
+4.6V to +5.3V
0V(SIG)
Track by pre-out to pwr-in
SP203
0V(SIG_2)
0V(SIG_2)
For preamp bulk decoupling

P201

R209
100R
0W125
0805

R210
100R
0W125
0805

D213
BAS16
SOT-323

REG202
LM337T
ADJ
TO-220
HS202A
6043PB
23C/W

D211
BAS16
SOT-323

-15V(A)

VFD SUPPLY

(NF ON P80)

CON205
GREY
GREY
WAGO
256

R203
2R2
0W33
FU

C222
100N
50V
0805

C212
22UF
63V
YK

0V(D)

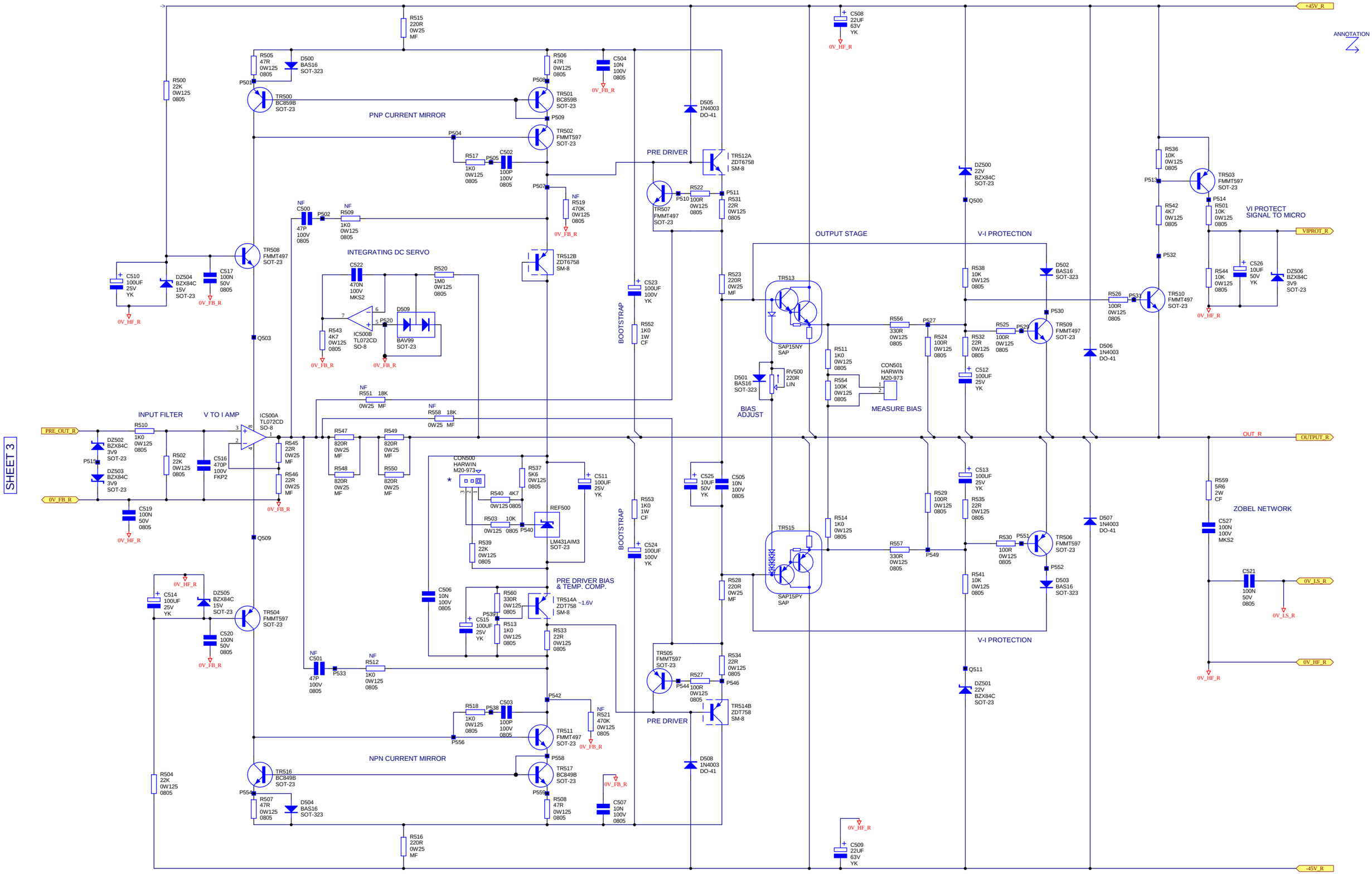
R211
1K0
0805
0W125

-38V_VFD
FIL_1
FIL_2

DRAWING TITLE					
A80/P80 Power Supplies	03_E264	MJT	09 Sept 03	Remove EMC can from around IEC inlet.	5.1
	03_E230	MJT	04 Aug 03	None to this sheet. Display snapoff fixing holes reduced to 3.2mm	5.0
2 3 4 2 5	03_E147	MJT	23 May 03	Removed double connection from R221 to star point. PCB change.	4.0
Filename: L943C2_5.1.SCH	03_E120	TGP	13 May 03	LEDs, BIAS & DOCUMENTATION CHANGE	3.0
Notes: A80	03_E116	TGP	17 APR 03	R204, R205 CHANGED FROM 2R2 TO 0R	2.1
	ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE

A & R Cambridge Ltd.
Pembroke Avenue
Waterbeach
Cambridge CB5 9PB

Contact Engineer: Mark Tweedale | Contact Tel: (01223) 203 200 | Printed: 9-Sep-2003 | Sheet 2 of 8 | DRAWING NO. L943C2


SHEET 3
INPUT FILTER
V TO I AMP
PNP CURRENT MIRROR
INTEGRATING DC SERVO
PRE DRIVER
OUTPUT STAGE
V-I PROTECTION
BOOTSTRAP
BIAS ADJUST
MEASURE BIAS
VI PROTECT SIGNAL TO MICRO
ZOBEL NETWORK
PRE DRIVER BIAS & TEMP. COMP.
NPN CURRENT MIRROR
PRE DRIVER
V-I PROTECTION
ANNOTATION
PRE_OUT_R
OUT_R
OUTPUT_R
VIPROT_R
+45V_R
-45V_R
0V_FB_R
0V_HF_R
0V_LS_R
R500 22K 0W125 0805
R501 47R 0W125 0805
D500 BAS16 SOT-323
R502 22K 0W125 0805
R503 10K 0W125 0805
R504 22K 0W125 0805
R505 47R 0W125 0805
R506 47R 0W125 0805
R507 47R 0W125 0805
R508 47R 0W125 0805
R509 1K0 0W125 0805
R510 1K0 0W125 0805
R511 1K0 0W125 0805
R512 1K0 0W125 0805
R513 1K0 0W125 0805
R514 1K0 0W125 0805
R515 220R 0W25 MF
R516 220R 0W25 MF
R517 1K0 0W125 0805
R518 1K0 0W125 0805
R519 470K 0W125 0805
R520 1M0 0W125 0805
R521 470K 0W125 0805
R522 100R 0W125 0805
R523 220R 0W25 MF
R524 100R 0W125 0805
R525 100R 0W125 0805
R526 100R 0W125 0805
R527 100R 0W125 0805
R528 220R 0W25 MF
R529 100R 0W125 0805
R530 100R 0W125 0805
R531 22R 0W125 0805
R532 22R 0W125 0805
R533 22R 0W125 0805
R534 22R 0W125 0805
R535 22R 0W125 0805
R536 10K 0W125 0805
R537 5K6 0W125 0805
R538 10K 0W125 0805
R539 22K 0W125 0805
R540 4K7 0W125 0805
R541 10K 0W125 0805
R542 4K7 0W125 0805
R543 4K7 0W125 0805
R544 10K 0W125 0805
R545 22R 0W25 MF
R546 22R 0W25 MF
R547 820R 0W25 MF
R548 820R 0W25 MF
R549 820R 0W25 MF
R550 820R 0W25 MF
R551 18K 0W25 MF
R552 1K0 1W CF
R553 1K0 1W CF
R554 100K 0W125 0805
R556 330R 0W125 0805
R557 330R 0W125 0805
R558 18K 0W25 MF
R559 5R6 2W CF
C500 47P 100V 0805
C501 47P 100V 0805
C502 100P 100V 0805
C503 100P 100V 0805
C504 10N 100V 0805
C505 10N 100V 0805
C506 10N 100V 0805
C507 10N 100V 0805
C508 22UF 63V YK
C509 22UF 63V YK
C510 100UF 25V YK
C511 100UF 25V YK
C512 100UF 25V YK
C513 100UF 25V YK
C514 100UF 25V YK
C515 100UF 25V YK
C516 470P 100V FKP2
C517 100N 50V 0805
C519 100N 50V 0805
C520 100N 50V 0805
C521 100N 50V 0805
C522 470N 100V MKS2
C523 100UF 100V YK
C524 100UF 100V YK
C525 10UF 50V YK
C526 10UF 50V YK
C527 100N 100V MKS2
DZ500 22V BZX84C SOT-23
DZ501 22V BZX84C SOT-23
DZ502 BZX84C 3V9 SOT-23
DZ503 BZX84C 3V9 SOT-23
DZ504 BZX84C 15V SOT-23
DZ505 BZX84C 15V SOT-23
DZ506 BZX84C 3V9 SOT-23
D501 BAS16 SOT-323
D502 BAS16 SOT-323
D503 BAS16 SOT-323
D504 BAS16 SOT-323
D505 1N4003 DO-41
D506 1N4003 DO-41
D507 1N4003 DO-41
D508 1N4003 DO-41
D509 BAV99 SOT-23
TR500 BC859B SOT-23
TR501 BC859B SOT-23
TR502 FMMT597 SOT-23
TR503 FMMT597 SOT-23
TR504 FMMT597 SOT-23
TR505 FMMT597 SOT-23
TR506 FMMT597 SOT-23
TR507 FMMT497 SOT-23
TR508 FMMT497 SOT-23
TR509 FMMT497 SOT-23
TR510 FMMT497 SOT-23
TR511 FMMT497 SOT-23
TR512A ZDT6758 SM-8
TR512B ZDT6758 SM-8
TR513 SAP15NY SAP
TR514A ZDT758 SM-8
TR514B ZDT758 SM-8
TR515 SAP15PY SAP
TR516 BC849B SOT-23
TR517 BC849B SOT-23
IC500A TL072CD SO-8
IC500B TL072CD SO-8
REF500
LM431AIM3 SOT-23
RV500 220R LIN
CON500 HARWIN M20-973
CON501 HARWIN M20-973
Q500
Q503
Q509
Q511
P501
P502
P503
P504
P505
P507
P509
P510
P511
P513
P514
P515
P520
P527
P529
P530
P531
P532
P533
P538
P539
P540
P542
P544
P546
P549
P551
P552
P554
P556
P558
P559
NF
~1.6V
* - Default jumper setting on pins 2 & 3; fit jumper on pins 1 & 2 to increase bias voltage; remove jumper to decrease bias voltage
ITEM500 | 1 | 8K004 | Con Jumper Socket 0.1IN Gold Blue
DRAWING TITLE
A80/P80 - Power Amp Right
2 3 4 2 5
A & R Cambridge Ltd.
Pembroke Avenue
Waterbeach
Cambridge CB5 9PB
Filename: L943C5_5.1.SCH
Notes:
A80
Contact Engineer: Mark Tweedale
Contact Tel: (01223) 203 200
03_E264 | MJT | 09 Sept 03 | None to this sheet. Remove EMC can from around IEC inlet. | 5.1
03_E230 | MJT | 04 Aug 03 | None to this sheet. Display snapoff fixing holes reduced to 3.2mm | 5.0
03_E147 | MJT | 23 May 03 | None to this sheet. PCB change. | 4.0
03_E120 | TGP | 13 May 03 | LEDs, BIAS & DOCUMENTATION CHANGE | 3.0
03_E116 | TGP | 17 APR 03 | NO CHANGE TO THIS SHEET | 2.1
ECO No. | INITIALS | DATE | DESCRIPTION OF CHANGE | ISSUE
Printed: 9-Sep-2003
Sheet 5 of 8
DRAWING NO. L943C5

ITEM700	3	8K004	Con Jumper Socket 0.1IN Gold Blue	NF ON A80

ANNOTATION

TRIGGER OUT

+45V_L

TR700 BD179 TO-126

R724 22K 0W125 0805

R725 22K 0W125 0805

P708

R726 22R 0W125 0805

R715 100R 0W125 0805

P707

TR701 BC849B SOT-23

Q709

~13.5V @ 30mA max

SKT700 HOS/DEN_HSJ

NC1

NC2

GND2

GND1

C700 100N 50V 0805

R727 10K 0W125 0805

C720 10UF 50V YK

DZ700 BZX84C 15V SOT-23

C710 100P 100V 0805

P80 TRIGGER IN
(NF ON A80)

REMOTE_P

REMOTE_N

TRIG_IN

TO SHEET 6

NF ON P80 C705 100N 50V 0805

C701 100N 50V 0805

0V_CHASS

L700 70R@100MHz

R706 0R0 0W125 0805

<-------- Vin

R738 2K2 0W125 0805

Vout=0.82Vin

R728 10K 0W125 0805

Q715

DZ701 BZX84C 4V7 SOT-23

+4.8V(D)

D704

SOT-23 BAT54S

R707 4K7 0W125 0805

0V(D)

+45V_L

+4.8V(D)

0V(D)

0V_CHASS

0.38Hz_CLK

*RESET

P80 SIG DETECT
(NF ON A80)

PRE_OUT_L

PRE_OUT_R

0V_PREOUT

R700 100K 0W125 0805

R701 100K 0W125 0805

P701

P704

C702 100N 50V 0805

C703 100N 50V 0805

P700

P709

C711 100P 100V 0805

C712 100P 100V 0805

R709 33K 0W125 0805

R710 33K 0W125 0805

NF R714 0R0 0W125 0805

P716

P715

R721 0R0 0W125 0805

+1.6V(D)

R702 100K 0W125 0805

R703 100K 0W125 0805

C715 100UF 25V YK

R735 47R 0W125 0805

+4.8V(D)_2

C704 100N 50V 0805

C721 220UF 16V YK

IC700A LM324D SO-14

IC700C LM324D SO-14

P702

P705

P710

P713

R704 100K 0W125 0805

R705 100K 0W125 0805

CON700 HARWIN M20-973

CON701 HARWIN M20-973

R716 330R 0W125 0805

R722 680R 0W125 0805

R717 330R 0W125 0805

R723 680R 0W125 0805

C716 100UF 25V YK

C717 100UF 25V YK

SET SENSITIVITY
Jumper Fitted = ~0.5mVrms (default);
Jumper Not Fitted = ~2mVrms

D700

BAV99 SOT-23

D701

D702

D703

R711 22K 0W125 0805

R712 22K 0W125 0805

P712

IC700B LM324D SO-14

R713 100K 0W125 0805

C706 100N 50V 0805

P711

P706

R718 1K0 0W125 0805

P703

R719 1K0 0W125 0805

R720 1K0 0W125 0805

C718 100UF 25V YK

R708 100K 0W125 0805

R736 3K3 0W125 0805

R737 2K2 0W125 0805

P714

IC700D LM324D SO-14

Q714

LATCH & COUNTER RESET

Q713

P80 DELAYED OFF
(NF ON A80)

IC701A 74HCT4040D SO-16

Q718

Q719

AUTO-OFF DELAY SET

CON702 HARWIN M20-973

Pins 1&2: ~12 mins (default)
Pins 2&3: ~45 mins

Power-On Reset

INVERTER

IC703A 74HCT74D SO-14

LATCH

IC703B 74HCT74D SO-14

Q724

P724

TR702 MMUN2111LT1 SOT-23

Q727

R733 3K3 0W125 0805

IC701B 74HCT4040D SO-16

C708 100N 50V 0805

IC703C 74HCT74D SO-14

C709 100N 50V 0805

DRAWING TITLE	ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
A80/P80 Trig, RC5 & P80 Sig Det	03_E264	MJT	09 Sept 03	None to this sheet. Remove EMC can from around IEC inlet.	5.1
	03_E230	MJT	04 Aug 03	None to this sheet. Display snapoff fixing holes reduced to 3.2mm	5.0
2 3 4 2 5	03_E147	MJT	23 May 03	None to this sheet. PCB change.	4.0
Filename: L943C7_5.1.SCH	03_E120	TGP	13 May 03	LEDs, BIAS & DOCUMENTATION CHANGE	3.0
Notes: A80	03_E116	TGP	17 APR 03	NO CHANGE TO THIS SHEET	2.1

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Contact Engineer: Mark Tweedale | Contact Tel: (01223) 203 200 | Printed: 9-Sep-2003 | Sheet 7 of 8 | DRAWING NO. L943C7

ITEM600	1	8K004	Con Jumper Socket 0.1IN Gold Blue	

PREAMP CONTROL LINES

OUTPUT_L
OUTPUT_R
0V(SIG)
-38V_VFD
-45V_L
NF ON A80 R602 0R0 0W125 0805
NF ON P80 C600 100N 50V 0805
IC600E 74HC00D SO-14
C601 100N 50V 0805
+4.8V(D)
0V(D)

*PRE_MUTE — Q600 — *PRE_MUTE_u
+4.8V_D_PRE — Q601 — +4.8V_D_PRE
0V_D_PRE
TAPE_0 — R611 10K 0W125 0805 — Q603 — TAPE_0_u
TAPE_1 — R612 10K 0W125 0805 — Q604 — TAPE_1_u
TAPE_2 — R613 10K 0W125 0805 — Q605 — TAPE_2_u
VOL_SCLK — R614 1K0 0W125 0805 — Q606 — VOL_SCLK_u
0V_SER — R626 10R 0W125 0805 — Q607
VOL_SDATA — R615 1K0 0W125 0805 — Q608 — VOL_SDATA_u
LISTEN_0 — R616 10K 0W125 0805 — Q609 — LISTEN_0_u
LISTEN_1 — R617 10K 0W125 0805 — Q610 — LISTEN_1_u
LISTEN_2 — R618 10K 0W125 0805 — Q611 — LISTEN_2_u

TO SHEET 3

+45V_L
+45V_R
+4.8V(D)
0V(D)
IC601G 74HC14 SO-14
R629 47R 0W125 0805
C602 100N 50V 0805
C619 100UF 25V YK
C620 100UF 25V YK

DC OFFSET DETECTION

R634 100K 0W125 0805
R635 100K 0W125 0805
Q612
Q613
C623 10UF 63V NONP
C624 10UF 63V NONP
D601 BAV99 SOT-23
D602 BAV99 SOT-23
D603 BAV99 SOT-23
P625
+45V_R
R636 100K 0W125 0805
R650 22K 0W125 0805
TR604 FMMT597 SOT-23
Q631
TR608 FMMT497 SOT-23
TR605 FMMT597 SOT-23
-45V_L
DZ602 BZX84C 4V7 SOT-23
Q632
0V(D)

THERMAL CUTOUT

+45V_L
+45V_R
DZ600 BZX84C 3V9 SOT-23
DZ601 BZX84C 3V9 SOT-23
RTH600 PTC 110DEG PTC
RTH601 PTC 110DEG PTC
R638 680R 0W125 0805
R639 680R 0W125 0805
Q614
Q616
TR602 FMMT597 SOT-23
TR603 FMMT597 SOT-23
R640 33K 0W125 0805
R641 33K 0W125 0805
R645 4K7 0W125 0805
R646 4K7 0W125 0805
R647 4K7 0W125 0805
R648 4K7 0W125 0805
R620 2K2 0W125 0805
R621 2K2 0W125 0805
Q640
Q641
DZ603 BZX84C 4V7 SOT-23
DZ604 BZX84C 4V7 SOT-23
C603 100N 50V 0805
C604 100N 50V 0805
IC601D 74HC14 SO-14
IC601E 74HC14 SO-14
IC600B 74HC00D SO-14
IC600C 74HC00D SO-14
IC600D 74HC00D SO-14
Q638
DC_OFFSET
THERM
0V(D)

REMOTE_P
(From Sheet 7)

AC PRESENT DETECT

9VRMS
R619 10K 0W125 0805
D600 BAS16 SOT-323
TR600 BC849B SOT-23
R630 3K3 0W125 0805
C622 10UF 50V YK
IC601A 74HC14 SO-14
Q633
AC_PRESENT
+4.8V(D)
0V(D)

NF ON P80 C625 1N0 100V 0805

OVERCURRENT DETECTION

VIPROT_L
VIPROT_R
IC601B 74HC14 SO-14
IC601C 74HC14 SO-14
IC600A 74HC00D SO-14
C612 10N 100V 0805
C613 10N 100V 0805
Q634
VI_LIM
0V(D)

FIL_2
FIL_1
NF ON P80 R604 0W125 0R0 0805
NF ON P80 R601 0W125 0R0 0805
NF ON A80 R603 0R0 0W125 0805
NF ON A80 R605 0R0 0W125 0805
FIL_2
FIL_1

NF C614 10N 100V 0805
NF C615 10N 100V 0805
CON600 MOLEX 52045
Q619 Q620 Q621 Q622 Q623 Q624 Q625 Q626 Q627 Q630
P80:0V(D) P80:*SP2_LED P80:*SP2_SW P80:0V(D) P80:*SP1_SW P80:*SP1_LED P80:*PWR_BTN P80:0V(D)
A80:REMOTE A80:PHASE_A A80:PHASE_B A80:FIL1 A80:FIL2 A80:VFD_SDO A80:VFD_SDATA A80:VFD_SCLK A80:VFD_CS
A80:*PWR_LED_RED A80:*PWR_LED_GRN A80:0V(D) A80:+4.8V(D) A80:*RESET
C616 10N 100V 0805
C617 10N 100V 0805
C626 1N0 100V 0805
C628 1N0 100V 0805
C629 1N0 100V 0805
C627 1N0 100V 0805
C630 100P 100V 0805
C631 100P 100V 0805
C606 100N 50V 0805
Q618 Q635 Q636 Q637
NF ON P80 R653 330R 0W125 0805 — REMOTE
NF ON P80 R654 330R 0W125 0805 — PHASE_A / *SP2_LED
NF ON P80 R655 330R 0W125 0805 — PHASE_B / *SP2_SW
NF ON P80 R656 330R 0W125 0805 — VFD_SDO / *SP1_SW
NF ON P80 R657 330R 0W125 0805 — VFD_SDATA / *SP1_LED
NF ON P80 R658 330R 0W125 0805 — VFD_SCLK / *PWR_BTN
NF ON P80 R659 330R 0W125 0805 — VFD_CS
NF ON P80 R660 330R 0W125 0805 — *PWR_LED_RED
NF ON P80 R661 330R 0W125 0805 — *PWR_LED_GRN
NF ON P80 R622 10K 0W125 0805 — *NMI, *RESET
NF ON A80 R606 0R0 0W125 0805
NF ON A80 R607 0R0 0W125 0805
NF ON A80 R608 0R0 0W125 0805
TRIG_IN (From Sheet 7)

C618 10N 100V 0805
C605 100N 50V 0805
Q628
+4.8V(D)
-38V_VFD
FIX600 Dia 3.5mm
Q639
C607 100N 50V 0805

TO DISPLAY - SHEET 8

0.38Hz OSCILLATOR (FOR P80 AUTO-OFF)

NF ON A80 R652 33K 0W125 0805
NF ON P80 R623 10K 0W125 0805
NF ON A80 C621 100UF 25V YK
IC601F 74HC14 SO-14
R624 10K 0W125 0805
0.38Hz_CLK
0.38Hz_CLK (To Sheet 7)

ANNOTATION

A80 MICRO (NF on P80)

+4.8V(D)
EEPROM_SDATA
EEPROM_SCLK
IC604A 24C02 SO-8
IC604B 24C02 SO-8
C608 100N 50V 0805
+4.6V_D_PRE
SP602
VOL_SCLK_u
VOL_SDATA_u
*PRE_MUTE_u
LISTEN_0_u
LISTEN_1_u
LISTEN_2_u
TAPE_0_u
TAPE_1_u
TAPE_2_u
VFD_CS
*PWR_LED_RED
*PWR_LED_GRN
VFD_SCLK / *PWR_BTN
VFD_SDO / *SP1_SW
VFD_SDATA / *SP1_LED
CON601 HARWIN M20-973 Fit jumper for normal operation
*NMI
R637 100K 0W125 0805
*PWR_LED_RED
*PWR_LED_GRN
RS232_RX
RS232_TX
Fit jumper to re-program
CON602 HARWIN M20-973
IC602 HD64F3664FP L943SW LQFP-64
C610 100N 50V 0805
C609 100N 50V 0805
C611 100N 50V 0805
R642 2K2 0W125 0805
R632 3K3 0W125 0805
R643 2K2 0W125 0805
R633 3K3 0W125 0805
R644 2K2 0W125 0805
R609 0R0 0W125 0805
R610 0R0 0W125 0805
X600 4.00MHz SIL-3
*RESET
SPKR1_ON
SPKR2_ON
PWR_ON
(To Top Sheet)
(To Sheet 7)

REMOTE
PHASE_A / *SP2_LED
PHASE_B / *SP2_SW
AC_PRESENT
DC_OFFSET
VI_LIM
THERM
*RESET

P80 MICRO (NF ON A80)

VI_LIM
DC_OFFSET
SPKR2_ON
SPKR1_ON
PWR_ON
TRIG_IN
AC_PRESENT
THERM

DRAWING TITLE: A80/P80 Protection & Micros

2 3 4 2 5

A & R Cambridge Ltd.
Pembroke Avenue
Waterbeach
Cambridge CB5 9PB

Filename: L943C6_5.1.SCH
Notes:

ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE

Contact Engineer: Mark Tweedale
Contact Tel: (01223) 203 200
Printed: 9-Sep-2003
Sheet 6 of 8
DRAWING NO. L943C6

ITEM300	6	8K004	Con Jumper Socket 0.1IN Gold Blue	

TAPE INPUT

TAPE OUTPUT

TAPE OUTPUT SELECT

TAPE OUTPUT

A80 Line Out /
P80 Pre Out Loop

A80 PreAmp Out /
P80 PowerAmp In

FIT JUMPERS

DVD INPUT

PHONO PREAMP

LINE OUTPUT

AV INPUT

FIT JUMPERS ON
PINS 1 & 2 (2 & 3
FOR PRE/PWR)

TUNER INPUT

VOLUME CONTROL

FIT JUMPERS TO ENGAGE
PREAMP FOR A80 BUILD
(NF FOR P80 OR PRE/PWR)

CD INPUT

AUX INPUT

PHONO/

PLACE JUMPERS ON PINS 1 & 2
TO ENABLE PHONO (DEFAULT),
PINS 2 & 3 FOR AUX2

INPUT BUS

DRAWING TITLE	A80 PreAmp					
2 3 4 2 5	Filename: L943C3_5.1.SCH					
A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9PB	Notes:					
		ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Contact Engineer: Mark Tweedale	Contact Tel: (01223) 203 200	Printed: 9-Sep-2003	Sheet 3 of 8	DRAWING NO. L943C3		

Transformer Specification for 115/230V 50/60Hz mains transformer (for audio).
Arcam Part Number L916TX.

To standards BS415 / EN60065 / Class I / EN60742 / UL506.
All solid copper leadout wires to be insulated and colour coded with UL PVC105℃ sleeving.

Material Safety Specification
---

1. Winding Wire to be Grade 2 (130℃ rating) to BS 60317-4 1995.

2. Mylar Polyester Insulator Rated to 130℃.

Electrical Specification
---

3. Transformer to have dual 115V primaries to allow parallel operation for 115V input and series operation with 230V input.

4. Transformer input voltage range as follows:

115V -15% +15% (97.5V to 132.5V)
230V -15% +15% (195V to 265V)

5. Transformer to have 2 high-power secondary windings as shown in the adjacent drawing.

6. Loaded DC voltages specified at 230V AC in (with transformer primaries in series).

7. Centre-tapped secondary windings to have a full wave (4 diode) bridge to produce dual polarity DC rails; high power winding output voltage to comply to test specifications given (see Test Circuit and Test Specifications at right).

8. Windings to be evenly spaced with minmal gaps; magnetic radiation should be minimised.

9. Max core flux density 1.5T at nominal rating (referred to M4 core material; see 14 below).

10. Core must not saturate at 20% over nominal primary voltage.

11. Temperature rise to be less than 60℃ at 30% duty cycle (referred to 230V input voltage and On-Load current).

Mechanical Specification
---

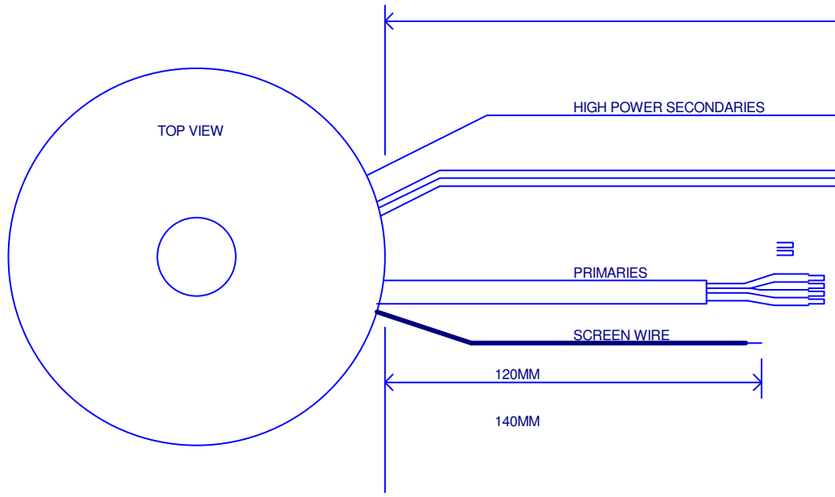
12. Primary wires self-ended and individually sleeved, then sleeved together. Secondary wires self-ended and individually sleeved. Low power secondary centre tap to share common sleeve. Use PVC sleeving.

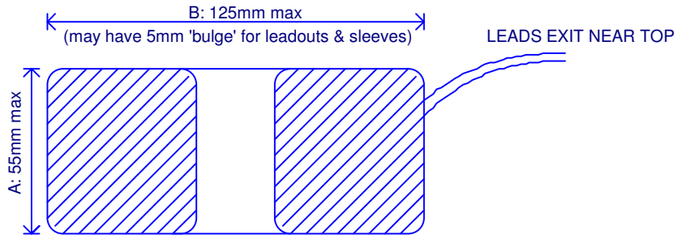
13. Primary/Secondary leadout separation to be minimised.

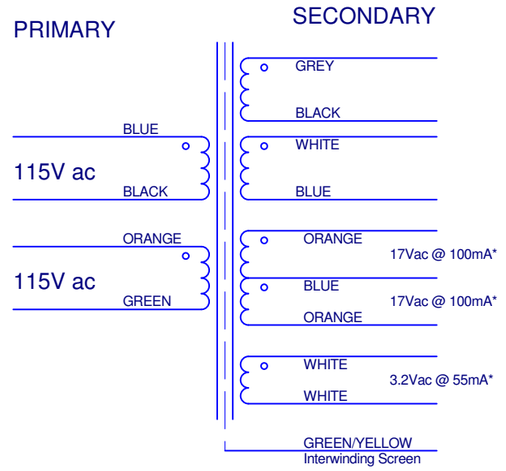
14. Product is for hi-fi audio; hum must be minimised.

15. All wire lengths are +20, -0 mm. All wires stripped 8 +/-2mm and tinned.

DRAWING NOT TO SCALE

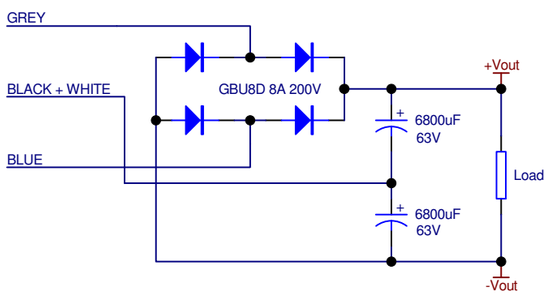






* - wire diameter at least 0.4mm

TEST CIRCUIT

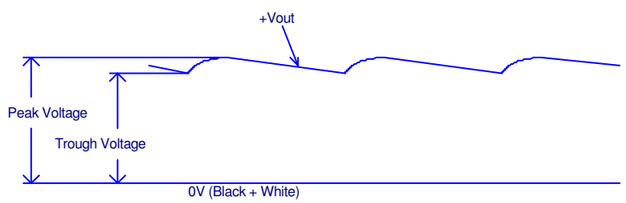


TEST SPECIFICATIONS

Input Voltage (series primaries)	230V	265V
On-Load Current	6.0A	6.0A
Min On-Load Trough Voltage	41 +1.5/-0 V	-
Off-Load Current	-	100mA
Max Off-Load Peak Voltage	-	63V

OUTPUT WAVEFORM

(Approximate Test Circuit DC output voltage with ripple)



DRAWING TITLE **DiVA A80 Power Transformer**

ARCAM
A & R Cambridge Ltd.
Pembroke Avenue
Waterbeach
Cambridge CB5 9PB

Filename: L916TX_1.0.Sch

Notes:

ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
	TGP	21 Feb 03		1.0

Contact Engineer: Travis Pierce | Contact Tel: (01223) 203 200 | Printed: 21-Feb-2003 | Sheet 1 of 1 | DRAWING NO. L916TX

Transformer Specification for 100V 50/60Hz mains transformer (for audio).
Arcam Part Number L917TX.

To standards BS415 / EN60065 / Class I / EN60742 / UL506.
All solid copper leadout wires to be insulated and colour coded with UL PVC105°C sleeving.

Material Safety Specification
---

1. Winding Wire to be Grade 2 (130°C rating) to BS 60317-4 1995.

2. Mylar Polyester Insulator Rated to 130°C.

Electrical Specification
---

3. Transformer to have dual 100V primaries to allow parallel operation with 100V input.

4. Transformer input voltage range as follows:

100V -15% +15% (85V to 115V)

5. Transformer to have 2 high-power secondary windings as shown in the adjacent drawing.

6. Loaded DC voltages specified at 100V AC in (with transformer primaries in parallel).

7. Centre-tapped secondary windings to have a full wave (4 diode) bridge to produce dual polarity DC rails; high power winding output voltage to comply with test specifications given (see Test Circuit and Test Specifications at right).

8. Windings to be evenly spaced with minmal gaps; magnetic radiation should be minimised.

9. Max core flux density 1.5T at nominal rating (referred to M4 core material; see 14 below).

10. Core must not saturate at 20% over nominal primary voltage.

11. Temperature rise to be less than 60°C at 30% duty cycle (referred to 100V input voltage and On-Load current).

Mechanical Specification
---

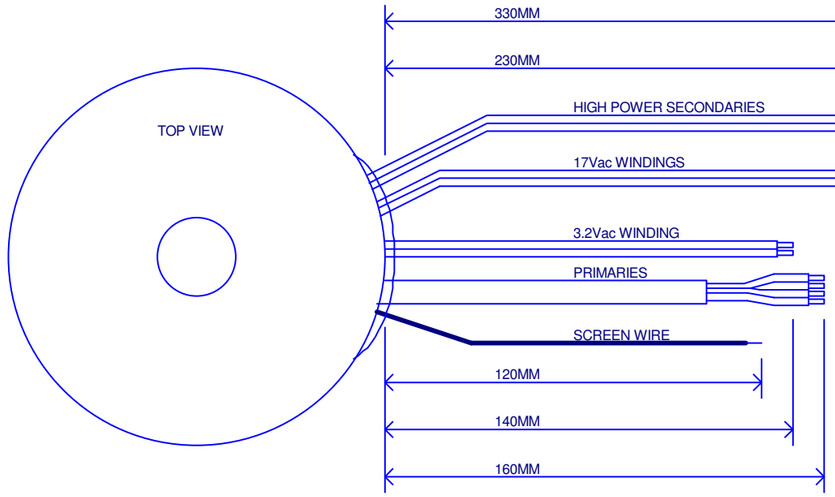
12. Primary wires self-ended and individually sleeved, then sleeved together. Secondary wires self-ended and individually sleeved. Low power secondary centre tap to share common sleeve. Use PVC sleeving.

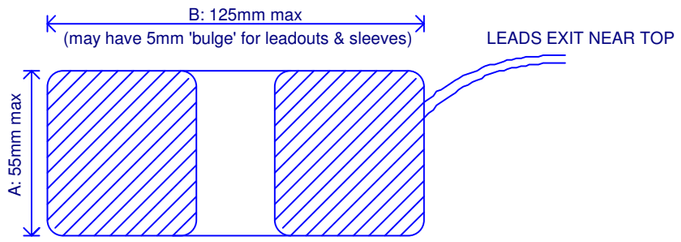
13. Primary/Secondary leadout separation to be minimised.

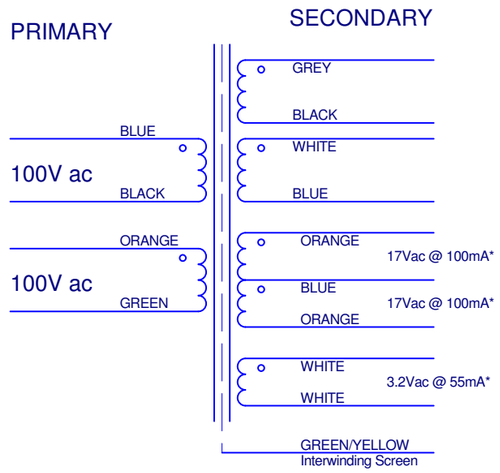
14. Product is for hi-fi audio; hum must be minimised.

15. All wire lengths are +20, -0 mm. All wires stripped 8 +/-2mm and tinned.

DRAWING NOT TO SCALE

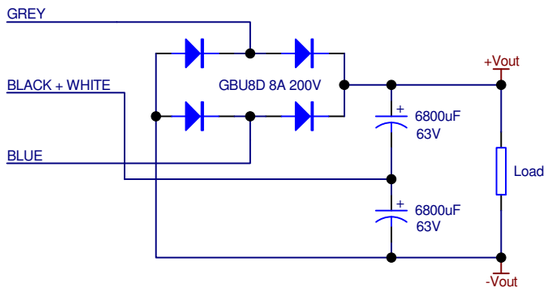






* - wire diameter at least 0.4mm

TEST CIRCUIT

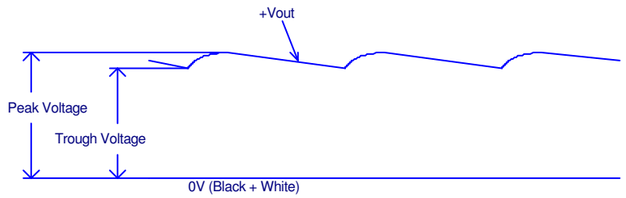


TEST SPECIFICATIONS

Input Voltage (parallel primaries)	100V	115V
On-Load Current	6.0A	6.0A
Min On-Load Trough Voltage	41 +1.5/-0 V	-
Off-Load Current	-	100mA
Max Off-Load Peak Voltage	-	63V

OUTPUT WAVEFORM

(Approximate Test Circuit DC output voltage with ripple)



[illegible] 100 [illegible] A A80 P [illegible] an f [illegible]					
ARCAM [illegible]	[illegible] L [illegible] 10 Sc				
		03_E118	TGP	17 April 03	PRODUCTION RELEASE 1.0
	[illegible]	[illegible] ALS	[illegible]	[illegible] S P [illegible]	[illegible] SS
[illegible]	[illegible] 01?? [illegible] 00	P [illegible] -A? 00	S [illegible] 1 f 1	[illegible] L [illegible]	

ELECTRICAL SPECIFICATION

1. FREQUENCY :- 50 - 60Hz

2. INTERWINDING SCREEN :-

3. SECONDARY WINDING :-

   a. Regulation (AC)/load current -
   b. Continuous VA rating - 4VA @ 100V
   c. Voltage unbalance -

4. GENERAL

   a. Magnetic radiation - VERY LOW & CONSISTENT
   b. Acoustic noise - THE DEVICE SHOULD BE DESIGNED TO BE AS QUIET AS POSSIBLE
   c. Maximum ambient temperature - 50 C
   d. Application -

      POWER SUPPLY FOR DIGITAL LOGIC IN AMPLIFIER USING FULL WAVE BRIDGE RECTIFIER AND 3300uF RESERVOIR CAPACITOR. QUIESCENT LOAD 100mA DC.

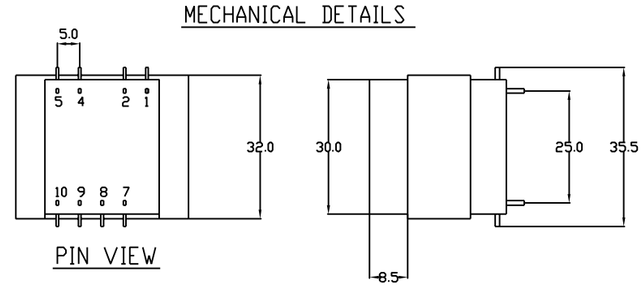
Voltages shown when used at 100V.

5. SAFETY APPROVAL :- To meet BS415/IEC65

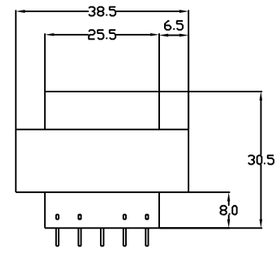
NOTES

PINS NOT SPECIFIED IN TABLE ON SHEET TWO SHOULD NOT BE INCLUDED

MECHANICAL DETAILS



PIN VIEW

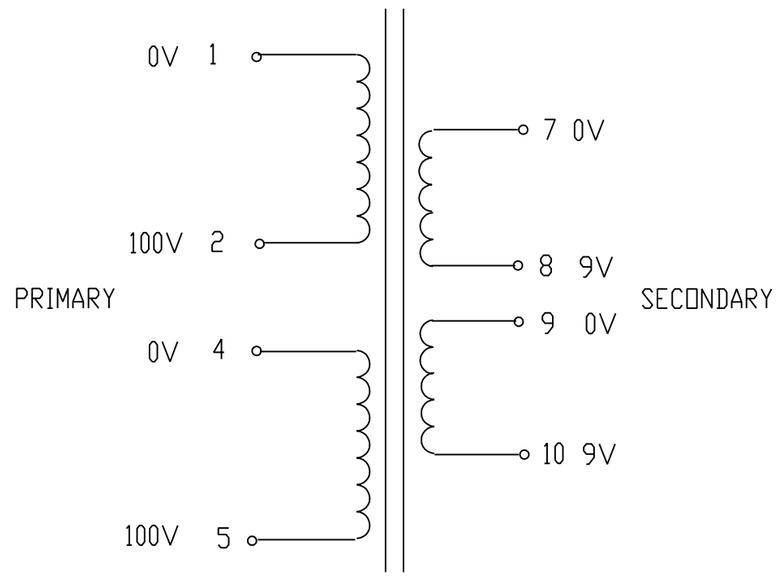


PIN DIMENSIONS 1.0 x 0.6mm NOMINAL
PIN LENGTH 5.0mm TYP.

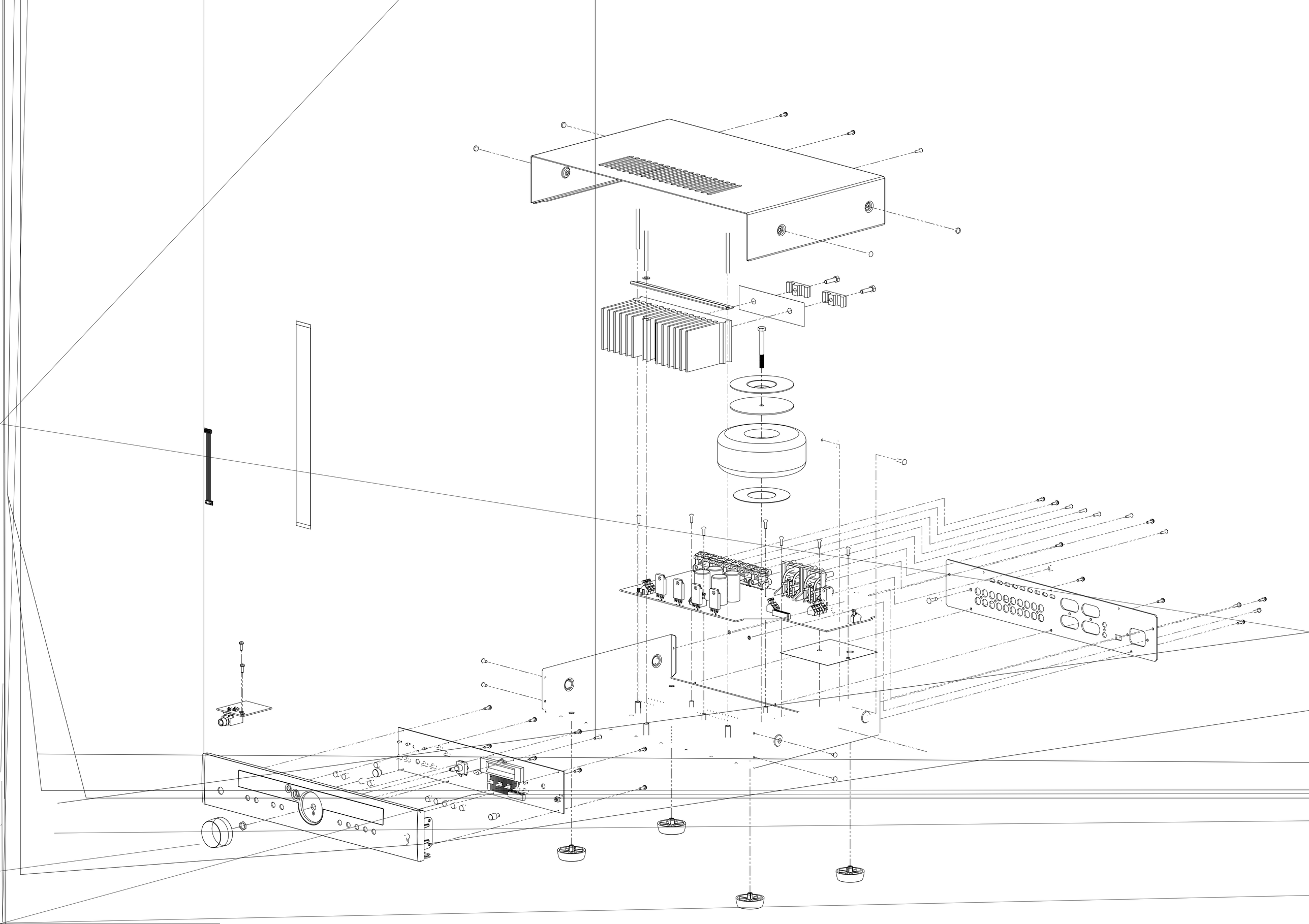
DIMENSIONS SHOWN, EXCEPT THOSE DETAILING PIN SPACING, ARE NOMINAL ONLY

ARCAM A & R CAMBRIDGE LTD	DRAWING TITLE: A85/A90 AMPLIFIER DIGITAL TRANSFORMER 100V	DRAWN BY: CL				
		DATE: 18-09-00				
DRAWN TO THIRD ANGLE PROJECTION		CHECKED BY:				
		ANGULAR TOL. ± 2 DEGREES:	03_E336	17-12-03	A90 ADDED TO DRAWING TITLE BLOCK	3.2
TOLERANCES UNLESS OTHERWISE STATED 0.00 - 020, 0.0 - 05	ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED	ORIGINAL SCALE: NTS	PLOT SCALE: 1X		18-09-00	PRODUCTION RELEASE	1
MATERIAL		SHT 1 OF 2	SHT SIZE: A3	ECO NUMBER	DATE	DESCRIPTION OF CHANGE	ISSUE
FINISH		DRAWN WITH REFERENCE TO BS 308		PART NUMBER AND DRAWING NUMBER: L907TX			

1,4	0V	
5	100V	+/- 15%
2	100V	+/- 15%
7,9	0V	
8	9V	
10	9V	
3,6	N.C.	NO PIN



ARCAM A & R CAMBRIDGE LTD	DRAWING TITLE: A85/A90 AMPLIFIER DIGITAL TRANSFORMER 100V	DRAWN BY: CL				
		DATE: 18-09-00				
DRAWN TO THIRD ANGLE PROJECTION		CHECKED BY:				
		ANGULAR TOL. ± 2 DEGREES:	03_E336	17-12-03	A90 ADDED TO DRAWING TITLE BLOCK	3.2
TOLERANCES UNLESS OTHERWISE STATED 0.00 - 020, 0.0 - 05	ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED	ORIGINAL SCALE: NTS	PLOT SCALE: 1X		18-09-00	PRODUCTION RELEASE	1
MATERIAL		SHT 2 OF 2	SHT SIZE: A3	ECO NUMBER	DATE	DESCRIPTION OF CHANGE	ISSUE
FINISH		DRAWN WITH REFERENCE TO BS 308		PART NUMBER AND DRAWING NUMBER: L907TX			



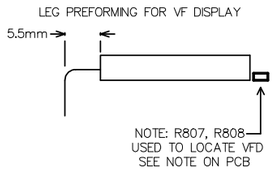
A80 Mechanical and packing parts list

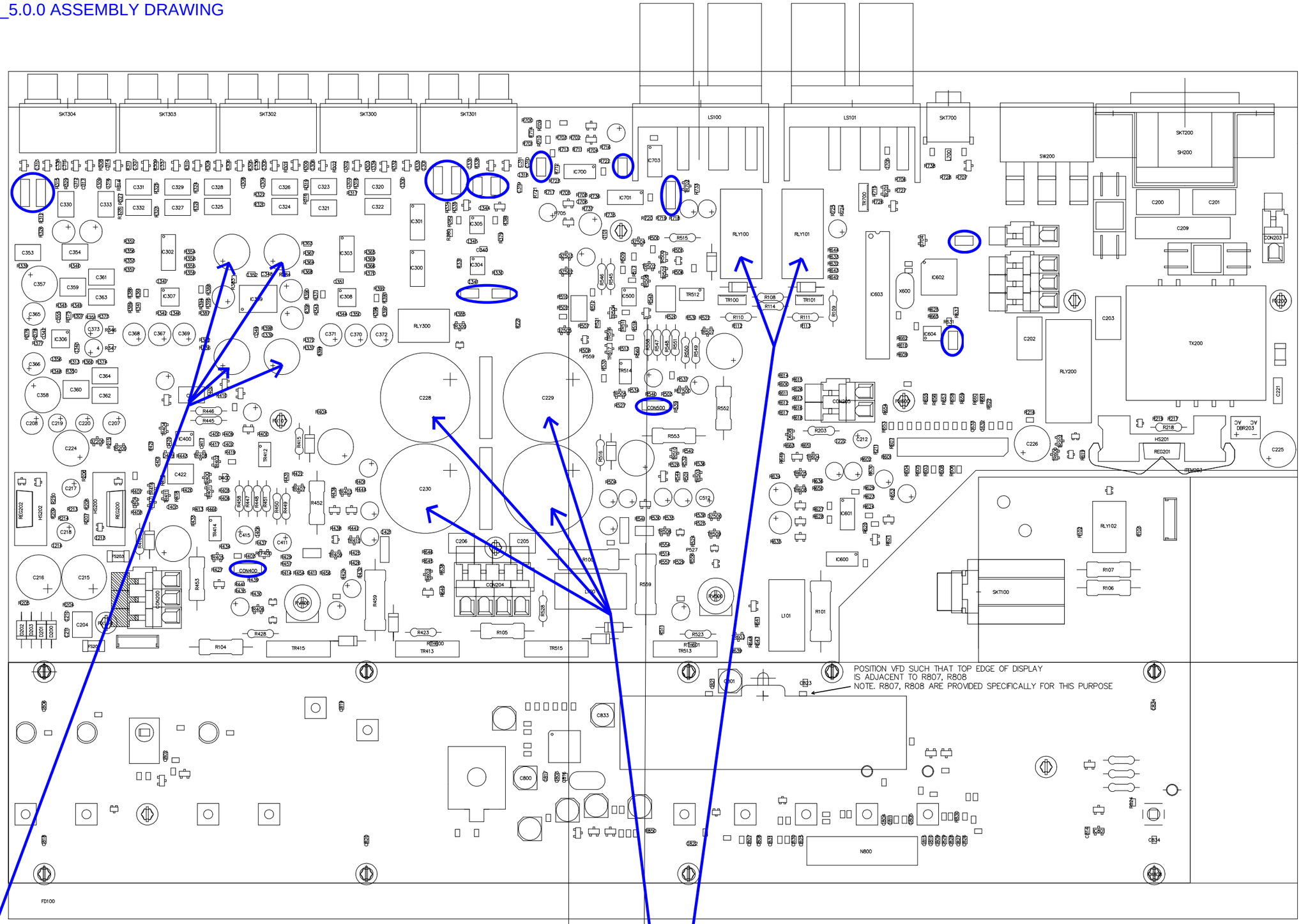
Part No	Item No	Description
		GENERAL MECHANICAL PARTS
E119AY	4	Diva A80 Rear Panel And Silk Screen Assembly
E139AY	5	A80 Chassis Assembly
E83001	7	Gasket Transformer M01/0158
E869PM	8	Button Tact Switch Power Diva
E879PM	9	Foot Black Diva
E891PM	11	Knob A80 Volume & DT81 Selector
E896PM	12	Button DT81 (MODIFED SHANK) Select Button
E897PM	13	Button DT81 Confirm Button (MODIFIED SHANK)
E917HK	14	Heatsink Diva A80 Amp - Using E908EX, A85
E920MC	15	Diva A85/P85 Heatsink Clamp
E954MC	16	Koolpad O/P Device Diva A80 Used ON Heatsink
E956MC	17	Clamp A80 Transistor
HA3V10A	20	M Screw Torx M3x10MM ST ZP
HA3V10B	21	M/C Torx M3X10 Black (500)
HA4A12B	22	M Screw Pan Supa M4x12MM ST BLK
HA5K60A	23	Bolt Hex HD M5x60MM ST ZP
HA5L20B	24	M/C Hex HD. Bolt M5-0.8X20MM Steel - Zinc Black Passivate
HA6K55A	25	Bolt Hex HD M6x55MM ZP
HE6V06B	26	Screw Sftp Torx No.6x6MM BLK
HF4V09B	27	Screw Self-Tapping-Sems NO.4 X 9MM Pan Torx-Slot Steel Zinc-Plate BLK
HJ3A00F	28	M3 Hex Nut Nyloc
HJ4A00A	29	Nut M4 Full ST ZP
HJ4C00D	30	Nut M4 Waisted BR SC
HJ9A01E	31	Hex Half Nut M9
HL4SB	32	Washer M4 Int Shakeproof BLK
HL5EB	33	Washer M5 ST BLK
K5406	34	Sleeve For Light Pipes
L822CA	35	Cable Flat Flex 22WAY 300MM
L933CA	36	5 Way Amp CT 100MM
L916TX	37	115/230 VAC Toroid transformer
L917TX	37	100 VAC only Toroid transformer
L943AY		A80 Main cct board & Display cct board PCB Assembly
		BLACK CASE PARTS
E845CPB	2	Cover Black DiVA A80/P80
HA4V06B	3	M Screw Torx M4x6MM ST BLK
E189AYB	**1**	**DiVA Black A80 Fascia Complete Assembly**
		Made up of the following parts :-
E820AP		Pad Adhesive Diva DT81 Display Window
E190AYB		Front Panel Assembly Black Diva A80
E855MC		Diva Black End Cap Low
E917PM		Display Window For Diva A80
E871PM		Lightpipe Power Diva
E878PM		Lightpipe Power Surround Diva
E827SP		Sub-Panel Diva A80 Amp
		SILVER CASE PARTS
E845CP	2	Cover Silver Diva A80/P80
HA4V06S	3	M Screw Torx M4x6MM Stainless Steel
E189AY	**1**	**DiVA Silver A80 Fascia Complete Assembly**
		Made up of the following parts :-
E820AP		Pad Adhesive Diva DT81 Display Window
E190AY		Front Panel Assembly Silver Diva A80
E841MC		Diva Silver End Cap Low
E917PM		Display Window For Diva A80
E871PM		Lightpipe Power Diva
E878PM		Lightpipe Power Surround Diva
E827SP		Sub-Panel Diva A80 Amp
		PACKAGING MATERIAL
E948SL		Diva A80 Integrated Amplifier Carton Label
L813RC		Remote Control Handy 3 Diva Series CR389
SH117		Handbook Diva A80/P80 Amplifier Multi
E922PK		One-Piece inner printed DiVA Carton with Integral Partition
E928PK		Single generic DiVA End Cap
E888PM		Blanking Plug For 4MM Binding Post
E929PK		Single heavy DiVA right hand End Cap

P80 Mechanical and packing parts list

Part No	Description
	GENERAL MECHANICAL PARTS
E917HK	Heatsink Diva A80 Amp - Using E908EX, A85
E139AY	A80 Chassis Assembly
E879PM	Foot Black Diva
HA3V06A	M Screw Torx P/H M3x6MM ST ZP
HA4A12B	M Screw Pan Supa M4x12MM ST BLK
HJ4A00A	Nut M4 Full ST ZP
HA6K55A	Bolt Hex HD M6x55MM ZP
HF4V09B	Screw Self-Tapping-Sems NO.4 X 9MM Pan Torx-Slot Steel Zinc-Plate BLK
HL4SB	Washer M4 Int Shakeproof BLK
HL5EB	Washer M5 ST BLK
E121AY	Diva P80 Rear Panel And Silk Screen Assembly
E869PM	Button Tact Switch Power Diva
8K006	Connector 14MM Shorting Bar P2148
F018	Grommet For Shorting Link
HA5K60A	Bolt Hex HD M5x60MM ST ZP
E83001	Gasket Transformer M01/0158
E920MC	Diva A85/P85 Heatsink Clamp
E954MC	Koolpad O/P Device Diva A80 Used ON Heatsink
E956MC	Clamp A80 Transistor
HA5L20B	M/C Hex HD. Bolt M5-0.8X20MM Steel - Zinc Black Passivate
HE6V06B	Screw Sftp Torx No.6x6MM BLK
L822CA	Cable Flat Flex 22WAY 300MM
E897PM	Button DT81 Confirm Button (MODIFIED SHANK)
HJ3A00F	M3 Hex Nut Nyloc
HA3V10B	M/C Torx M3X10 Black (500)
L916TX	115/230 VAC Toroid transformer
L917TX	100 VAC only Toroid transformer
L944AY	P80 Main cct board & Display cct board PCB Assembly
	BLACK CASE PARTS
E845CPB	Cover Black DiVA A80/P80
HA4V06B	M Screw Torx M4x6MM ST BLK
E122AYB	**DiVA Black P80 Fascia Complete Assembly**
	Made up of the following parts :-
E192AYB	Front Panel Assembly Black Diva P80
E855MC	Diva Black End Cap Low
E876PM	Lightpipe Single Diva
E871PM	Lightpipe Power Diva
E878PM	Lightpipe Power Surround Diva
E827SP	Sub-Panel Diva A80 Amp
E818AP	Pad Adhesive Diva Single Light Pipe
F234	Richco bumper black (Dia. 12.7mm, Height 6.3mm)
	SILVER CASE PARTS
E845CP	Cover Silver Diva A80/P80
HA4V06S	M Screw Torx M4x6MM Stainless Steel
E122AY	**DiVA Silver P80 Fascia Complete Assembly**
	Made up of the following parts :-
E818AP	Pad Adhesive Diva Single Light Pipe
E192AY	Front Panel Assembly Silver Diva P80
E841MC	Diva Silver End Cap Low
E876PM	Lightpipe Single Diva
E871PM	Lightpipe Power Diva
E878PM	Lightpipe Power Surround Diva
E827SP	Sub-Panel Diva A80 Amp
F234	Richco bumper black (Dia. 12.7mm, Height 6.3mm)
	PACKAGING MATERIAL
SH117	Handbook Diva A80/P80 Amplifier Multi
E922PK	One-Piece inner printed DiVA Carton with Integral Partition
E928PK	Single generic DiVA End Cap
E947SL	Diva P80 Power Amplifier Carton Label
E888PM	Blanking Plug For 4MM Binding Post
E929PK	Single heavy DiVA right hand End Cap
F236	Snap Latch Plunger

A80 L943AY_5.0.0 ASSEMBLY DRAWING





Rubber 13/16 inch ID O-rings to be placed around main power supply capacitors C228, C229, C230 and C231. O-rings to be situated midway between PCB and top of cap.

One whole sorbothane piece to be fitted to top of each of output relays RLY100 and RLY101.

One half piece of sorbothane to be fitted to top of each of C386, C387, C388 and C389.

A80 Default Jumper Settings (circled on drawing):

CON300, CON301	NOT FITTED
CON302, CON303	FITTED
CON304, CON305	PINS 1 & 2
CON306, CON307	PINS 1 & 2
CON400, CON500	BIAS SET (AT ARCAM)
CON601	FITTED (NOT FITTED TO PROGRAM A80)
CON602	NOT FITTED (FIT TO PROGRAM A80)
CON700, CON701	NOT FITTED
CON702	NOT FITTED

P80 L944AY_5.0.0 ASSEMBLY DRAWING

Insert IC socket IC603-1 into PCB for soldering.
Insert programmed IC603 into socket.

Rubber 13/16 inch ID O-rings to be placed around main power supply capacitors C228, C229, C230 and C231. O-rings to be situated midway between PCB and top of cap.

One whole sorbothane piece to be fitted to top of each of output relays RLY100 and RLY101.

P80 Default Jumper Settings (circled on drawing):

CON300, CON301	FITTED
CON302, CON303	NOT FITTED
CON304, CON305	NOT FITTED
CON306, CON307	NOT FITTED
CON400, CON500	BIAS SET (AT ARCAM)
CON601	NOT FITTED
CON602	NOT FITTED
CON700, CON701	FITTED
CON702	PINS 1 & 2

A80 Amplifier main/display cct board L943AY issue 5.1
P80 Amplifier main/display cct board L944AY issue 5.1

Designator	Part	Description
C101	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C200	2K233	Capacitor X1 Y2 Rated Ceramic 7.5mm Pitch 3N3 250V
C201	2K233	Capacitor X1 Y2 Rated Ceramic 7.5mm Pitch 3N3 250V
C202	2K233	Capacitor X1 Y2 Rated Ceramic 7.5mm Pitch 3N3 250V
C203	2K233	Capacitor X1 Y2 Rated Ceramic 7.5mm Pitch 3N3 250V
C204	2KA447	Capacitor Boxed Polyester 5mm Pitch 5% 100VDC 470N
C205	2KA447	Capacitor Boxed Polyester 5mm Pitch 5% 100VDC 470N
C206	2KA447	Capacitor Boxed Polyester 5mm Pitch 5% 100VDC 470N
C207	2P622	Capacitor Radial Electrolytic Oscon SG 22UF 20V
C208	2P622	Capacitor Radial Electrolytic Oscon SG 22UF 20V
C209	2D422	Capacitor X2 Boxed Polypropylene 22.5mm Pitch 275V 220NF
C210	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C211	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C212	2N622	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 22UF 63V
C213	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C214	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C215	2N810C	Capacitor Radial Electrolytic Dia 12.5mm Pitch 5mm 1000UF 35V
C216	2N810C	Capacitor Radial Electrolytic Dia 12.5mm Pitch 5mm 1000UF 35V
C217	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C218	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C219	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C220	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C221	2KA410	Capacitor Boxed Polyester 5mm Pitch 5% 100VDC 100N
C222	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C224	2N810	Capacitor Radial Electrolytic Dia 10mm Pitch 5mm 1000UF 25V
C225	2N810	Capacitor Radial Electrolytic Dia 10mm Pitch 5mm 1000UF 25V
C226	2N810A	Capacitor Radial Electrolytic Dia 10mm Pitch 5mm 1000UF 10V
C228	2N833C	Capacitor Radial Electrolytic Dia 22mm Claw Mount 3,300UF 63V
C229	2N833C	Capacitor Radial Electrolytic Dia 22mm Claw Mount 3,300UF 63V
C230	2N833C	Capacitor Radial Electrolytic Dia 22mm Claw Mount 3,300UF 63V
C231	2N833C	Capacitor Radial Electrolytic Dia 22mm Claw Mount 3,300UF 63V
C300	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C301	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C302	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C303	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C304	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C305	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C306	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C307	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C308	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C309	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C310	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C311	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C312	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C313	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C314	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C315	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C316	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C317	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C318	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C319	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C320	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C321	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C322	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C323	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C324	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C325	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C326	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C327	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C328	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C329	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P

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Designator	Part	Description
C330	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C331	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C332	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C333	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C334	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C335	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C336	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C337	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C338	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C339	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C340	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C341	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C342	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C343	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C344	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C345	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C346	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C347	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C348	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C349	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C350	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C351	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C352	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C353	2DA110	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 100P
C354	2DA110	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 100P
C355	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P
C356	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P
C357	2P622C	Capacitor Radial Electrolytic Elna ROA Series 22UF 50V
C358	2P622C	Capacitor Radial Electrolytic Elna ROA Series 22UF 50V
C359	2DA247	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 4N7
C360	2DA247	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 4N7
C361	2DA210	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 1N0
C362	2DA210	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 1N0
C363	2DA133	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 330P
C364	2DA133	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 330P
C365	2N722	Capacitor Radial Electrolytic Dia 6.3mm Pitch 5mm 220UF 16V
C366	2N722	Capacitor Radial Electrolytic Dia 6.3mm Pitch 5mm 220UF 16V
C367	2N722	Capacitor Radial Electrolytic Dia 6.3mm Pitch 5mm 220UF 16V
C368	2N722	Capacitor Radial Electrolytic Dia 6.3mm Pitch 5mm 220UF 16V
C369	2N722	Capacitor Radial Electrolytic Dia 6.3mm Pitch 5mm 220UF 16V
C370	2N722	Capacitor Radial Electrolytic Dia 6.3mm Pitch 5mm 220UF 16V
C371	2N722	Capacitor Radial Electrolytic Dia 6.3mm Pitch 5mm 220UF 16V
C372	2N722	Capacitor Radial Electrolytic Dia 6.3mm Pitch 5mm 220UF 16V
C373	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C374	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C375	2P710ZA	Capacitor Radial Electrolytic Rubycon ZA Series 100UF 25V
C376	2L022	Capacitor SM 0805 NPO Ceramic 5% 100V 22P
C377	2L022	Capacitor SM 0805 NPO Ceramic 5% 100V 22P
C378	2L022	Capacitor SM 0805 NPO Ceramic 5% 100V 22P
C379	2L022	Capacitor SM 0805 NPO Ceramic 5% 100V 22P
C380	2L022	Capacitor SM 0805 NPO Ceramic 5% 100V 22P
C381	2L022	Capacitor SM 0805 NPO Ceramic 5% 100V 22P
C383	2P710ZA	Capacitor Radial Electrolytic Rubycon ZA Series 100UF 25V
C384	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C385	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C386	2P710AC	Capacitor Radial Electrolytic Elna ROA Series 100UF 25V
C387	2P710AC	Capacitor Radial Electrolytic Elna ROA Series 100UF 25V
C388	2P710AC	Capacitor Radial Electrolytic Elna ROA Series 100UF 25V
C389	2P710AC	Capacitor Radial Electrolytic Elna ROA Series 100UF 25V
C390	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C400	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P

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Designator	Part	Description
C401	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P
C402	2L110	Capacitor SM 0805 NPO Ceramic 5% 100V 100P
C403	2L110	Capacitor SM 0805 NPO Ceramic 5% 100V 100P
C404	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C405	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C406	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C407	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C408	2N622	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 22UF 63V
C409	2N622	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 22UF 63V
C410	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C411	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C412	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C413	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C414	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C415	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C416	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C417	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C419	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C420	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C421	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C422	2KA447	Capacitor Boxed Polyester 5mm Pitch 5% 100VDC 470N
C423	2N710B	Capacitor Radial Electrolytic Dia 10mm Pitch 5mm 100UF 100V
C424	2N710B	Capacitor Radial Electrolytic Dia 10mm Pitch 5mm 100UF 100V
C425	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C426	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C427	2KA410	Capacitor Boxed Polyester 5mm Pitch 5% 100VDC 100N
C500	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P
C501	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P
C502	2L110	Capacitor SM 0805 NPO Ceramic 5% 100V 100P
C503	2L110	Capacitor SM 0805 NPO Ceramic 5% 100V 100P
C504	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C505	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C506	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C507	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C508	2N622	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 22UF 63V
C509	2N622	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 22UF 63V
C510	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C511	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C512	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C513	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C514	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C515	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C516	2DA147	Capacitor Boxed Polypropylene 5mm Pitch 100V 5% 470P
C517	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C519	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C520	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C521	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C522	2KA447	Capacitor Boxed Polyester 5mm Pitch 5% 100VDC 470N
C523	2N710B	Capacitor Radial Electrolytic Dia 10mm Pitch 5mm 100UF 100V
C524	2N710B	Capacitor Radial Electrolytic Dia 10mm Pitch 5mm 100UF 100V
C525	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C526	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C527	2KA410	Capacitor Boxed Polyester 5mm Pitch 5% 100VDC 100N
C600	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C601	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C602	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C603	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C604	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C605	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C606	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C607	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N

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Designator	Part	Description
C608	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C609	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C610	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C611	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C612	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C613	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C614	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C615	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C616	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C617	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C618	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C619	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C620	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C621	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C622	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C623	2U610	Capacitor Non-Polar Radial Electrolytic 10UF 63V
C624	2U610	Capacitor Non-Polar Radial Electrolytic 10UF 63V
C625	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C626	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C627	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C628	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C629	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C630	2L110	Capacitor SM 0805 NPO Ceramic 5% 100V 100P
C631	2L110	Capacitor SM 0805 NPO Ceramic 5% 100V 100P
C632	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P
C633	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P
C700	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C701	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C702	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C703	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C704	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C705	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C706	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C708	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C709	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C710	2L110	Capacitor SM 0805 NPO Ceramic 5% 100V 100P
C711	2L110	Capacitor SM 0805 NPO Ceramic 5% 100V 100P
C712	2L110	Capacitor SM 0805 NPO Ceramic 5% 100V 100P
C715	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C716	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C717	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C718	2N710	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 100UF 25V
C720	2N610	Capacitor Radial Electrolytic Dia 5mm Pitch 5mm 10UF 50V
C721	2N722	Capacitor Radial Electrolytic Dia 6.3mm Pitch 5mm 220UF 16V
C800	2MA610	Capacitor Surface Mount Electrolytic 10UF 50V 6.3 X 4.5MM
C801	2MA610	Capacitor Surface Mount Electrolytic 10UF 50V 6.3 X 4.5MM
C802	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C803	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C804	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C805	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C806	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C807	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C808	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C809	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C810	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C811	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C812	2MA610	Capacitor Surface Mount Electrolytic 10UF 50V 6.3 X 4.5MM
C813	2MA610	Capacitor Surface Mount Electrolytic 10UF 50V 6.3 X 4.5MM
C814	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C815	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C816	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N

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Designator	Part	Description
C817	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C818	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C819	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C820	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C821	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C822	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C823	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C824	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C825	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C826	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C827	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C828	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C829	2L210	Capacitor SM 0805 NPO Ceramic 5% 100V 1N0
C830	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C831	2JA310	Capacitor SM 0805 X7R Ceramic 10% 100V 10N
C832	2MA710	Capacitor Surface Mount Electrolytic 100UF 6.3V 6.3 X 4.5MM
C833	2MA710	Capacitor Surface Mount Electrolytic 100UF 6.3V 6.3 X 4.5MM
C834	2J410	Capacitor SM 0805 X7R Ceramic 10% 50V 100N
C835	2MA610	Capacitor Surface Mount Electrolytic 10UF 50V 6.3 X 4.5MM
C836	2MA610	Capacitor Surface Mount Electrolytic 10UF 50V 6.3 X 4.5MM
C837	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P
C838	2L047	Capacitor SM 0805 NPO Ceramic 5% 100V 47P
CON100	8K2005	Con CT Series Vertical 5WAY
CON101	8K2005	Con CT Series Vertical 5WAY
CON200	8Q009	Con Wago Cage Clamp Assy 3WAY 256-003/079-000
CON201	8Q001	Con Cage Clamp 3WAY
CON202	8Q003	Con Cage Clamp 1WAY
CON203	8Q003	Con Cage Clamp 1WAY
CON204	8Q007	Con Cage Clamp 4WAY
CON205	8Q008	Con Cage Clamp 2WAY
CON300	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON301	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON302	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON303	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON304	8K2103	Con Single ROW Hdr 0.1IN Vertical 3WAY
CON305	8K2103	Con Single ROW Hdr 0.1IN Vertical 3WAY
CON306	8K2103	Con Single ROW Hdr 0.1IN Vertical 3WAY
CON307	8K2103	Con Single ROW Hdr 0.1IN Vertical 3WAY
CON400	8K2103	Con Single ROW Hdr 0.1IN Vertical 3WAY
CON401	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON500	8K2103	Con Single ROW Hdr 0.1IN Vertical 3WAY
CON501	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON600	8K8022	Con 1.25MM Vertical FFC 22WAY
CON601	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON602	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON700	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON701	8K6201	Con Single ROW Hdr 0.1IN Vertical 2WAY
CON702	8K2103	Con Single ROW Hdr 0.1IN Vertical 3WAY
CON800	8K8122	Con 1.25MM Horiz FFC 22WAY
D100	3B4003	Diode 1N4003 DO-41 Package
D101	3B4003	Diode 1N4003 DO-41 Package
D102	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D200	3B4003	Diode 1N4003 DO-41 Package
D201	3B4003	Diode 1N4003 DO-41 Package
D202	3B4003	Diode 1N4003 DO-41 Package
D203	3B4003	Diode 1N4003 DO-41 Package
D210	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D211	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D212	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D213	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D214	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package

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Designator	Part	Description
D215	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D300	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D301	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D302	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D303	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D304	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D305	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D306	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D307	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D308	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D309	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D310	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D311	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D312	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D313	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D314	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D315	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D316	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D317	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D318	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D319	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D320	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D400	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D401	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D402	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D403	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D404	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D405	3B4003	Diode 1N4003 DO-41 Package
D406	3B4003	Diode 1N4003 DO-41 Package
D407	3B4003	Diode 1N4003 DO-41 Package
D408	3B4003	Diode 1N4003 DO-41 Package
D409	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D500	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D501	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D502	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D503	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D504	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D505	3B4003	Diode 1N4003 DO-41 Package
D506	3B4003	Diode 1N4003 DO-41 Package
D507	3B4003	Diode 1N4003 DO-41 Package
D508	3B4003	Diode 1N4003 DO-41 Package
D509	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D600	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D601	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D602	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D603	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D608	3F54S	Diode Schottky BAT54S SOT-23 Package
D700	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D701	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D702	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D703	3AV99W	Diode Dual Surface Mount Small Signal BAV99 SOT-23 Package
D704	3F54S	Diode Schottky BAT54S SOT-23 Package
D800	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D801	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
D802	3AS16W	Diode Surface Mount Small Signal BAS16W SOT-23 Package
DBR200	3BGBU8D	Diode Bridge Rectifier GBU8D Plastic Package 8A 200V
DBR201	3BGBU8D	Diode Bridge Rectifier GBU8D Plastic Package 8A 200V
DBR203	3BDF01M	Diode Bridge Rectifier DF01 Plastic Package 1A 100V
DISP800	B1016	Display VF 10 14-segment 6mm Characters
DZ200	3CW35V6	Zener Diode 0.25W Surface Mount BZX84C5V6 SOT-23 Package
DZ400	3CW322V	Zener Diode 0.25W Surface Mount BZX84C22V SOT-23 Package

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Designator	Part	Description
DZ401	3CW322V	Zener Diode 0.25W Surface Mount BZX84C22V SOT-23 Package
DZ402	3CW33V9	Zener Diode 0.25W Surface Mount BZX84C3V9 SOT-23 Package
DZ403	3CW33V9	Zener Diode 0.25W Surface Mount BZX84C3V9 SOT-23 Package
DZ404	3CW315V	Zener Diode 0.25W Surface Mount BZX84C15V SOT-23 Package
DZ405	3CW315V	Zener Diode 0.25W Surface Mount BZX84C15V SOT-23 Package
DZ406	3CW33V9	Zener Diode 0.25W Surface Mount BZX84C3V9 SOT-23 Package
DZ500	3CW322V	Zener Diode 0.25W Surface Mount BZX84C22V SOT-23 Package
DZ501	3CW322V	Zener Diode 0.25W Surface Mount BZX84C22V SOT-23 Package
DZ502	3CW33V9	Zener Diode 0.25W Surface Mount BZX84C3V9 SOT-23 Package
DZ503	3CW33V9	Zener Diode 0.25W Surface Mount BZX84C3V9 SOT-23 Package
DZ504	3CW315V	Zener Diode 0.25W Surface Mount BZX84C15V SOT-23 Package
DZ505	3CW315V	Zener Diode 0.25W Surface Mount BZX84C15V SOT-23 Package
DZ506	3CW33V9	Zener Diode 0.25W Surface Mount BZX84C3V9 SOT-23 Package
DZ600	3CW33V9	Zener Diode 0.25W Surface Mount BZX84C3V9 SOT-23 Package
DZ601	3CW33V9	Zener Diode 0.25W Surface Mount BZX84C3V9 SOT-23 Package
DZ602	3CW34V7	Zener Diode 0.25W Surface Mount BZX84C4V7 SOT-23 Package
DZ603	3CW34V7	Zener Diode 0.25W Surface Mount BZX84C4V7 SOT-23 Package
DZ604	3CW34V7	Zener Diode 0.25W Surface Mount BZX84C4V7 SOT-23 Package
DZ700	3CW315V	Zener Diode 0.25W Surface Mount BZX84C15V SOT-23 Package
DZ701	3CW34V7	Zener Diode 0.25W Surface Mount BZX84C4V7 SOT-23 Package
DZ800	3CW322V	Zener Diode 0.25W Surface Mount BZX84C22V SOT-23 Package
DZ801	3CW35V6	Zener Diode 0.25W Surface Mount BZX84C5V6 SOT-23 Package
FHLDR200	8S004	Fuseholder 20MM PCB
FHLDR201	8S004	Fuseholder 20MM PCB
FS200/201	C56225	115/230 vac units T2.5A fuse
FS200/201	C54232	100 vac fuse T3.15A fuse
FS202	C3501	Fuse Littelfuse T500mA SM
FS203	C3202	Fuse Littelfuse T2A SM
FS204	C3202	Fuse Littelfuse T2A SM
HS200	F007	Heatsink TO-220 6043PB 23 Degc/W Clip ON
HS201	F008	Heatsink TO-220 SW50-2 8.8 Deg C/W
HS202	F007	Heatsink TO-220 6043PB 23 Degc/W Clip ON
IC300	5S408DY	IC Analogue Mux DG408DY SO-16 Package
IC301	5S408DY	IC Analogue Mux DG408DY SO-16 Package
IC302	5S408DY	IC Analogue Mux DG408DY SO-16 Package
IC303	5S408DY	IC Analogue Mux DG408DY SO-16 Package
IC304	5B072D	Opamp TL072CD SO-8 Package
IC305	5B072D	Opamp TL072CD SO-8 Package
IC306	5B2114M	Opamp NJM2114M DMP-8 Package
IC307	5B2114M	Opamp NJM2114M DMP-8 Package
IC308	5B2114M	Opamp NJM2114M DMP-8 Package
IC309	5A2310	IC Audio Digital Stereo Volume Ctrl
IC400	5B072D	Opamp TL072CD SO-8 Package
IC500	5B072D	Opamp TL072CD SO-8 Package
IC600	5K7400	IC Quad 2-INPUT Nand Gate 74HC00D SMT
IC601	5K7414	IC Hex Inverting Schmitt Trigger 74HC14 SMT
IC602	L027AY	Programmed H8HD64F3664FP With Software For A80
IC603	L028AY	Programmed HT48R30A-1 With Software For P80
IC603-1	8S028N	IC Skt 28PIN 0.3IN
IC604	5G2402	IC Eeprom I2C 2kbit SO-8 Package
IC700	5B324D	Opamp Quad ON Semi LM324D SO-14 Package
IC701	5K4040	IC 12-STAGE Binary Ripple COUNTER74HCT4040D SMT
IC703	5K7474T	IC Latch 74HCT74D SMT
IC800	5H6351	IC VFD Driver PT6351
IC801	5H809308	IC Micro Reset LM809M3-3.08 SOT-23
ITEM100-1	L943PB	Blank PCB Diva A80 Amp
ITEM101-1	F205	Tape D/Sided 12MM X 70MM DS Polyester 4965
ITEM102-1	8M101	Earth Lead Assy 75MM
ITEM103-1	E802AP	Pad Damping 15x6x3MM Sorbothane
ITEM103-2	E802AP	Pad Damping 15x6x3MM Sorbothane
ITEM104-1	F232	13/16 inch O-Ring

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Designator	Part	Description
ITEM104-2	F232	13/16 inch O-Ring
ITEM104-3	F232	13/16 inch O-Ring
ITEM104-4	F232	13/16 inch O-Ring
ITEM203-1	F006	Clip For SW Profile Heatsink
ITEM300-1	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM300-2	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM300-3	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM300-4	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM300-5	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM300-6	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM301-1	E802AP	Pad Damping 15x6x3MM Sorbothane
ITEM301-2	E802AP	Pad Damping 15x6x3MM Sorbothane
ITEM400-1	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM500-1	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM600-1	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM700-1	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM700-2	8K004	Con Jumper Socket 0.1IN Gold Blue
ITEM700-3	8K004	Con Jumper Socket 0.1IN Gold Blue
L100	7D002C	Inductor AC 2u2 Self Bonded
L101	7D002C	Inductor AC 2u2 Self Bonded
L700	7F004	Ferrite Bead SM1206 70R@100MHz
LED800	3D006	LED 3mm Red/Green Tri-Colour L-93WEGW
LED801	3D007	LED 3.1mm Green SLR-37MG3T
LED802	3D007	LED 3.1mm Green SLR-37MG3T
LED803	3D001	LED 5mm Green SLR-56MGT32
LED804	3D001	LED 5mm Green SLR-56MGT32
LED805	3D001	LED 5mm Green SLR-56MGT32
LED806	3D010	LED SM Red SML-010LT
LS100	8D420G	Connector 4mm 4 Way Vertical
LS101	8D420G	Connector 4mm 4 Way Vertical
R100	1C856	Resistor Carbon Film 2W 5% 5R6
R101	1C856	Resistor Carbon Film 2W 5% 5R6
R102	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R103	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R104	1E133	Resistor Carbon Film 1W 5% 330R
R105	1E133	Resistor Carbon Film 1W 5% 330R
R106	1E110	Resistor Carbon Film 1W 5% 100R
R107	1E110	Resistor Carbon Film 1W 5% 100R
R108	1H122	Resistor Metal Film 0.25W 1% 220R
R109	1H122	Resistor Metal Film 0.25W 1% 220R
R110	1H122	Resistor Metal Film 0.25W 1% 220R
R111	1H122	Resistor Metal Film 0.25W 1% 220R
R112	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R113	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R114	1H000	Resistor Metal Film 0.25W 0R0
R203	1G822	Resistor Fusible 0.33W 5% 2R2
R204	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R205	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R206	1M010	Resistor 0805 Surface Mount 0.125W 1% 10R
R207	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R208	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R209	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R210	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R211	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R213	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R214	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R215	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R216	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R217	1M168	Resistor 0805 Surface Mount 0.125W 1% 680R
R218	1H122	Resistor Metal Film 0.25W 1% 220R
R219	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R

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Designator	Part	Description
R221	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R300	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R301	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R302	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R303	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R304	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R305	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R306	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R307	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R308	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R309	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R310	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R311	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R312	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R313	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R314	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R315	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R316	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R317	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R318	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R319	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R320	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R321	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R322	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R323	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R324	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R325	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R326	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R327	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R328	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R329	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R330	1M510	Resistor 0805 Surface Mount 0.125W 1% 1M0
R331	1M510	Resistor 0805 Surface Mount 0.125W 1% 1M0
R332	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R333	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R334	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R335	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R336	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R337	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R338	1M010	Resistor 0805 Surface Mount 0.125W 1% 10R
R339	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R340	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R341	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R342	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R343	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R344	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R345	1M182	Resistor 0805 Surface Mount 0.125W 1% 820R
R346	1M182	Resistor 0805 Surface Mount 0.125W 1% 820R
R347	1M182	Resistor 0805 Surface Mount 0.125W 1% 820R
R348	1M182	Resistor 0805 Surface Mount 0.125W 1% 820R
R349	1M468	Resistor 0805 Surface Mount 0.125W 1% 680K
R350	1M468	Resistor 0805 Surface Mount 0.125W 1% 680K
R351	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R352	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R353	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R354	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R355	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R356	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R357	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R358	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R359	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K

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Designator	Part	Description
R360	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R361	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R362	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R363	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R364	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R365	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R366	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R367	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R368	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R369	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R370	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R371	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R372	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R373	1M333	Resistor 0805 Surface Mount 0.125W 1% 33K
R374	1M333	Resistor 0805 Surface Mount 0.125W 1% 33K
R375	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R376	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R377	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R378	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R379	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R380	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R381	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R382	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R383	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R384	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R385	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R386	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R387	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R388	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R389	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R390	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R391	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R392	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R393	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R394	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R395	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R396	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R397	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R398	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R399	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R400	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R401	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R402	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R403	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R404	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R405	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R406	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R407	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R408	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R409	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R410	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R411	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R412	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R413	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R414	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R415	1H122	Resistor Metal Film 0.25W 1% 220R
R416	1H122	Resistor Metal Film 0.25W 1% 220R
R417	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R418	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R419	1M447	Resistor 0805 Surface Mount 0.125W 1% 470K
R420	1M510	Resistor 0805 Surface Mount 0.125W 1% 1M0

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Designator	Part	Description
R421	1M447	Resistor 0805 Surface Mount 0.125W 1% 470K
R422	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R423	1H122	Resistor Metal Film 0.25W 1% 220R
R424	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R425	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R426	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R427	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R428	1H122	Resistor Metal Film 0.25W 1% 220R
R429	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R430	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R431	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R432	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R433	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R434	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R435	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R436	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R437	1M256	Resistor 0805 Surface Mount 0.125W 1% 5K6
R438	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R439	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R440	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R441	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R442	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R443	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R444	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R445	1H022	Resistor Metal Film 0.25W 1% 22R
R446	1H022	Resistor Metal Film 0.25W 1% 22R
R447	1H182	Resistor Metal Film 0.25W 1% 820R
R448	1H182	Resistor Metal Film 0.25W 1% 820R
R449	1H182	Resistor Metal Film 0.25W 1% 820R
R450	1H182	Resistor Metal Film 0.25W 1% 820R
R451	1H318	Resistor Metal Film 0.25W 1% 18K
R452	1E210	Resistor Carbon Film 1W 5% 1K0
R453	1E210	Resistor Carbon Film 1W 5% 1K0
R454	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R456	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R457	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R458	1H318	Resistor Metal Film 0.25W 1% 18K
R459	1C856	Resistor Carbon Film 2W 5% 5R6
R460	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R500	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R501	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R502	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R503	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R504	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R505	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R506	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R507	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R508	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R509	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R510	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R511	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R512	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R513	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R514	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R515	1H122	Resistor Metal Film 0.25W 1% 220R
R516	1H122	Resistor Metal Film 0.25W 1% 220R
R517	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R518	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R519	1M447	Resistor 0805 Surface Mount 0.125W 1% 470K
R520	1M510	Resistor 0805 Surface Mount 0.125W 1% 1M0
R521	1M447	Resistor 0805 Surface Mount 0.125W 1% 470K

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Designator	Part	Description
R522	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R523	1H122	Resistor Metal Film 0.25W 1% 220R
R524	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R525	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R526	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R527	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R528	1H122	Resistor Metal Film 0.25W 1% 220R
R529	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R530	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R531	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R532	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R533	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R534	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R535	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R536	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R537	1M256	Resistor 0805 Surface Mount 0.125W 1% 5K6
R538	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R539	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R540	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R541	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R542	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R543	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R544	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R545	1H022	Resistor Metal Film 0.25W 1% 22R
R546	1H022	Resistor Metal Film 0.25W 1% 22R
R547	1H182	Resistor Metal Film 0.25W 1% 820R
R548	1H182	Resistor Metal Film 0.25W 1% 820R
R549	1H182	Resistor Metal Film 0.25W 1% 820R
R550	1H182	Resistor Metal Film 0.25W 1% 820R
R551	1H318	Resistor Metal Film 0.25W 1% 18K
R552	1E210	Resistor Carbon Film 1W 5% 1K0
R553	1E210	Resistor Carbon Film 1W 5% 1K0
R554	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R556	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R557	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R558	1H318	Resistor Metal Film 0.25W 1% 18K
R559	1C856	Resistor Carbon Film 2W 5% 5R6
R560	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R600	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R601	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R602	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R603	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R604	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R605	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R606	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R607	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R608	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R609	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R610	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R611	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R612	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R613	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R614	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R615	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R616	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R617	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R618	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R619	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R620	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R621	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R622	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K

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Designator	Part	Description
R623	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R624	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R625	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R626	1M010	Resistor 0805 Surface Mount 0.125W 1% 10R
R627	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R628	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R629	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R630	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R631	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R632	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R633	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R634	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R635	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R636	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R637	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R638	1M168	Resistor 0805 Surface Mount 0.125W 1% 680R
R639	1M168	Resistor 0805 Surface Mount 0.125W 1% 680R
R640	1M333	Resistor 0805 Surface Mount 0.125W 1% 33K
R641	1M333	Resistor 0805 Surface Mount 0.125W 1% 33K
R642	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R643	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R644	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R645	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R646	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R647	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R648	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R649	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R650	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R651	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R652	1M333	Resistor 0805 Surface Mount 0.125W 1% 33K
R653	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R654	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R655	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R656	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R657	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R658	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R659	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R660	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R661	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R662	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R663	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R665	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R700	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R701	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R702	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R703	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R704	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R705	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R706	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R707	1M247	Resistor 0805 Surface Mount 0.125W 1% 4K7
R708	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R709	1M333	Resistor 0805 Surface Mount 0.125W 1% 33K
R710	1M333	Resistor 0805 Surface Mount 0.125W 1% 33K
R711	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R712	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R713	1M410	Resistor 0805 Surface Mount 0.125W 1% 100K
R714	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R715	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R716	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R717	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R718	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0

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Designator	Part	Description
R719	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R720	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R721	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R722	1M168	Resistor 0805 Surface Mount 0.125W 1% 680R
R723	1M168	Resistor 0805 Surface Mount 0.125W 1% 680R
R724	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R725	1M322	Resistor 0805 Surface Mount 0.125W 1% 22K
R726	1M022	Resistor 0805 Surface Mount 0.125W 1% 22R
R727	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R728	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R733	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R735	1M047	Resistor 0805 Surface Mount 0.125W 1% 47R
R736	1M233	Resistor 0805 Surface Mount 0.125W 1% 3K3
R737	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R738	1M222	Resistor 0805 Surface Mount 0.125W 1% 2K2
R800	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R801	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R802	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R803	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R804	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R805	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R806	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R807	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R808	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R809	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R810	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R811	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R812	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R813	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R814	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R815	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R816	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R817	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R818	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R819	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R820	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R821	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R822	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R823	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R824	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R825	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R826	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R827	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R828	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R829	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R830	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R831	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R832	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R833	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R834	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R835	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R836	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
R837	1H122	Resistor Metal Film 0.25W 1% 220R
R838	1H122	Resistor Metal Film 0.25W 1% 220R
R839	1H122	Resistor Metal Film 0.25W 1% 220R
R840	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R841	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R842	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R843	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R844	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R845	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K

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Designator	Part	Description
R846	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R847	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R848	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R849	1M347	Resistor 0805 Surface Mount 0.125W 1% 47K
R850	1M000	Resistor 0805 Surface Mount 0.125W 1% 0R0
R851	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R852	1M310	Resistor 0805 Surface Mount 0.125W 1% 10K
R853	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R854	1M110	Resistor 0805 Surface Mount 0.125W 1% 100R
R855	1M210	Resistor 0805 Surface Mount 0.125W 1% 1K0
R856	1M133	Resistor 0805 Surface Mount 0.125W 1% 330R
REF400	5D431SM	Voltage Reference Adjustable Zener Shunt LM431AIM3 SOT-23 Package
REF500	5D431SM	Voltage Reference Adjustable Zener Shunt LM431AIM3 SOT-23 Package
REG200	5D317T	IC Voltage Regulator ADJ LM317T TO-220 Package
REG201	5D317T	IC Voltage Regulator ADJ LM317T TO-220 Package
REG202	5D337	IC Voltage Regulator Neg ADJ LM337T TO-220 Package
RLY100	A207	Relay 2P1T 24V
RLY101	A207	Relay 2P1T 24V
RLY102	A216	Relay 2P2T 5V SM
RLY200	A219	Relay 2P2T 5V
RLY300	A216	Relay 2P2T 5V SM
RTH600	1T007	Thermistor Ptc SM 110 Degrees C
RTH601	1T007	Thermistor Ptc SM 110 Degrees C
RV400	6F122	Preset H Mount 220R Lin
RV500	6F122	Preset H Mount 220R Lin
RX800	B2107	IR Receiver Module Kodenshi PIC-37043TM2
SH200	E5402	Shield EMC IEC Inlet Mains
SKT100	8D301	Con Jack 6mm Stereo
SKT200	8A001	Mains IEC Inlet 3PIN PCB Ins
SKT300	8D225	Phono Skt 4-WAY Gold
SKT301	8D225	Phono Skt 4-WAY Gold
SKT302	8D225	Phono Skt 4-WAY Gold
SKT303	8D225	Phono Skt 4-WAY Gold
SKT304	8D225	Phono Skt 4-WAY Gold
SKT700	8D302	Con Jack 3.5mm Dual Mono
SW200	A1404	Switch Slide Volt Sel
SW800	A1211	ROT Encoder Vert Alps
SW801	A1511	Switch Tact Low Profile No Gnd Pin
SW802	A1511	Switch Tact Low Profile No Gnd Pin
SW803	A1511	Switch Tact Low Profile No Gnd Pin
SW804	A1511	Switch Tact Low Profile No Gnd Pin
SW805	A1511	Switch Tact Low Profile No Gnd Pin
SW806	A1511	Switch Tact Low Profile No Gnd Pin
SW807	A1511	Switch Tact Low Profile No Gnd Pin
SW808	A1511	Switch Tact Low Profile No Gnd Pin
SW809	A1511	Switch Tact Low Profile No Gnd Pin
SW810	A1511	Switch Tact Low Profile No Gnd Pin
SW811	A1511	Switch Tact Low Profile No Gnd Pin
SW812	A1506	Switch Tact Sdtx
TR100	4B179	Transistor BD179 TO126 Package
TR101	4B179	Transistor BD179 TO126 Package
TR200	4A849B	Transistor BC849B SOT23 Package
TR202	4AFMMT497	Transistor FMMT497 SOT23 Package
TR300	4A849B	Transistor BC849B SOT23 Package
TR400	4A859B	Transistor BC859B SOT23 Package
TR401	4A859B	Transistor BC859B SOT23 Package
TR402	4AFMMT597	Transistor FMMT597 SOT23 Package
TR403	4AFMMT597	Transistor FMMT597 SOT23 Package
TR404	4AFMMT597	Transistor FMMT597 SOT23 Package
TR405	4AFMMT597	Transistor FMMT597 SOT23 Package
TR406	4AFMMT597	Transistor FMMT597 SOT23 Package

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Designator	Part	Description
TR407	4AFMMT497	Transistor FMMT497 SOT23 Package
TR408	4AFMMT497	Transistor FMMT497 SOT23 Package
TR409	4AFMMT497	Transistor FMMT497 SOT23 Package
TR410	4AFMMT497	Transistor FMMT497 SOT23 Package
TR411	4AFMMT497	Transistor FMMT497 SOT23 Package
TR412	4AZDT6758	Transistor Npn/Pnp ZDT6758 SM8 Package
TR413	4CSAP15N	Transistor SAP15NY
TR414	4AZDT758	Transistor Dual PNP ZDT758 SM8 Package
TR415	4CSAP15P	Transistor SAP15PY
TR416	4A849B	Transistor BC849B SOT23 Package
TR417	4A849B	Transistor BC849B SOT23 Package
TR500	4A859B	Transistor BC859B SOT23 Package
TR501	4A859B	Transistor BC859B SOT23 Package
TR502	4AFMMT597	Transistor FMMT597 SOT23 Package
TR503	4AFMMT597	Transistor FMMT597 SOT23 Package
TR504	4AFMMT597	Transistor FMMT597 SOT23 Package
TR505	4AFMMT597	Transistor FMMT597 SOT23 Package
TR506	4AFMMT597	Transistor FMMT597 SOT23 Package
TR507	4AFMMT497	Transistor FMMT497 SOT23 Package
TR508	4AFMMT497	Transistor FMMT497 SOT23 Package
TR509	4AFMMT497	Transistor FMMT497 SOT23 Package
TR510	4AFMMT497	Transistor FMMT497 SOT23 Package
TR511	4AFMMT497	Transistor FMMT497 SOT23 Package
TR512	4AZDT6758	Transistor Npn/Pnp ZDT6758 SM8 Package
TR513	4CSAP15N	Transistor SAP15NY
TR514	4AZDT758	Transistor Dual PNP ZDT758 SM8 Package
TR515	4CSAP15P	Transistor SAP15PY
TR516	4A849B	Transistor BC849B SOT23 Package
TR517	4A849B	Transistor BC849B SOT23 Package
TR600	4A849B	Transistor BC849B SOT23 Package
TR602	4AFMMT597	Transistor FMMT597 SOT23 Package
TR603	4AFMMT597	Transistor FMMT597 SOT23 Package
TR604	4AFMMT597	Transistor FMMT597 SOT23 Package
TR605	4AFMMT597	Transistor FMMT597 SOT23 Package
TR608	4AFMMT497	Transistor FMMT497 SOT23 Package
TR700	4B179	Transistor BD179 TO126 Package
TR701	4A849B	Transistor BC849B SOT23 Package
TR702	4D10KP	Digital Transistor MMUN2111LT1 SOT23 Package
TR800	4A849B	Transistor BC849B SOT23 Package
TR801	4A849B	Transistor BC849B SOT23 Package
TR802	4D10KP	Digital Transistor MMUN2111LT1 SOT23 Package
TR803	4D10KP	Digital Transistor MMUN2111LT1 SOT23 Package
TR804	4D10KP	Digital Transistor MMUN2111LT1 SOT23 Package
TR805	4D10KP	Digital Transistor MMUN2111LT1 SOT23 Package
TR806	4AFMMT597	Transistor FMMT597 SOT23 Package
TX200	7A9301	115/230 vac only transformer 9V + 9V 3VA
TX200	L907TX	100 vac only transformer 9V + 9V 3VA
X600	7W005	Ceramic Resonator 4.00MHz
X800	7W005	Ceramic Resonator 4.00MHz

ARCAM

All parts can be ordered via spares@arcam.co.uk

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