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# IRT 1RU

# Type DDS-1100

# G.703 8x4 Switcher

**Designed and manufactured in Australia**

**IRT can be found on the Internet at:**
**http://www.irtelectronics.com**

# IRT 1RU

# Type DDS-1100

# G.703 8x4 Switcher

# Instruction Book

Table of Contents



This instruction book applies to units later than S/N 0206001.

## Operational Safety:

### WARNING

Operation of electronic equipment involves the use of voltages and currents that may be dangerous to human life. Note that under certain conditions dangerous potentials may exist in some circuits when power controls are in the **OFF** position. Maintenance personnel should observe all safety regulations.

Do not make any adjustments inside equipment with power **ON** unless proper precautions are observed. All internal adjustments should only be made by suitably qualified personnel. All operational adjustments are available externally without the need for removing covers or use of extender cards.

# IRT Eurocard
# Type DDS-1100
# G.703 8x4 Switcher

## General Description

The DDS-1100 is a broadband 8x4 switcher for use with 2, 8, 34 & 45 Mb/s G.703 compliant signals.

Any of the 8 inputs can be switched to any or all of the 4 outputs.

The switcher is capable of being controlled locally, using front panel switches, or remotely, via an RS485 interface.

The switcher is mounted in a 1 RU case and may be powered by a multi voltage AC mains input.

All inputs and outputs are via 75Ω BNC connectors mounted on the rear of the chassis.

### Standard features:

- **Routing switcher for use with such signals as 2, 8, 34 or 45 Mb/s G.703 signals**
- **8 inputs**
- **4 outputs.**
- **Local or remote control.**

# Technical Specifications

## Type DDS-1100

### Inputs:

| | |
|---|---|
| Input signal | Broadband signals such as 2/8/34/45 Mb/s compliant to G.703 |
| Number | 8. |
| Type | AC coupled |
| Impedance | 75 Ω terminated |
| Return loss | Better than –15 dB @ 100 MHz. |

### Output:

| | |
|---|---|
| Output signal | As per input |
| Number | 4 |
| Type | DC coupled |
| Impedance | Nominal 75 Ω source |

### Performance:

(8 x 2 configuration.)

| | |
|---|---|
| Frequency response | >200 MHz (-3 dB point)<br>(any input to any output) |
| Group delay | 3 ns to 200 MHz |
| Gain input – output | ±1 dB @ 100 MHz |
| Intrinsic jitter | <0.05 UIp-p |

### Logic interface:

RS485 Baud Rates: 38900, 19200, 9600, 4800

### Indicators:

| | |
|---|---|
| Front Panel (LED) | 1) Power on.<br>2) Switch tally. |

| | |
|---|---|
| Power requirements | 110/130/220/240 Vac ± 10%. |
| Power consumption | <10 VA. |

### Connectors:

| | |
|---|---|
| Signal | BNC. |
| Remote | 9 pin 'D' female. |
| Power AC | IEC 320. |

### Other:

| | | |
|---|---|---|
| Temperature range | | 0 - 50° C ambient. |
| Mechanical | | IRT 19" rack chassis with input, remote interface, output and power connections on the rear panel. |
| Finish: | Front panel | Grey, black lettering & red IRT logo. |
| | Rear panel | Silk-screened bright passivated steel, silk-screened black lettering. |
| Dimensions | | 44 mm x 480 mm x 230 mm. |

**Due to our policy of continuing development, these specifications are subject to change without notice.**

# Installation

## Pre-installation:

### Handling:

This equipment may contain or be connected to static sensitive devices and proper static free handling precautions should be observed.

Where individual circuit cards are stored, they should be placed in antistatic bags. Proper antistatic procedures should be followed when inserting or removing cards from these bags.

### Power:

AC mains supply: Ensure that operating voltage of unit and local supply voltage match and that correct rating fuse is installed for local supply.

### Earthing:

The earth path is dependent on the type of frame selected. In every case particular care should be taken to ensure that the frame is connected to earth for safety reasons. See frame manual for details.

**Signal earth:** For safety reasons a connection is made between signal earth and chassis earth. No attempt should be made to break this connection.

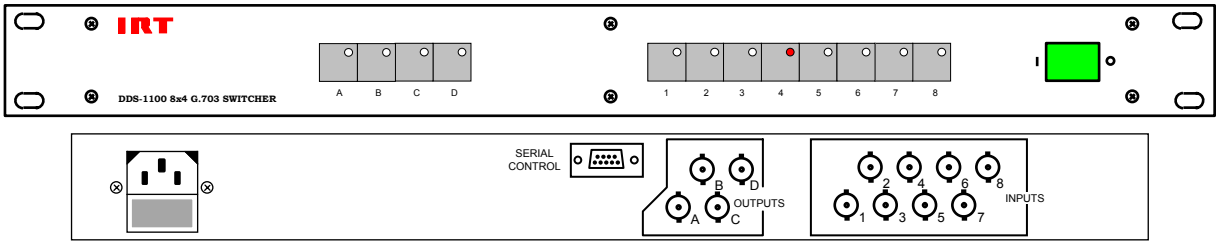
## Signal Connections:

**G.703 Inputs:**
Eight (8) inputs marked 1 to 8 are 75 Ohm BNC type for connection to broadband signals, such as 2/8/34/45 Mb/s compliant to G.703, using quality 75 Ohm coaxial cable. Inputs on rear assembly correspond to the eight pushbuttons on the front panel marked INPUTS 1 to 8.

**G.703 Outputs:**
Four (4) outputs marked A, B, C, D are 75 Ohm BNC type for connection to broadband equipment, requiring 2/8/34/45 Mb/s compliant to G.703, using quality 75 Ohm coaxial cable. Outputs on rear assembly correspond to the four pushbuttons on the front panel marked OUTPUTS A, B, C & D.

### Front & rear panel connector diagrams

The following front panel and rear assembly drawings are not to scale and are intended to show connection order and approximate layout only.



# Operation

**Front panel control:**
Press desired OUTPUT A, B, C or D, then press which input that is to be switched to that output.

For example, suppose the requirement was for input 1 to go to outputs C and D, input 2 was to go to output B and input 8 was to go to output A.

In any order, momentarily press:
OUTPUT A followed by INPUT 8;
OUTPUT B followed by INPUT 2;
OUTPUT C followed by INPUT 1; and
OUTPUT D followed by INPUT 1.

The front panel switches have a red LED which illuminates when the pushbutton is pressed. Pressing any of the OUTPUT switches will show what INPUT switch has already been set to match. To reset simply press another desired INPUT.

**Serial control:**

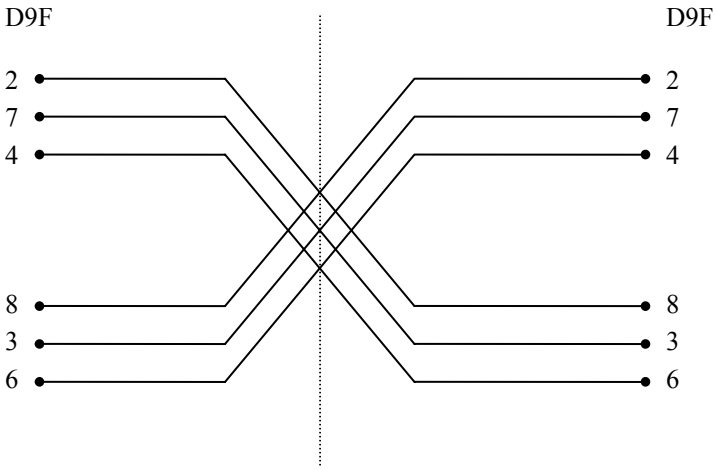
Baud rate is 9600, 8 bits of data in each byte, no parity

SELECT CROSSPOINT

| | | |
|---|---|---|
| 1 | BREAK | |
| 2 | ADDRESS | Must match setting of Address SW |
| 3 | WORD COUNT | 3 |
| 4 | COMMAND | $80 Row 1<br>$81 Row 2<br>$82 Row 3<br>$83 Row 4 |
| 5 | VALUE | 0 to 7 |
| 6 | CHECK SUM | 8 bit sum of bytes 2 to 5 inclusive. |

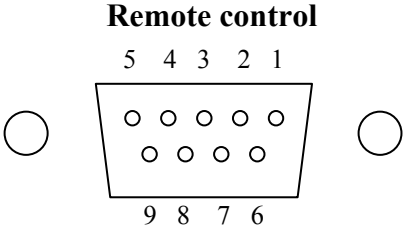
REPORT CROSSPOINT

| | | |
|---|---|---|
| 1 | BREAK | |
| 2 | ADDRESS | Must match setting of Address SW |
| 3 | WORD COUNT | 2 |
| 4 | COMMAND | $40 Row 1<br>$41 Row 2<br>$42 Row 3<br>$43 Row 4 |
| 5 | CHECK SUM | 8 bit sum of bytes 2 to 4 inclusive. |




DB9 pin numbering:

1. Gnd chassis
2. FD-
3. HD+
4. Gnd signal
5. N/C
6. Gnd signal
7. FD+
8. HD-
9. Gnd chassis




9 pin female 'D' connector
as viewed at chassis rear

# Maintenance & Storage

## Maintenance:

No regular maintenance is required.

Care however should be taken to ensure that all connectors are kept clean and free from contamination of any kind. This is especially important in fibre optic equipment where cleanliness of optical connections is critical to performance.

## Storage:

If the equipment is not to be used for an extended period, it is recommended the whole unit be placed in a sealed plastic bag to prevent dust contamination. In areas of high humidity a suitably sized bag of silica gel should be included to deter corrosion.

Where individual circuit cards are stored, they should be placed in antistatic bags. Proper antistatic procedures should be followed when inserting or removing cards from these bags.

# Warranty & Service

Equipment is covered by a limited warranty period of one year from date of first delivery unless contrary conditions apply under a particular contract of supply. For situations when "**No Fault Found**" for repairs, a minimum charge of 1 hour's labour, at IRT's current labour charge rate, will apply, whether the equipment is within the warranty period or not.

Equipment warranty is limited to faults attributable to defects in original design or manufacture. Warranty on components shall be extended by IRT only to the extent obtainable from the component supplier.

## Equipment return:

Before arranging service, ensure that the fault is in the unit to be serviced and not in associated equipment. If possible, confirm this by substitution.

Before returning equipment contact should be made with IRT or your local agent to determine whether the equipment can be serviced in the field or should be returned for repair.

The equipment should be properly packed for return observing antistatic procedures.

The following information should accompany the unit to be returned:

1. A fault report should be included indicating the nature of the fault
2. The operating conditions under which the fault initially occurred.
3. Any additional information, which may be of assistance in fault location and remedy.
4. A contact name and telephone and fax numbers.
5. Details of payment method for items not covered by warranty.
6. Full return address.
7. For situations when "**No Fault Found**" for repairs, a minimum charge of 1 hour's labour will apply, whether the equipment is within the warranty period or not. Contact IRT for current hourly rate.

Please note that all freight charges are the responsibility of the customer.

The equipment should be returned **to the agent who originally supplied the equipment** or, where this is not possible, to IRT direct as follows.

Equipment Service
IRT Electronics Pty Ltd
26 Hotham Parade
ARTARMON
N.S.W. 2064
AUSTRALIA

Phone: 61 2 9439 3744 Fax: 61 2 9439 7439
Email: service@irtelectronics.com

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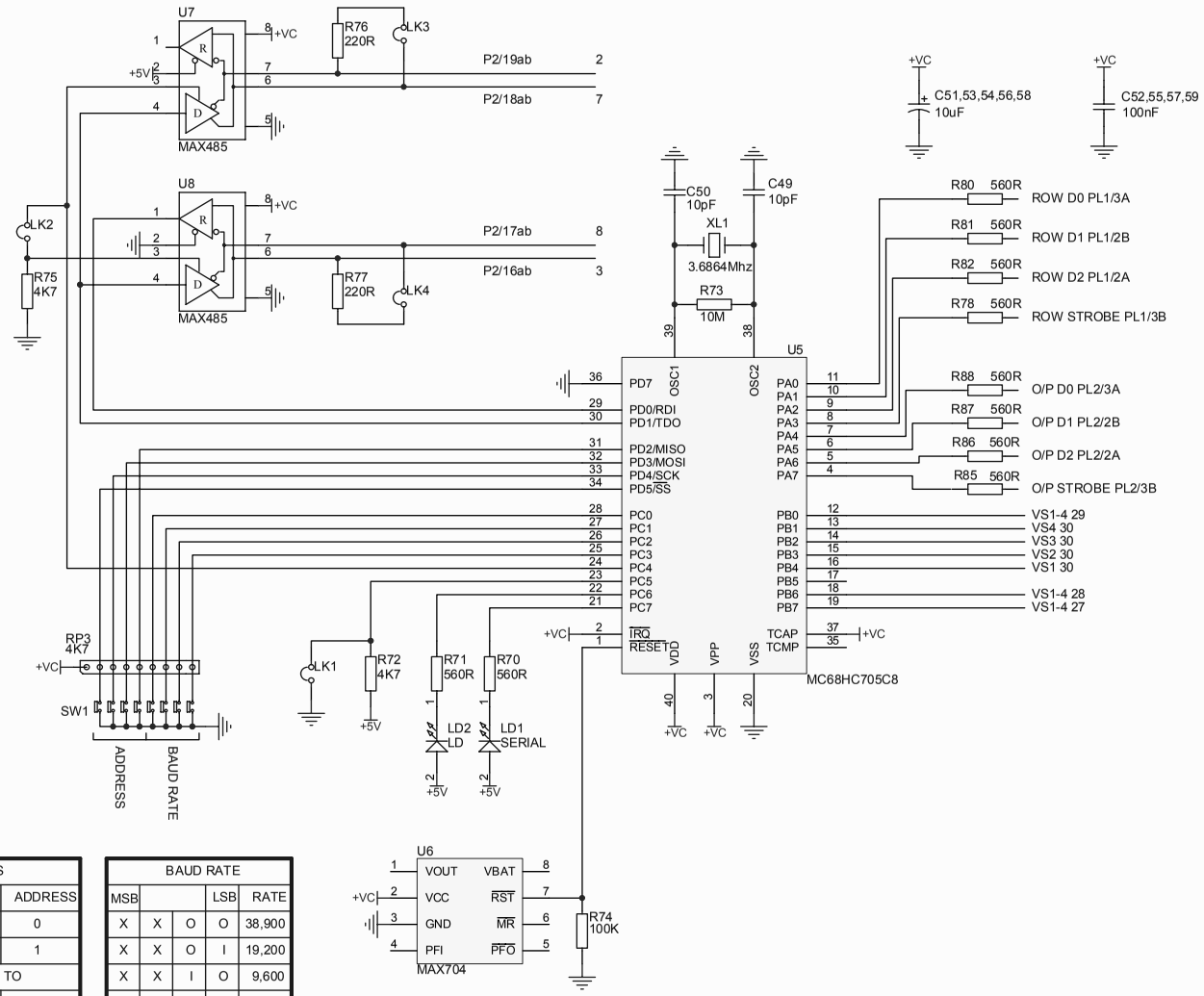
| 804106 | 4 | DDS-1100 8x4 G.703 Switcher circuit diagram – sheet 4 of 4. |




| ADDRESS | | | | |
|---|---|---|---|---|
| MSB | | | LSB | ADDRESS |
| O | O | O | O | 0 |
| O | O | O | I | 1 |
| THROUGH TO | | | | |
| I | I | I | I | 15 |

| BAUD RATE | | | | |
|---|---|---|---|---|
| MSB | | | LSB | RATE |
| X | X | O | O | 38,900 |
| X | X | O | I | 19,200 |
| X | X | I | O | 9,600 |
| X | X | I | I | 4,800 |

Name
804106S2.SCH

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804106S3.SCH

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804106S4.SCH

**PC804189**

1 12-03-02



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CHECKED
ENG. APP.
Revision:
Date: 6-Oct-2009

IRT

SIZE A3

Title DSS-1100
8x4 G.703 SWITCHER

SCALE N.T.S.

Drawing No. 804106

Sheet 1 of 4

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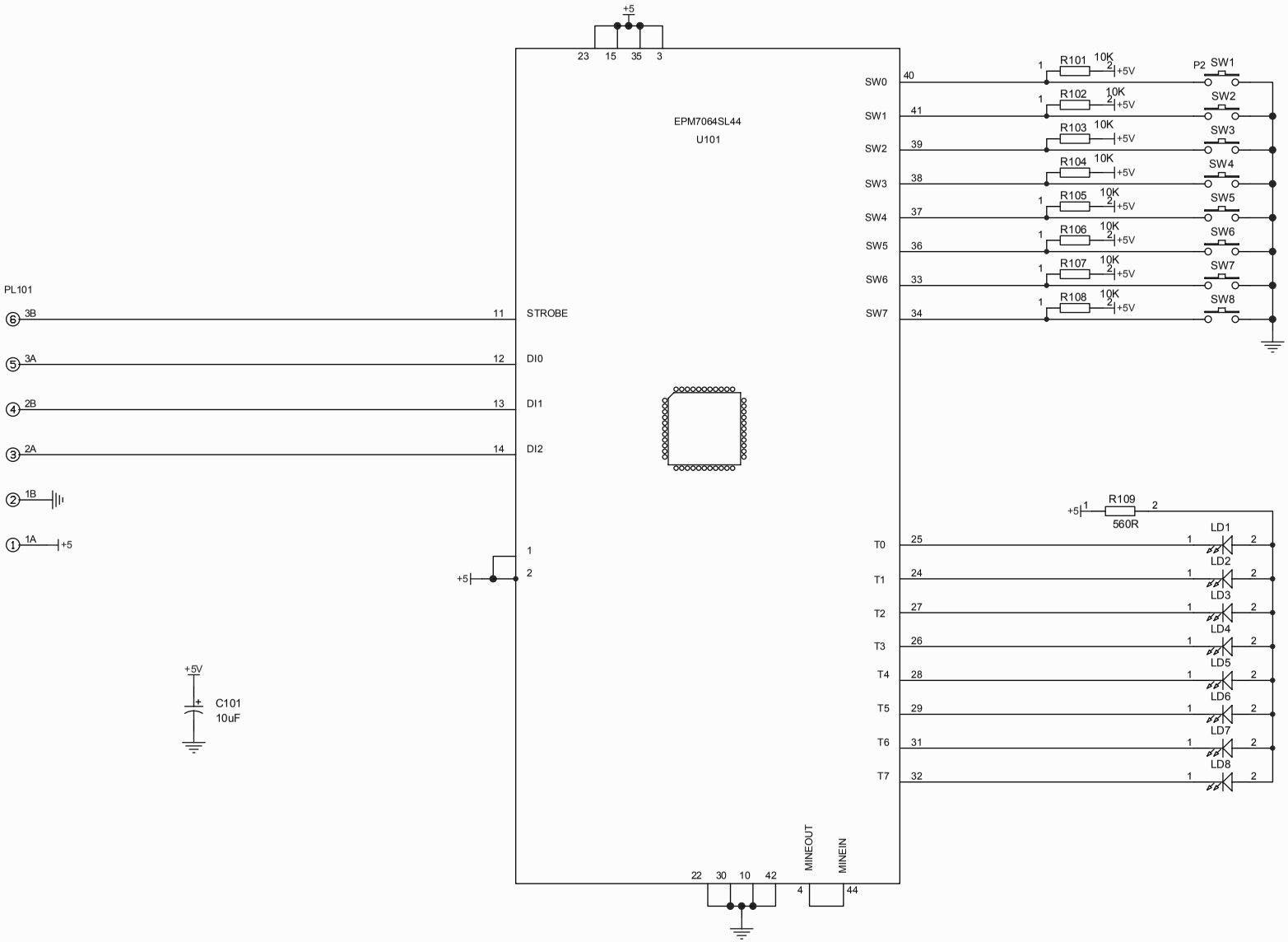


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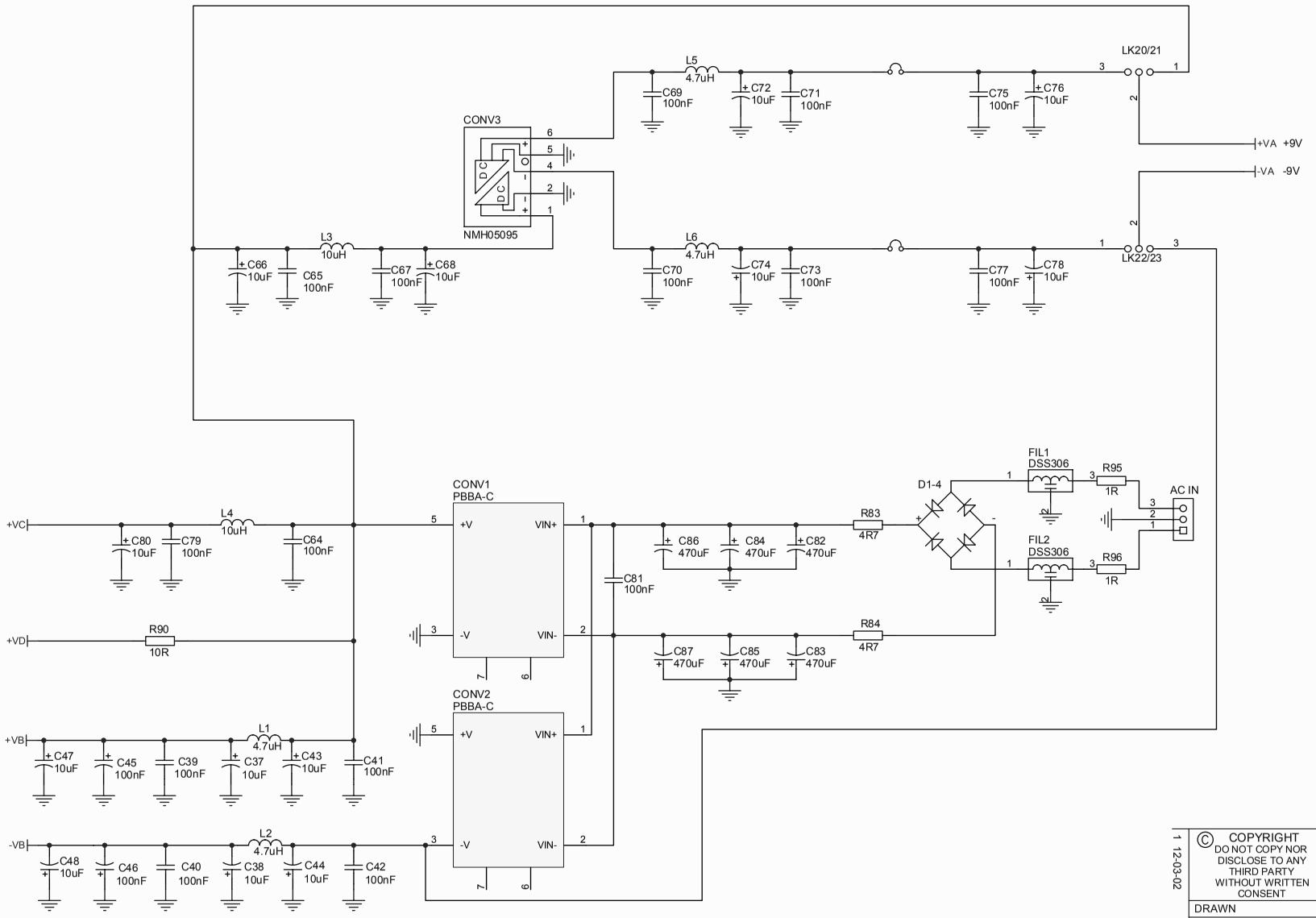
| | DRAWN | SIZE A3 | Title DSS-1100 8x4 G.703 SWITCHER |
| | CHECKED | SCALE N.T.S. | Drawing No. 804106 — Sheet 2 of 4 |
| | ENG. APP. | | |
| | Revision: | IRT Electronics Pty. Ltd. ARTARMON NSW AUSTRALIA 2064 | |
| | Date: 6-Oct-2009 | | |

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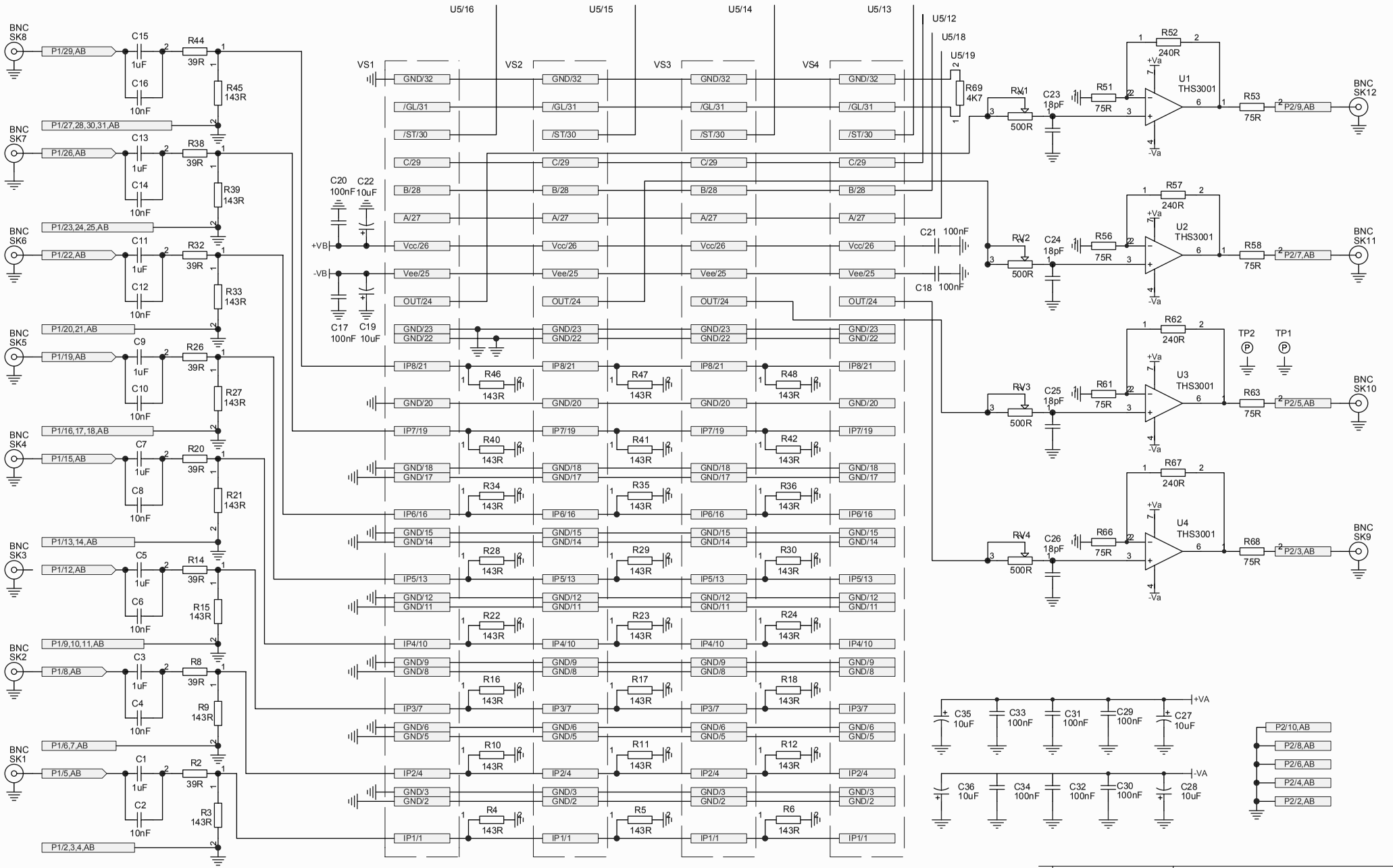




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|---|---|---|
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