

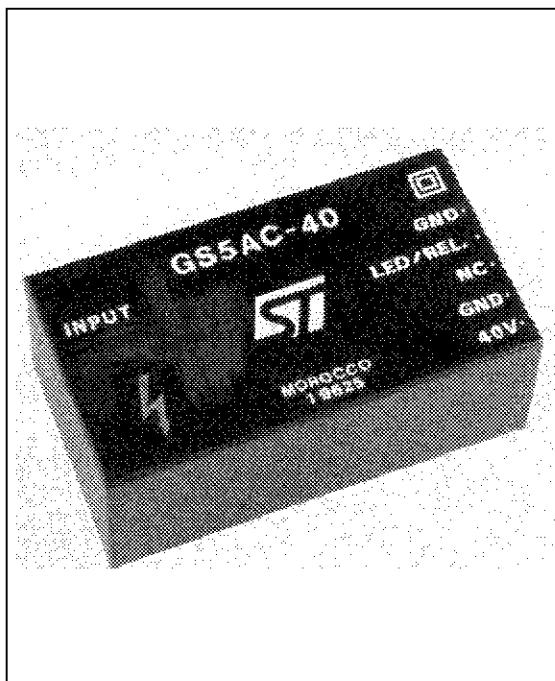
## ISDN AC-DC CONVERTER

PRELIMINARY DATA

| Type     | V <sub>i</sub> | V <sub>o</sub> | I <sub>o</sub> |
|----------|----------------|----------------|----------------|
| GS5AC-40 | 180 to 264 V   | out 1: 40 V    | 110 mA         |
|          |                | out 2: 40 V    | 10 mA          |

### FEATURES

- Large Input voltage range: 180 to 264 VRMS
- Input filter to meet EMI requirements
- Peak input overvoltage whitstanding
- Input fuse
- Input to output insulation
- 2 insulated outputs:
  - Vo1 = 35 to 42 V for "S" interface
  - Vo2 = 36 to 47 V for external relay and LED driver
- "S" interface output characteristics:
  - Peak output of 8 W for 150 ms
  - Typical output power: 4,5 W
  - Output filtering to meet ETSI requirements
  - Hold up time: 20 ms with 4,5 W output power
  - Continuous short circuit protection
  - Peak overvoltage withstand: 250 V for 10/700 µs
- Mechanical dimensions (LxWxH): 80x43x30 mm



### DESCRIPTION

The GS5AC-40 converter has been designed for an ISDN-NTBA (Network Termination Basic Access) system with either 4B3T or 2B1Q standard trasmission.

The converter is able to deliver 40V/110 mA for "S" interface and is equipped also with a second, auxiliary 40V/10 mA output for relay and LED driving. The converter offers short-circuit protection on both outputs (short-circuit on 40V output doesn't affect relay/LED output and the input power never exceeds the limit of 15 W) and also provides to remove the auxiliary (relay & LED) output when the mains is missing, thus allowing the use of a second

"emergency" voltage source (relay contacts are released). 3000 VRMS insulation voltage for 60 seconds is provided between input and the outputs. Output 1 and Output 2 share the same common ground (pin 4 is internally connected with pin 6).

The design of the module has been conducted using, as reference standards, the following:

EN 60950, VDE0878 part 1 class B (EMC), EN55022 class B (EMC), CCITT 430, ETS 300 012 and ETS 300 047 (ISDN BASIC ACCESS, Safety and Protection); anyway, please note that no certification processes have been carried out on the module itself.

## GS5AC-40

### ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25^{\circ}\text{C}$ unless otherwise specified)

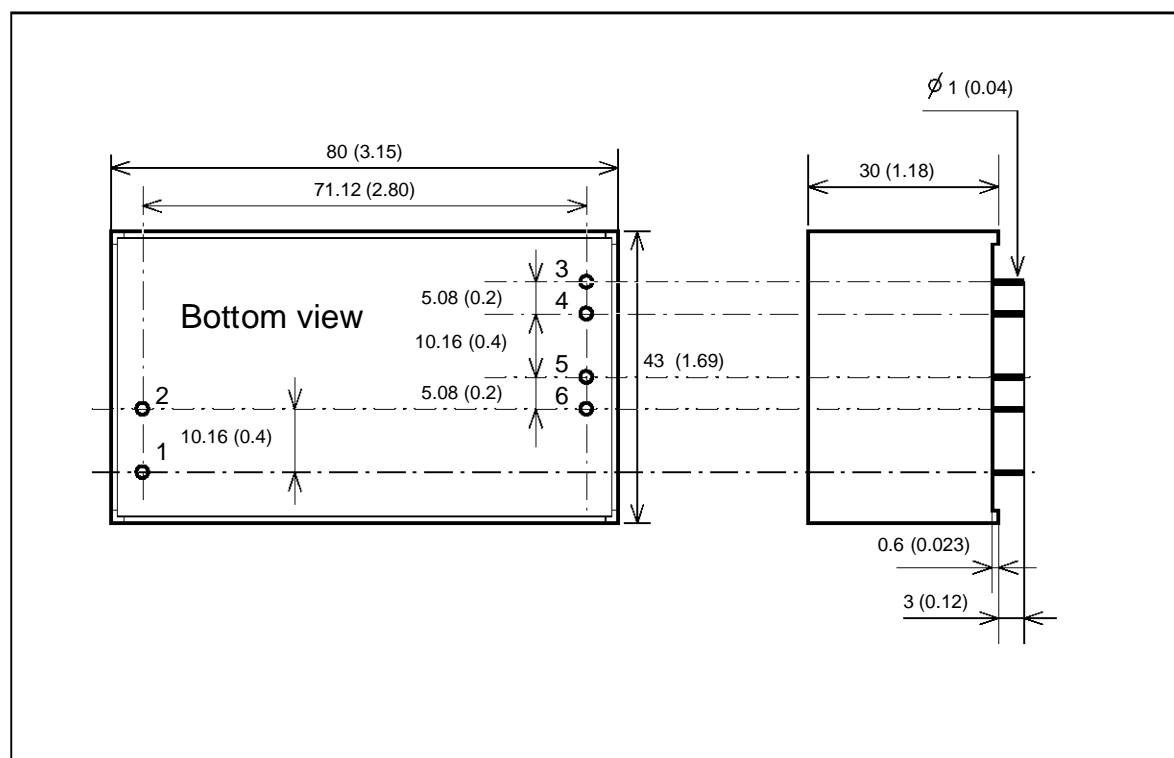
Std. Conditions:

**$V_{in} = 180$  to  $264\text{ V}_{RMS}$**

**$P_{o1} = 0$  to  $4.5\text{ W}$     $I_{o2} = 0$  to  $10\text{ mA}$     $V_{o2} = 36$  to  $47\text{ V}$**

| Symbol     | Parameter                           | Test Conditions  | Min  | Typ | Max  | Unit               |
|------------|-------------------------------------|--|------|-----|------|--------------------|
| $V_i$      | Input Voltage                       |  | 180  |     | 264  | VRMS               |
| $f_i$      | Input Frequency                     | $V_i = 230\text{ VRMS}$  | 43   |     | 56   | Hz                 |
| $P_i$      | Input Power                         | Standard Conditions  |      | 7   |      | W                  |
| $P_i$      | Input Power                         | Abnormal Conditions  |      |     | 15   | W                  |
| $V_{ist}$  | Start up Input Voltage              | Output parameters as per Standard Conditions                           | 100  |     | 150  | VRMS               |
| $V_{o1}$   | Output Voltage 1                    | Standard Conditions  | 36   | 38  | 42   | V                  |
| $V_{o2}$   | Output Voltage 2                    | Standard Conditions  | 36   | 38  | 47   | V                  |
| $V_{o2}$   | Output Voltage 2                    | Emergency Conditions   | 0    |     | 1    | V                  |
| $V_{or1}$  | Output Ripple Voltage 1             | Standard Conditions<br>BW: 0 - 20 MHz                                  |      |     | 100  | mVRMS              |
| $I_{o1}$   | Output Current 1                    | Standard Conditions  | 0    |     | 110  | mA                 |
| $I_{oo1}$  | Output Overcurrent                  | $t = 150\text{ ms}$ , $V_{o1} = 35.5$ to $42\text{ V}$<br>at Switch-On | 180  |     | 250  | mA                 |
| $I_{o1sc}$ | Output 1 short circuit current      |  | 10   | 50  | 80   | mA                 |
| $I_{o2}$   | Output current 2                    | Standard Conditions  | 0    |     | 10   | mA                 |
| $V_{o1pf}$ | Power Fail $V_{o1}$ threshold       | $V_{o2}$ fails below 1 V   | 35.5 |     | 36.5 | V                  |
| $V_{ipf}$  | Power Fail $V_i$ threshold          | Output parameters as per Standard Conditions                           |      | 150 | 180  | VRMS               |
| $V_{ipk}$  | Input Transient Overvoltage         | $t = 10/700\text{ }\mu\text{s}$  | 2.5  |     |      | kV                 |
| $V_{o1pk}$ | Out 1 Transient Overvoltage         | $t = 10/700\text{ }\mu\text{s}$  | 250  |     |      | V                  |
| $V_{is}$   | Insulation Voltage                  | Input to outputs, $t=60\text{ s}$                                      | 3000 |     |      | VRMS               |
| $V_{is}$   | Insulation Voltage (pulse)          | Input to outputs,<br>$t = 10/700\text{ }\mu\text{s}$ (pulse)           | 4    |     |      | kV                 |
| $t_h$      | Hold-up time                        | $V_{in} = 180\text{ VRMS}$<br>Loads as per Std. Conditions             | 20   |     |      | ms                 |
| MTBF       | Mean Time Before Failure            | Ground Fixed, MIL-HDBK-217E  | 1    |     |      | Mhours             |
| $T_{op}$   | Operating Ambient Temperature Range |  | -5   |     | +70  | $^{\circ}\text{C}$ |
| $T_{stg}$  | Storage Temperature Range           |  | - 40 |     | +85  | $^{\circ}\text{C}$ |

Figure 1. Connection diagram and mechanical data

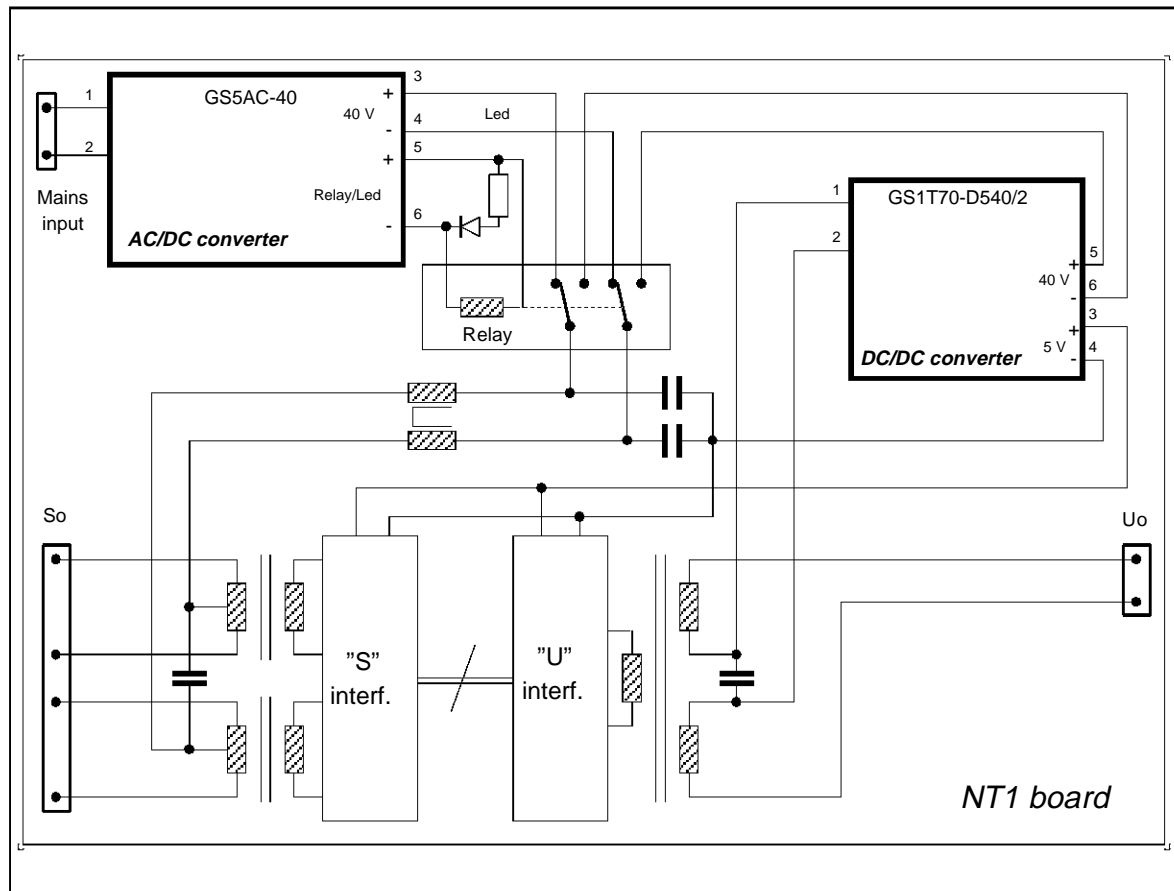


## PIN DESCRIPTION

| Pin   | Function     | Description                     |
|-------|--------------|---------------------------------|
| 1     | AC Input     | Mains input                     |
| 2     | AC Input     | Mains input                     |
| 3     | +Vo1         | + 40 V Output for "S" interface |
| 4 & 6 | - Vo1 & -Vo2 | Output Common Ground            |
| 5     | + Vo2        | + External Relay & LED driver   |

## GS5AC-40

**Figure 2.** Typical application example



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