

# GS1T70-D540/3

# ISDN DC-DC CONVERTER

### **PRELIMINARY DATA**

Туре	V <sub>i</sub>	V <sub>o</sub>	l <sub>o</sub>
GS1T70-D540/3	28 to 115 V	5 V	90 mA
	28 10 113 V	40 V	12 mA

#### **FEATURES**

- Wide operating line termination voltage
- Positive or negative input voltage polarity
- Input and output filtering
- Short-circuit protection on both outputs
- Input power during shortcircuit within specification
- Minimum current drain during stand-by condition: 10µA for Vi<18V
- Input-output isolation voltage: 10000V<sub>RMS</sub> pulse
- Mechanical dimensions (L x W x H): 50.8 mm x 50.8 mm x 18 mm (2" x 2" x 0.71")



### **DESCRIPTION**

The GS1T70-D540/3 converter has been designed for the "U" interface of an ISDN-NTBA (Network Termination Basic Access) system with either 4B3T or 2B1Q standard trasmission.

The module has been designed following the requirements of the standards:

EN 60950

**VDE 0110** 

IEC664

ETR 080

ETS 300 012

ETS 300 019 (operating conditions)

ETS 300 047 (ISDN BASIC ACCESS, Safety and Protection)

Two isolated outputs, 5V/90 mA and 40V/12 mA are supplied. The converter offers short-circuit protection (short-circuit on 40V output doesn't affect 5V output while a short circuit on 5 V removes also the 40 V output) with input power never exceeding the limit of the specification; input can accept either voltage polarity, and the is provided with input and output filtering to meet very stringent noise requirements.

When the input voltage is below 18V, the converter offers a very high input impedance and a maximum quiescent current of  $10\mu A$  according to the standard ETR080.

In addition, the wide operating input voltage range allows it to operate within the whole range of LT (Line Termination) battery voltage and its relevant line resistance.

The module is able to whitstand a pulse of 10000V (1,2/50 microseconds pulse) from primary to secondary side. Basic insulation (500 V) is provided between the outputs.

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# **ELECTRICAL CHARACTERISTICS** (Tamb = 25°C unless otherwise specified)

Std. Conditions:

Line Resistance (Rs): 0 to 600  $\Omega$  550 to 1400  $\Omega$ Line Termination voltage: 47 to 71V 87 to 99V

Symbol	Parameter	Test Conditions	Min	Тур	Max	Unit
Vi	Input Voltage	Std. Conditions	28		115	V
Vist	Start Up Input Voltage	See fig. 2	28		44	V
Vo1	Output Voltage 1	Std. Conditions	4.75	5	5.25	V
Vo2	Output Voltage 2	Std. Conditions	34	40	42	V
Vor1	Output Ripple Voltage 1	Std. Conditions BW= 0 to 20MHz		20	50	mV <sub>RMS</sub>
Vor2	Output Ripple Voltage 2	Std. Conditions BW = 0 to 20MHz		50	100	mV <sub>RMS</sub>
lo1	Output Current 1	Std. Conditions Po2 = 410 mW V <sub>01</sub> = 5V	5		90	mA
Po2	Output Power 2	Std. Conditions Vo1 = 4.75 to 5.25 V Vo2 = 34 to 42 V	0		420	mW
l <sub>o2</sub> max	Max Output Current 2	Std. Conditions lo1 = 5 to 90 mA Vo2 = 34 to 42V	11	12		mA
losc2	Output 2 Short Circuit Current	Std. Conditions Output Shorted (Indefinite time)	9.8			mA
Vis	Isolation Voltage	Input to Outputs, 1.2/50 micros	10000			Vpeak
Тор	Operating Ambient Temperature Range		20		+70	°C
T <sub>stg</sub>	Storage Temperature Range		- 40		+85	°C

### **OUTPUT POWER CHARACTERISTICS**

LT (Line Termination Voltage) = 47V to 71V Rs (Line Resistance) = 0 to 600 $\Omega$			LT (Line Termination Voltage) = 87V to 99V Rs (Line Resistance) = 550 to 1400 $\Omega$				
Max Input Power (mW)	NT Status	Min Output Power 1 (5V)[mW]	Min Output Power 2 (40V)[mW]	Max Input Power (mW)	NT Status	Min Output Power 1 (5V)[mW]	Min Output Power 2 (40V)[mW]
450	Activated	320	0	450	Activated	320	0
950 (*)	Activated Emergency	320	410	950	Activated Emergency	320	410
90	Deactivated	40	0	90	Deactivated	40	0
180	Deactivated Emergency	40	45	180	Deactivated Emergency	40	45
1050 (*)	Activated with 40 V Short circuit	320	Short circuit	1050	Activated with 40V Short circuit	320	Short circuit

<sup>(\*)</sup> The values indicated are subordinated to the available input power.



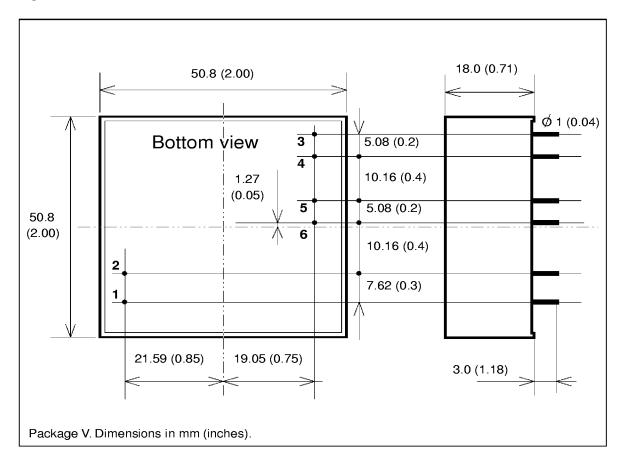


Figure 1. CONNECTION DIAGRAM AND MECHANICAL DATA

## **PIN DESCRIPTION**

Pin	Description		
1	Input (either polarity).		
2	Input (either polarity).		
3	+5V Output.		
4	Return for +5V Output.		
5	+40V Output.		
6	Return for +40V Output.		

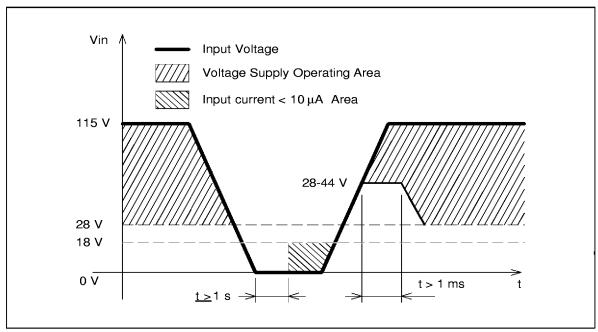


Figure 2. VOLTAGE SUPPLY OPERATING AREA

### **VOLTAGE SUPPLY OPERATING AREA**

Figure 3 shows the Voltage Supply Operating area during a switching OFF-ON sequence. The start-up voltage is 44V maximum.

One second after U-interface disconnection, and if the input voltage remains below 18V, the maximum quiescent input current value remains below than  $10\mu A$ .

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