

## GS1T70-D540/1

### ISDN DC-DC CONVERTER

Туре	V <sub>i</sub>	V <sub>o</sub>	l <sub>o</sub>	
GS1T70-D540/1	25 to 115 V	5 V	90 mA	
	25 10 115 V	40 V	10,5 mA	

#### **FEATURES**

- Wide operating line termination voltage
- Peak input overvoltage withstand: 1kV for 1.2/50μs
- Peak overvoltage withstand on Output 2 (40V): 250V for 10/700µs
- 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: 2000V<sub>RMS</sub> for 60 seconds
- Output1-output2 isolation voltage: 2000V<sub>RMS</sub> for 60 seconds
- Mechanical dimensions (L x W x H): 50.8 mm x 50.8 mm x 18 mm (2" x 2" x 0.71")

# GS1770-0540|1 VIN B WOROCCO VOT \*\*.

#### **DESCRIPTION**

The GS1T70-D540/1 converter has been designed for the "U" interface of an ISDN-NTBA (Network Termination Basic Access) system with either 4B3T or 2B1Q standard trasmission.

It meets the requirements of the following specifications:

EN 60950

**CCITT I.430** 

CCITT G.960

CCITT G.961

ETS 300 002

ETS 300 012

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

Two isolated outputs, 5V/90mA and 40V/10.5mA are supplied. The converter offers short-circuit protection (short-circuit on 40V output doesn't affect 5V output and the input power never exceeds the

limit of the specification), input either voltage polarity, 80% minimum efficiency at maximum load, input and output filtering to meet very stringent noise requirements.

The input and the output 2 (40V) stages are protected against differential overvoltage up to 1kV (1.2/50μs) and 250V (10/700μs) respectively.

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

These features allow the converter to operate directly connected to the telephone line without any external components.

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.

2000V<sub>RMS</sub> isolation voltage for 60 second is provided between input to outputs and between output 1 and output 2.

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#### **ELECTRICAL CHARACTERISTICS** (T<sub>amb</sub> = 25°C unless otherwise specified)

Std. Conditions:

Line Termination voltage: 47 to 71V Line Resistance (Rs): 10 to  $560 \Omega$ 87 to 99V 550 to 1400 Ω

**Symbol Parameter Test Conditions** Min Max Unit Тур Vi Input Voltage Std. Conditions 25 115 ٧ Input Transient  $t = 1.2/50\mu s$  (pulse) 1 k۷ Vipk Overvoltage Start Up Input See fig. 2 44 ٧ Vist Voltage Output Voltage 1 Std. Conditions Vo<sub>1</sub> 4.75 5 5.25 ٧ Vo<sub>2</sub> Output Voltage 2 Std. Conditions 34 40 42 ٧ Std. Conditions BW = 0 to 20MHz **Output Ripple** 5 Vor1 20 mVpp Voltage 1 **Output Ripple** Std. Conditions Vor2 10 30 mVpp BW = 0 to 20MHzVoltage 2 Input Noise Voltage Std. Conditions 30 eΝ 10 mVpp BW = 0 to 20MHz**Output Current 1** Std. Conditions lo1 2 90 mΑ  $I_{02} = 0$  to 10.5 mA  $V_{01} = 5V$ **Output Current 1** Std. Conditions 110 130 lo1I mΑ Limit Initiation  $V_{01} = 4.75 \text{ to } 5.25 \text{V}$ **Output Current 2** Std. Conditions 0 10.5 lo2 mΑ  $I_{01} = 2 \text{ to } 90 \text{ mA } V_{02} = 40 \text{V}$ Output 2 Short Std. Conditions 9 14 mΑ losc2 Circuit Current Output Shorted (Indefinite time) Vis Isolation Voltage Input to Output 1 2000 **VRMS** Input to Output 2 (pulse) Output 1 to Output 2 ٥С Top **Operating Ambient** 0 +80 Temperature Range Storage **-40** ٥С

#### **OUTPUT POWER CHARACTERISTICS**

Temperature Range

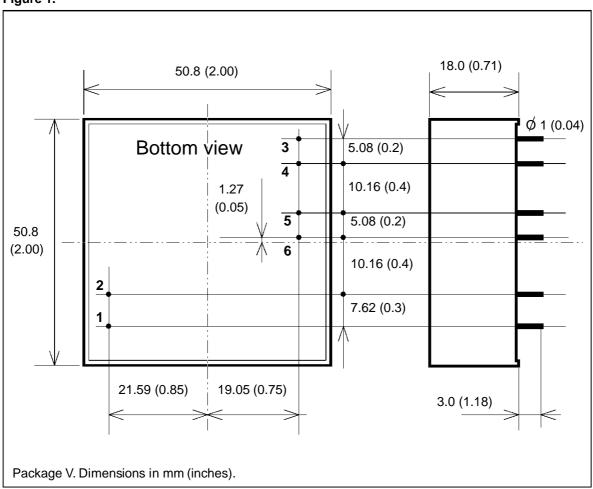
LT (Line Termination Voltage) = 47V to 71V Rs (Line Resistance) = 10 to 560 $\Omega$				<b>LT</b> (Line Termination Voltage) = <b>87V</b> to <b>99V Rs</b> (Line Resistance) = 550 to 1400 $\Omega$			
Max Input Power (mW)	NT Status	Min Output Power 1 (5V)[mW]	Min Output Power 2 (40V)[mW]	Max Input Power (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	330	410	950	Activated Emergency	330	410
90	Deactivated	25	0	90	Deactived	25	0
180	Deactivated Emergency	25	45	180	Deactivated Emergency	25	45
950	Activated with 40 V Short circuit	330	Short circuit	950	Activated with 40V Short circuit	330	Short circuit

+85



Tstg

# **CONNECTION DIAGRAM AND MECHANICAL DATA** Figure 1.



#### **PIN DESCRIPTION**

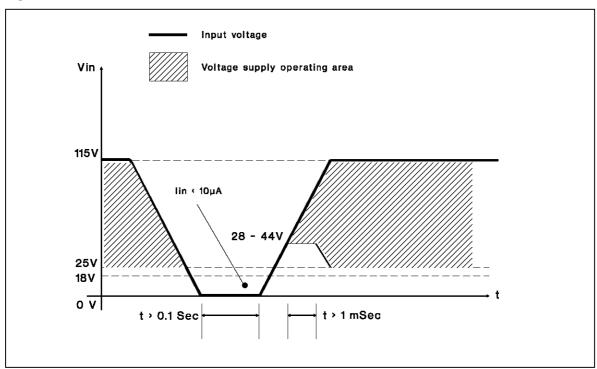
Pin	Description
1	Input (either polarity).
2	Input (either polarity).
3	+5V Output.
4	Return for +5V Output.
5	+40V Output.
6	Return for +40V Output.

#### **VOLTAGE SUPPLY OPERATING AREA**

Figure 2 shows the Voltage Supply Operating area during a switching OFF-ON sequence.

The start-up voltage is 44V maximum. When the input voltage is below 18V the maximum quiescent current is lower than  $10\mu$ A.

Figure 2.



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