

## **Customer Specification File**

**Customer: Catalog**

**Project : ADSL Universal Splitter**

**Request from :**

**Magcom PN: AIF901**

<b>Revision</b>	<b>Realized By</b>	<b>Modification Description</b>	<b>Date</b>	<b>Last Pages</b>
<b>A01</b>	<b>PaulSu</b>	<b>Data sheet updated</b>	<b>JAN-13-2007</b>	<b>8</b>

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### **1 Preliminary:**

The AIF901 is a splitter module that has been specifically designed to implement the functionality of low pass filter in ADSL over ISDN application.

AIF901 had also included protection circuit to provide additional protection against line overstress which could damage the splitter itself .

### **3 Standard reference documents:**

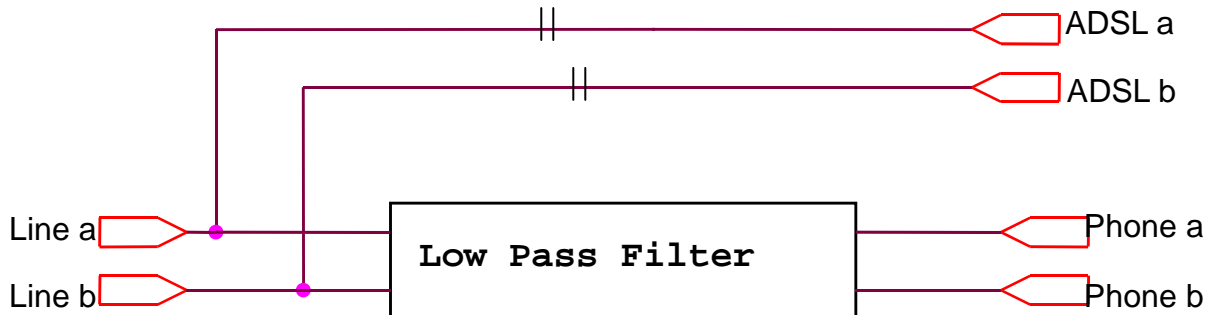
- ETSI TS 101 952-1-3
- ETSI TS 101 952-1-4

### **4 Features**

- Comply to K21
- Compact package, includes connectors for ease of installation
- 100 mA DC Loop Current Capacity

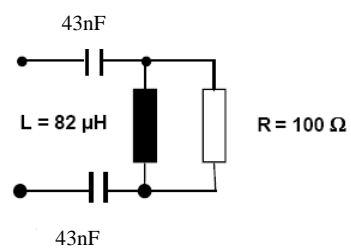
## 5 Design Requirement

### 5.1 Schematic



## 5.2 Electrical Performance

### 5.2.1 General conditions

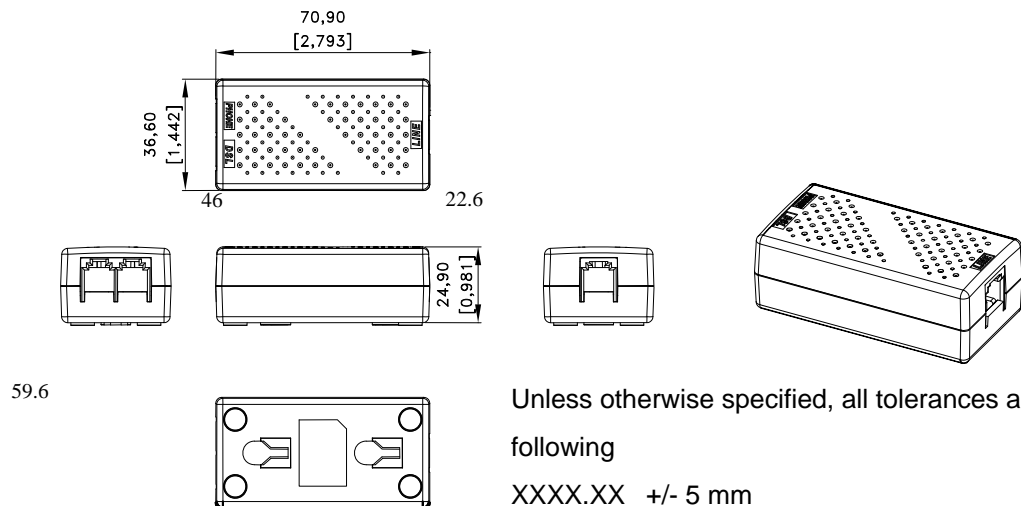
General conditions		
	Conditions	Values
Splitter bandwidth		DC-94KHz
Nominal impedance ISDN	$Z_{ISDN}$	150 ohms
Nominal impedance LINE	$Z_{LINE}$	135 ohms
Modem impedance		100 ohms
$Z_{ADSL-I}$	0Hz ~ 4KHz	
ADSL band impedance	150KHz ~ 2.2MHz	100Ω
Max. operating voltage to ground		250VDC
DC Loop current		<80mA

### 5.2.2 Electrical Requirement

Electrical Requirement		
DC requirements		
	Conditions	Values
TIP to RING	100VDC	> 5 MΩ
TIP to RING	ISDN port shorted	<12.5Ω
DC feeding current		< 60 mA
ISDN Pass band loss requirements		
Insertion loss w/ ZADSL-I	(Z <sub>ISDN</sub> )/1 kHz to 60 kHz	<1.2 dB
	(Z <sub>ISDN</sub> )/60kHz to 80 kHz	<2.0 dB
Return loss w/ ZADSL-I	(Z <sub>ISDN</sub> )/1 kHz to 60 kHz	<16 dB
	(Z <sub>ISDN</sub> )/60kHz to 80 kHz	<14 dB
Delay distortion	300 Hz to 80 kHz	< 20 usec.
POTS Pass band loss requirements		
Insertion loss (w/ and w/o ZADSL-I)	1000Hz	<1.0 dB
Insertion loss (w/ and w/o ZADSL-I)	11.94Hz–17KHz(Load 200ohms)	<3.0 dB
Attenuation distortion (w/ and w/o ZADSL-I)	600Hz-1.6KHz (Ref 1KHz)	<+/-0.5 dB
	300Hz-3.4KHz (Ref 1KHz)	<±1.0 dB
	200 Hz<f<4 kHz	<±1.0 dB

Stop band requirements					
Splitter parameter	Range	Value	Port		
			VDSL	ISDN	LINE
Isolation requirements	138 kHz to 150 kHz	>55dB			
	150 kHz to 1.1MHz	>65dB	ZADSL-I	ZISDN	ZLINE
	1.1MHz to 2.2MHz	>55dB			
ADSL Insertion Loss	120 kHz to 170 kHz	<3 dB	ZADSL-I	ZISDN	ZLINE
	170 kHz to 2.2MHz	<1dB		ZPOTS	
Longitudinal conversion loss LCL	3.4KHz to 30kHz	> 40 dB	-	-	-
	30KHz to 1104kHz	> 50 dB	-	-	-
	1104KHz to 5MHz	> 30 dB	-	-	-

#### 5.4 Mechanical



Unless otherwise specified, all tolerances are as following

XXXX.XX +/- 5 mm

XXX.XX +/- 2 mm

XX.XX +/- 1mm

X.XX +/- 0.25 mm

0.XX +/- 0.05 mm

#### 5.4 Pin Assignments

Connector	Function	Style	Tip	Ring
J1	Line	RJ11	Pin3	Pin4
J2	Modem	RJ11	Pin3	Pin4
J3	Phone	RJ11	Pin3	Pin4

**6 Environmental conditions:**

## 6.1 Resistibility to over voltages and over currents:

Comply with the resistibility requirements per ITU-T Recommendation K.21 electrical safety requirements

## 6.2 Climatic conditions:

## 6.2a. Operating temperature:

-20 °C to +60°C

## 6.2b. Storage and transportation:

Low ambient temperature - 40°C

High ambient temperature +80°C

## 6.2c. Operation humidity:

0 to 95% (non-condensing)

**7 Reliability conditions:**

## 7.1 Thermal shock:

Temperature from -20 °C to +85 °C for 5 cycles

## 7.2. Temperature humidity exposure:

+50 °C / 95 RH, 96hrs

## 7.3. Vibration test:

Random vibration / Overall: 1.15 g rms

Freq. (Hz): 1 → 4 → 100 → 200

PSD (g<sub>2</sub>/ Hz): 0.0001 → 0.01 → 0.01 → 0.001

Test Axis / Time: Top / 30 mins Bottom / 10 mins

X axis / 10 mins Y axis / 10 mins

**8 Note:**