

## **Customer Specification File**

**Customer:**

**Project : ETSI TS 101 952-1-1 Option B Filter for ADSL Application**

**Request from :**

**Magcom PN: ACP270SN01**

<b>Revision</b>	<b>Realized By</b>	<b>Modification Description</b>	<b>Date</b>	<b>Last Pages</b>
<b>A01</b>	<b>Kelvin Huang</b>	<b>New Release</b>	<b>July-26-2006</b>	<b>8</b>
<b>A02</b>	<b>Kelvin Huang</b>	<b>Corrected Mechanical</b>	<b>Sep-01-2008</b>	<b>8</b>

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**1 Preliminary:**

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**2 Customer reference documents:**

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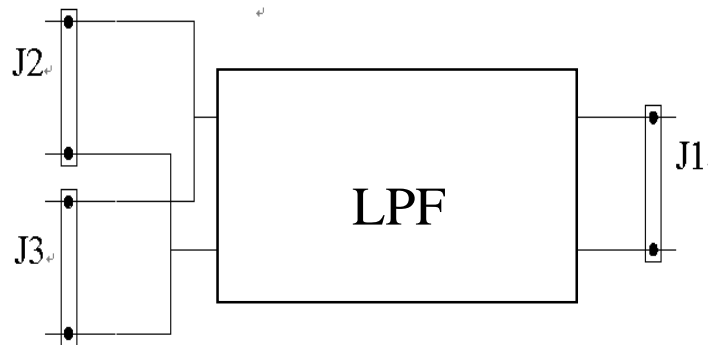
**3 Standard reference documents:**

- ETSI TS 101 952-1-1
- ETSI TS 101 952-1-2
- ITU-T G.992.5 Annex E (ADSL2+)
- ITU-T K21

**4 Features**

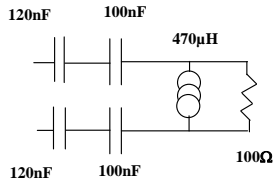
## 5 Design Requirement

### 5.1 Schematic



## 5.2 Electrical Performance

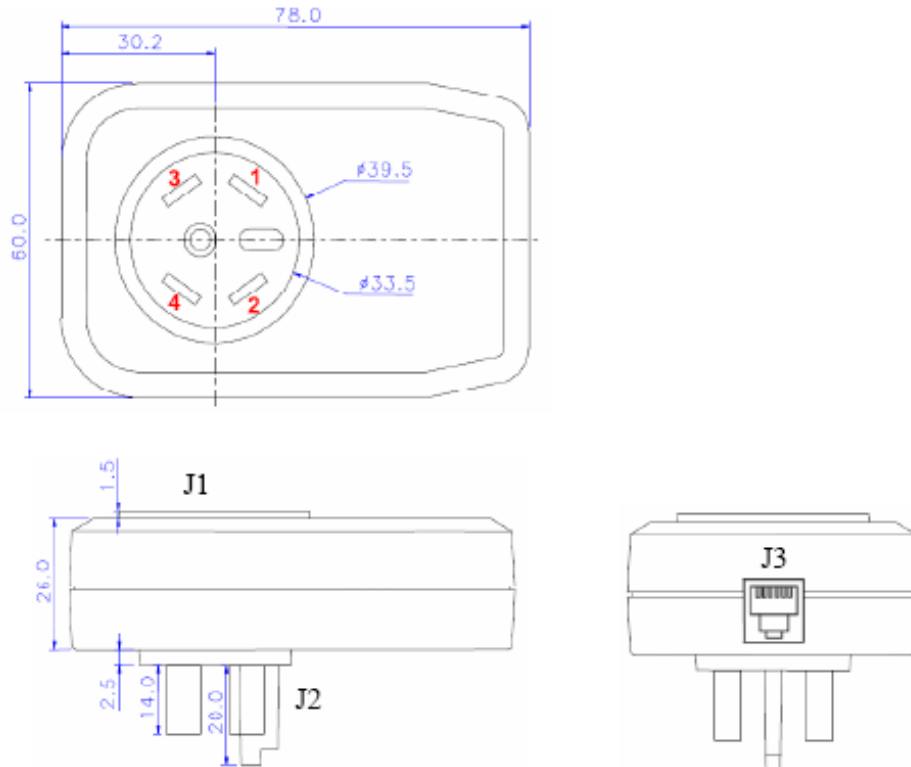
### 5.2.1 General conditions

General conditions		
	Conditions	Values
Splitter bandwidth		DC-16KHz
Voice band		DC-4KHz
Ringing frequency		25Hz ~ 50Hz
ADSL frequency band		30KHz ~ 2.2MHz
POTS band impedance-Z <sub>R</sub>	0Hz ~ 4KHz	270 Ω + (750 Ω // 150nF)
POTS band impedance-Z <sub>SL</sub>	0Hz ~ 4KHz	82 Ω + (600 Ω // 68 nF)
Z <sub>ADSL</sub>	0Hz ~ 4KHz	
ADSL band impedance Z <sub>RHF</sub>	30KHz~2.2MHz	120Ω + (150Ω // 47nF)+ (750Ω //150nF)
Modem impedance	30KHz~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 and RING to Earth	100VDC	> 20 MΩ
TIP to RING	100VDC	> 5 MΩ
TIP to RING	POTS port shorted	<50Ω
Voice band loss requirements		
Insertion loss	Z <sub>R</sub> / @1004Hz	<1.0 dB
Insertion loss	600Ω/ @1004Hz	<1.0 dB
Option B Return loss	Z <sub>R</sub> /300 Hz to 500Hz Z <sub>R</sub> /500Hz to 2.0 kHz Z <sub>R</sub> /2kHz to 3.4 kHz	>14+(4/200)(f-300) dB >18 dB >18-(4/1.4K)(f-2K) dB
Group delay distortion Z <sub>R</sub> & 600	0.6 kHz to 3.2 kHz	< 200 us
	0.2 kHz to 4.0 kHz	< 250 us
Intermodulation distortion Z <sub>R</sub>	2 <sup>nd</sup>	> 57 dB
	3 <sup>nd</sup>	> 60 dB
Unbalance about Earth	50Hz to 600Hz	< 40 dB
	600Hz to 3400Hz	< 46 dB
	3400Hz to 4KHz	< 40 dB
	4KHz to 30KHz	< 40 dB
	30KHz to 1104KHz	< 45 dB
	1104K to 2.2MHz	< 30 dB
POTS transient effects		< 2Vp-p, <15KHz
ADSL band requirements		
Stop band attenuation Z <sub>RHF</sub>	32kHz~138kHz	>45dB
	138kHz~2.2MHz	>55dB

### 5.3 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
J3	DSL	RJ11	Pin3	Pin4
J2	Line	PLUG	Pin1	Pin2
J1	Phone	SOCKET	Pin1	Pin2

**6 Environmental conditions:**

## 6.1 Resistibility to over voltages and over currents:

Comply with the resistibility requirements per ITU-T Recommendation K.20 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