

Customer Specification File

Customer:

Project : ETSI TS 101 952-1-1 Option A Filter for ADSL2+ Application

Request from :

Magcom PN: APF904

Revision	Realized By	Modification Description	Date	Last Pages
A01	Jay Hsieh	New Release	FEB-01-2007	8
A02	Jay Hsieh	Modify 5.3	MAY-10-2007	7

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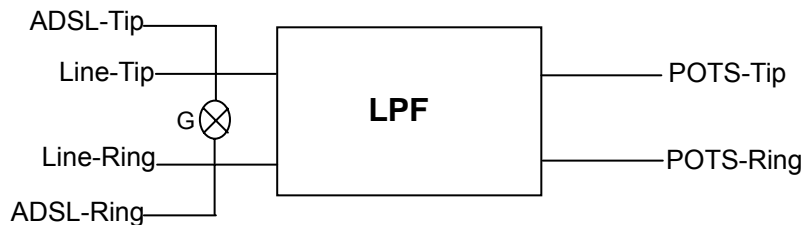
1 Preliminary:**2 Customer reference documents:****3 Standard reference documents:**

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

4 Features (Blank)

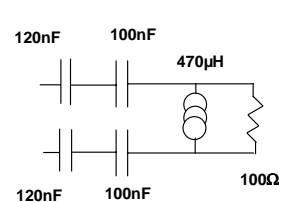
5 Design Requirement

5.1 Schematic



5.2 Electrical Performance

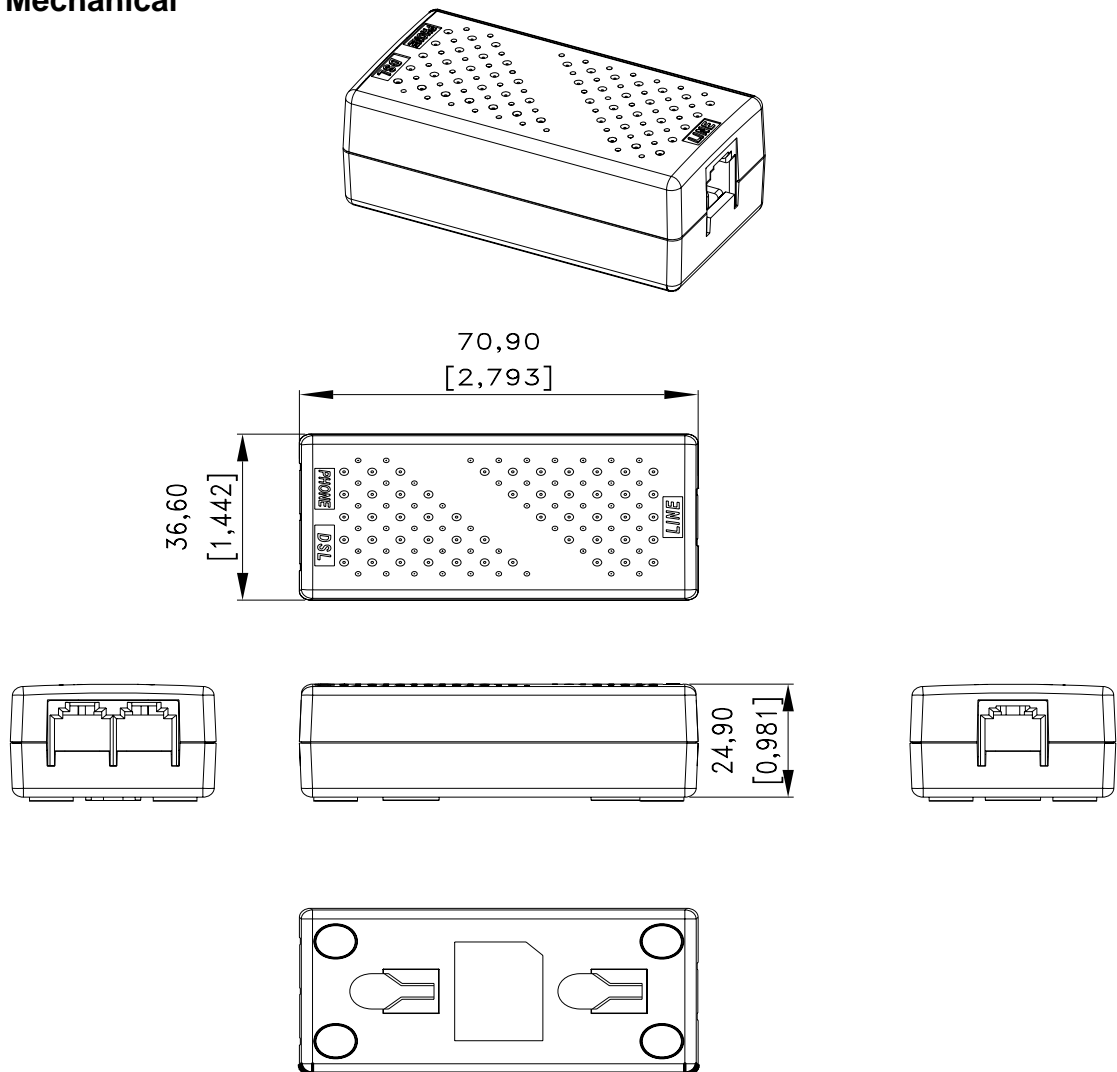
5.2.1 General conditions

General conditions		
	Conditions	Values
Splitter bandwidth		DC-16KHz
Voice band		DC-4KHz
Ringing frequency		25Hz ~ 50Hz
ADSL frequency band		32 kHz ~ 2208 kHz
POTS band impedance-ZR	0Hz ~ 4KHz	$270 \Omega + (750 \Omega // 150 \text{ nF})$
POTS band impedance-ZSL	0Hz ~ 4KHz	$82 \Omega + (600 \Omega // 68 \text{ nF})$
ZADSL	0Hz ~ 4KHz	
ADSL band impedance ZRHF	32 kHz ~ 2208 kHz	$120 \Omega + (150 \Omega // 47 \text{ nF}) + (750 \Omega // 150 \text{ nF})$
Modem impedance	32 kHz ~ 2208 kHz	100 Ω
Max. operating voltage to ground		250 VDC
DC Loop current		< 80 mA

5.2.2 Electrical Requirement

Electrical Requirement		
DC requirements		
	Conditions	Values
TIP and RING to Earth	100VDC	> 20 M Ω
TIP to RING	100VDC	> 5 M Ω
TIP to RING	POTS port shorted	< 50 Ω
Voice band loss requirements		
Insertion loss (W/ and W/O ZADSL)	ZR / @1004Hz	< 1.0 dB
Insertion loss (W/ and W/O ZADSL)	600 Ω / @1004Hz	< 1.0 dB
Option A Return loss (POTS and LINE port W/ and W/O ZADSL)	ZR / 300 Hz to 3.4 kHz	>12 dB
	ZR / 3.4kHz to 4.0 kHz	> 8 dB
	ZSL / 300 Hz to 3.4 kHz	>12 dB
	ZSL / 3.4kHz to 4.0 kHz	> 8 dB
Group delay distortion ZR & 600 Ω (W/ and W/O ZADSL)	0.6 kHz to 3.2 kHz	< 200 us
	0.2 kHz to 4.0 kHz	< 250 us
Intermodulation distortion ZR	2nd	> 57 dB
	3rd	> 60 dB
Unbalance about Earth	50 Hz to 600 Hz	> 40 dB
	600 Hz to 3.4 kHz	> 46 dB
	3.4 kHz to 4 kHz	> 40 dB
	4 kHz to 30 kHz	> 40 dB
	30 kHz to 1104 kHz	> 45 dB
	1104 kHz to 2208 kHz	> 30 dB
POTS transient effects		< 2 Vp-p, < 15 kHz
ADSL band requirements		
Stop band attenuation ZRHF	32 kHz ~ 2208 kHz	> 55 dB

5.3 Mechanical



All tolerance = ± 1.0 mm

5.4 Pin Assignments

Connector	Function	Style	Tip	Ring
J1	DSL	RJ11	Pin3	Pin4
J2	PHONE	RJ11	Pin3	Pin4
J3	LINE	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 (g² / 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 :