

# AAP572x

## Electret Condenser Microphone Pre-Amplifier

PRELIMINARY DATA

### DESCRIPTION

The AAP572x series is part of AAI's new family of specialty products for Portable Electronics applications, in this case aimed at two terminal ECMs requiring integrated pre-amplifiers. The AAP572x ECM pre-amplifiers offer ultra low noise, require low current and feature ultra low input capacitance.

Multiple gain options available (x defines gain option)

- A: 14dB
- B: 19dB
- C: 26dB

The AAP572x will be offered in a chip scale SMD package. The package size is a tiny 1.09mm x 1.12mm, and its height is 350µm including solder bumps.

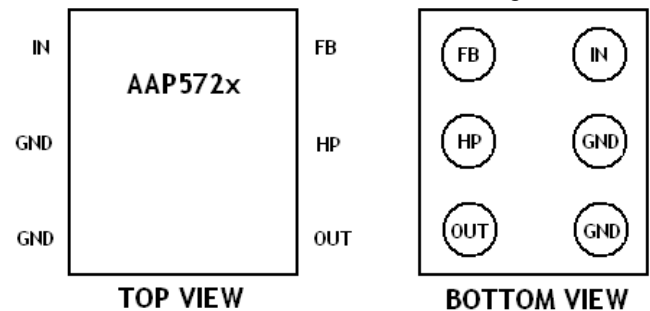
The AAP572x is offered in a chip scale SMT package with a size and aspect ratio (1.09mm x 1.12mm) that is optimum for small (3mm dia.) microphones. The lead free solder pads are nominally 118µm dia. The AAP572x is supplied in tape and reel packaging.

### FEATURES

- High tolerance to RFI, 8kV ESD tolerance
- 4.5µV RMS equivalent input noise (A weighted to 10kHz)  $C_{mic} = 5pF$ .
- < 0.5% THD typical for output swing = 250mV peak to peak.
- AAP572A: 270µA quiescent current at  $V_{DD} = 2V$ ,  $R_L = 2.2k\Omega$ .  
AAP572B/C: 400µA quiescent current at  $V_{DD} = 1.65V$ ,  $R_L = 1k\Omega$ .
- Suitable for small microphones down to 3mm diameter
- High pass filter
- Operation down to 1.45V with  $R_L = 1k\Omega$  and 200µA operating current.

### PIN CONFIGURATION: 6-Lead Micro SMD

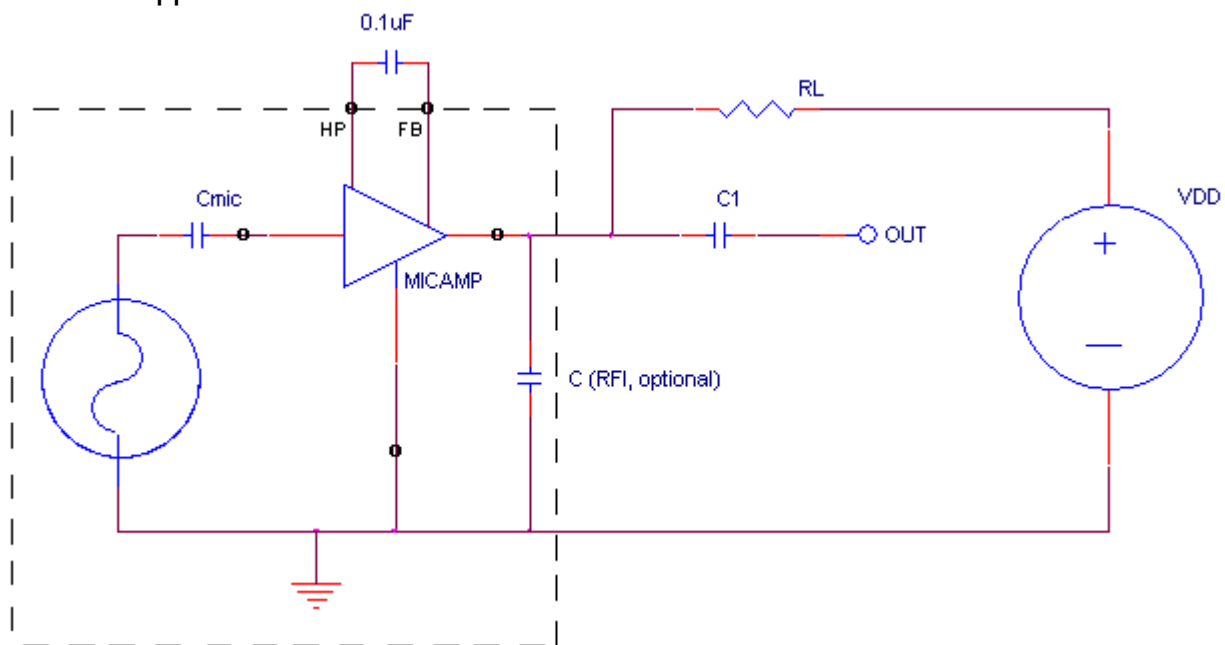
AAP572x shown from the top and bottom.  
Numbers indicate batch ID and gain.



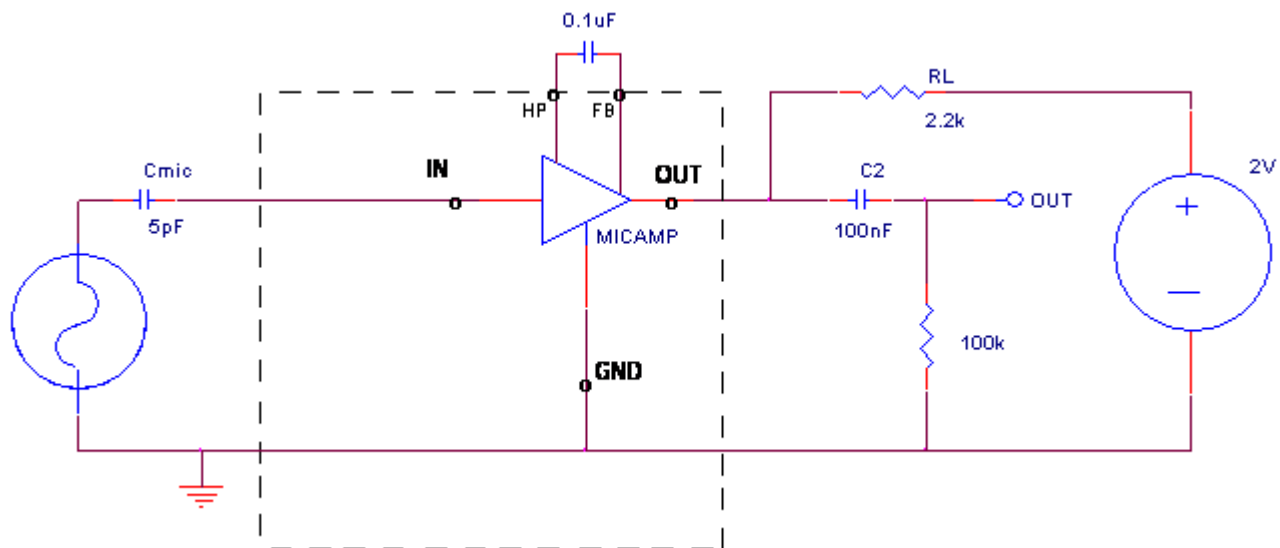
### ORDERING INFORMATION

Ordering PN	Subgroup	Description	Temp. Range	Package	Packing Type	Packing Qty
AAP572A S-M6A-G-LF-W	Microphone ECM Interface	Pre-Amplifier, 14dB gain	S - Special -10°C to +60°C	6-pin Micro SMD	Waffle-Pack	400
AAP572A S-M6A-G-LF-TR	Microphone ECM Interface	Pre-Amplifier, 14dB gain	S - Special -10°C to +60°C	6-pin Micro SMD	T&R	3500
AAP572B S-M6A-G-LF-W	Microphone ECM Interface	Pre-Amplifier, 19dB gain	S - Special -10°C to +60°C	6-pin Micro SMD	Waffle-Pack	400
AAP572B S-M6A-G-LF-TR	Microphone ECM Interface	Pre-Amplifier, 19dB gain	S - Special -10°C to +60°C	6-pin Micro SMD	T&R	3500
AAP572C S-M6A-G-LF-W	Microphone ECM Interface	Pre-Amplifier, 26dB gain	S - Special -10°C to +60°C	6-pin Micro SMD	Waffle-Pack	400
AAP572C S-M6A-G-LF-TR	Microphone ECM Interface	Pre-Amplifier, 26dB gain	S - Special -10°C to +60°C	6-pin Micro SMD	T&R	3500

## Typical Circuit Application



## Typical Test Conditions



# MAXIMUM RATINGS

PARAMETER		PARAMETERS			UNITS	CONDITIONS
		MIN.	TYP.	MAX.		
Operating Voltage	AA572A	1.7	2.0	5.5	V	Between Out and GND
	AA572B/C	1.45	1.65	5.15	V	
ESD (Out Terminal)		8			kV	
Operating Temperature		-10		60	°C	

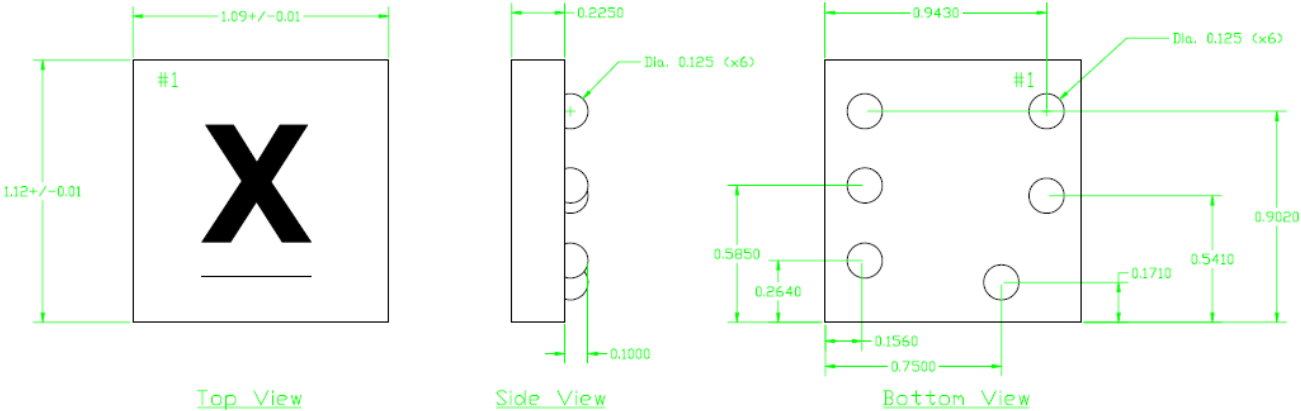
# ELECTRICAL CHARACTERISTICS

PARAMETER		PARAMETERS			UNITS	CONDITIONS
		MIN.	TYP.	MAX.		
Input Capacitance			1		pF	V <sub>in</sub> (dc) = 0V
Supply Voltage		1.7	2	5	V	
Quiescent Current	AA572A		270		μA	RL = 2.2kΩ, V <sub>supply</sub> = 2V
	AA572B/C		400		μA	RL = 1kΩ, V <sub>supply</sub> = 1.65V

# AC CHARACTERISTICS

PARAMETER		PARAMETERS			UNITS	CONDITIONS	
		MIN.	TYP.	MAX.			
Voltage Gain (at 1kHz)	AA572A	13	14	15	dB	Cm= S.C.	Vsupply = 2V RL = 2.2kΩ
	AA572B	18	19	20		Cm= S.C.	Vsupply = 1.65V RL = 1kΩ
	AA572C	25.5	26	27			
Equivalent Input Noise	AA572A		2.65		μV RMS	Cm= S.C.	A weighted
			4.5			Cm= 5pF	
	AA572B		2.5			Cm= S.C.	
			4.6			Cm= 5pF	
	AA572C		2			Cm= S.C.	
			4.11			Cm= 5pF	
LF Cutoff			200		Hz	Cs = 100nF	
HF Cutoff			20		kHz		

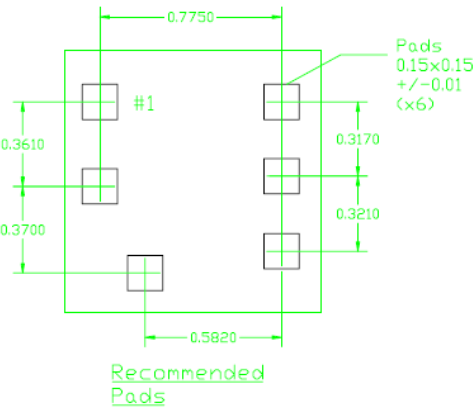
THD (at 1kHz)			<1	%	Output signal=250mV p-p
Power Supply Rejection		-50		dB	
V <sub>OUT</sub> max	-15			dBV	THD < 2%
V <sub>IN</sub> max	-28			dBV	THD < 2%
Z <sub>OUT</sub>		25		Ω	



NOTES:

- 1. All dimensions in mm
- 2. Tolerances are +/-0.025 unless otherwise specified
- 3. The X-bar mark designate product type and orientation

<b>ASIC Advantage, Inc.</b> www.AsicAdvantage.com	<b>Package Outline Drawing</b> <b>6L MicroSMD</b> <b>AAP572X</b>	DWN:
		CHK:
		APP:
	DATE: 8/8/08	



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- AAI's modified snubber network is patented under the US Patent # 6,233,165

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