

# AAP600

## Automotive Electret Condenser Microphone Pre-Amplifier

PRELIMINARY DATA

### DESCRIPTION

The AAP600 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 AAP600 ECM pre-amplifier offers ultra low noise, require low current and feature ultra low input capacitance.

The AAP600 is offered with a fixed gain of 32dB and an output operating voltage of 3.5V.

The AAP600 will be offered in a chip scale SMD package. The package size is 1.09mm x 1.12mm, with an overall height of 350 $\mu$ m including solder bumps. This extremely small package size and aspect ratio is optimum for use in small diameter microphones.

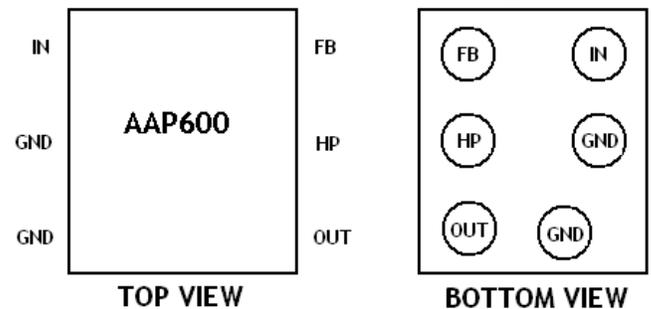
Available for purchase in either waffle pack for low volume orders or in tape & reel for larger quantities.

### FEATURES

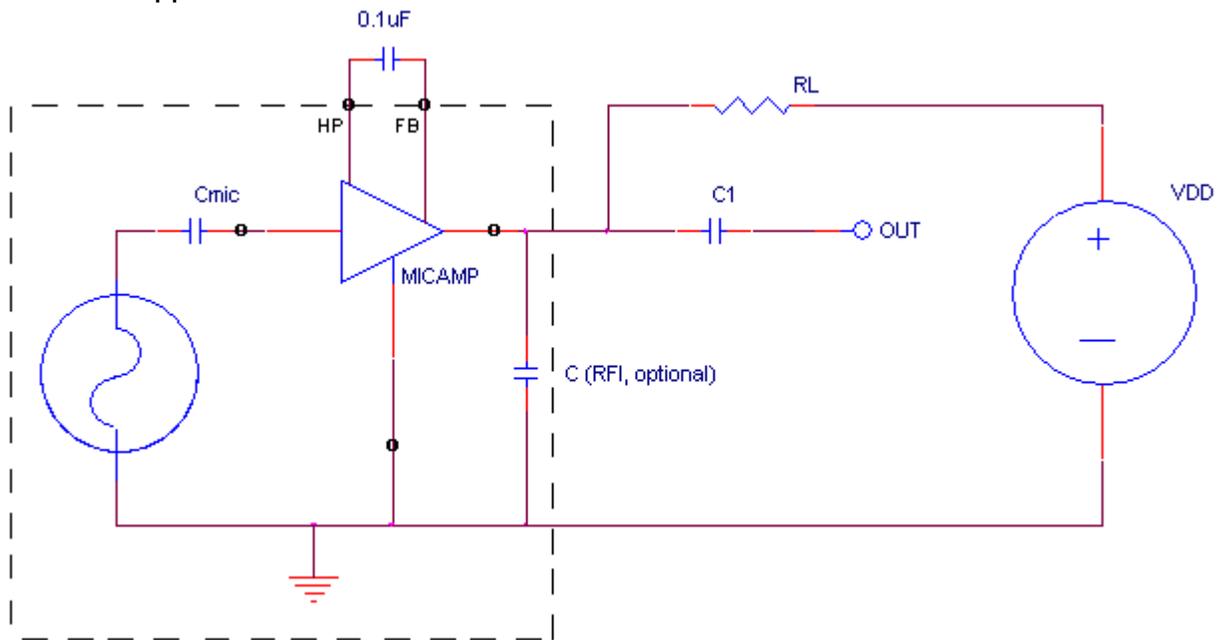
- High tolerance to RFI, 8kV ESD tolerance
- 1.8 $\mu$ V RMS equivalent input noise (A-weighted values) Cmic = shorted.
- 0.25% THD typical for output swing = 200mV peak to peak.
- 7.2V – 12V supply voltage range
- 3.5V output operating voltage
- 32dB gain
- Suitable for small microphones down to 3mm diameter
- High pass filter

### PIN CONFIGURATION: 5-Lead Micro SMD

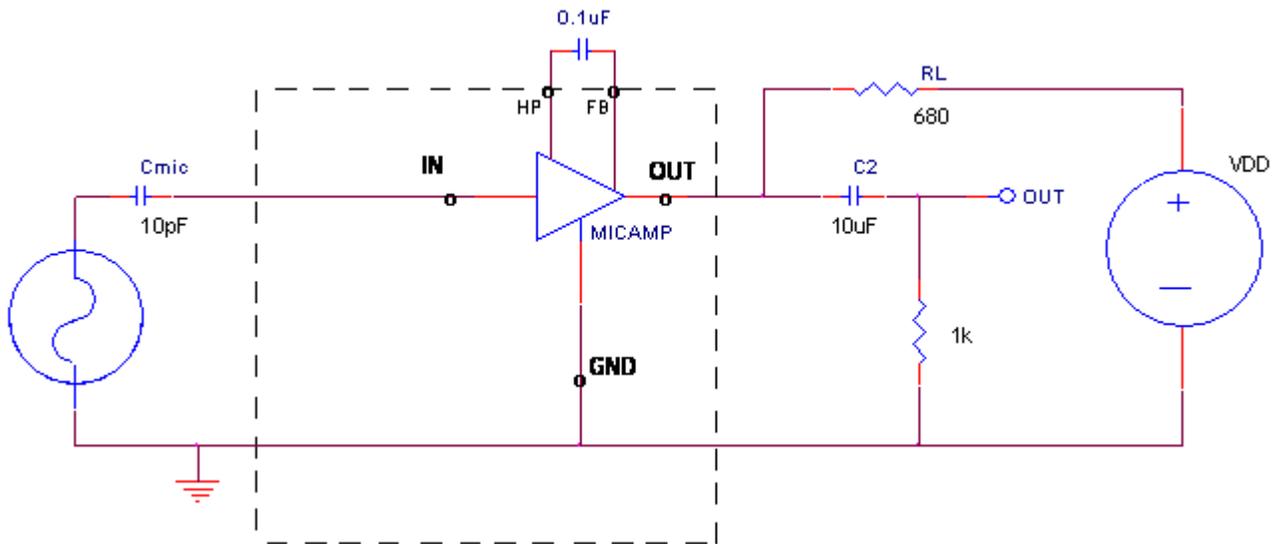
AAP600 shown from the top and bottom.  
Numbers indicate batch ID and gain.



### Typical Circuit Application



### Typical Test Conditions



**MAXIMUM RATINGS**

PARAMETER	SYMBOL	PARAMETERS		UNITS	CONDITIONS
		MIN.	MAX.		
Applied Voltage (all pins)			5.5	V	Max voltage between pin and GND
ESD	$V_{esd,out}$	8000		V	OUT terminal
	$V_{esd}$	2000			Other terminals
Operating Ambient Temp		-40	85	°C	
Storage Temp Range		-40	100	°C	
Performance Operating Temp Range		-10	60	°C	

**ELECTRICAL CHARACTERISTICS**

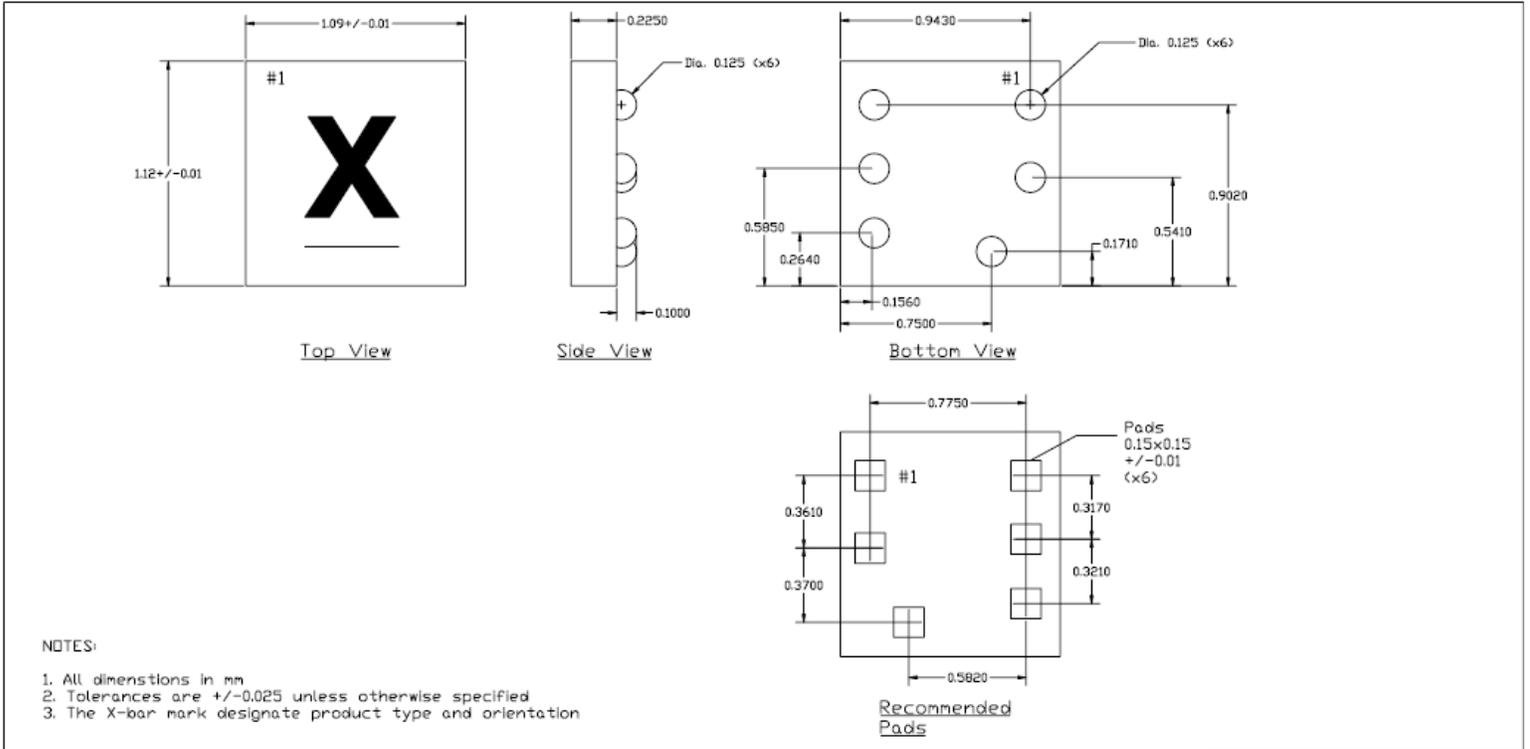
Unless otherwise stated: T=25°C, VDD=10V,  $V_{in}$ =-50dBVrms / 9mVpp,  $R_L$ =680Ω,  $C_{mic}$ =10pF

PARAMETER	SYMBOL	PARAMETERS			UNITS	CONDITIONS
		MIN	TYP	MAX		
<b>OPERATING SUPPLY</b>						
Supply Voltage	VDD	7.2	10	12	V	
Operating Output Voltage	$V_{op}$	3.35	3.45	3.55	V	
Supply Current	IDD	5.7	9.7	12.5	mA	
PSRR			-50		dB	
<b>AC CHARACTERISTICS</b>						
Transfer Function	TF	31.5	32.5	33.5	dB	
Input Referred Noise	$e_n$		1.8		μV RMS	Input shorted to GND, A-weighted values
LF Cutoff	$f_{LOW}$		200		Hz	
HF Cutoff	$f_{HIGH}$		20		kHz	
Total Harmonic Distortion	THD		0.25		%	Output signal=200mVpp
Input Capacitance	$C_{IN}$		1		pF	$V_{in}(dc) = 0V$
Input Impedance	$Z_{IN}$	1			GΩ	
Output Impedance	$Z_{OUT}$		25		Ω	

**ORDERING INFORMATION**

Ordering PN	Subgroup	Description	Temp. Range	Package	Packing Type	Packing Qty
AAP600 S-M6A-G-LF-W	Microphone ECM Interface	Pre-Amplifier, 32dB gain	S - Special -10°C to +60°C	6-pin Micro SMD	Waffle-Pack	400
AAP600 S-M6A-G-LF-TR	Microphone ECM Interface	Pre-Amplifier, 32dB gain	S - Special -10°C to +60°C	6-pin Micro SMD	T&R	3500

**PACKAGE DIMENSIONS AND MARKING**



<b>ASIC Advantage, Inc.</b> <a href="http://www.AsicAdvantage.com">www.AsicAdvantage.com</a>	<b>Package Outline Drawing for 6L Micro SMD</b> DATE: 11/02/08	IPS PKG NO:	DwN:
		AA PKG NO: M6A	CHK:
		6MicroSMD-P0D-110208	APP:

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

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