

The IA611 is an "always-on" Acoustic Processor featuring Voice Wake and Voice ID keyword detector, a three second buffer, and Knowles' proven high performance acoustic SiSonic<sup>™</sup> MEMS technology in a single, miniature, top-port package. The IA611 offers flexibility by supporting the most relevant audio and data interfaces. Its integrated programmable DSP with 248 KBytes of RAM is available for customer and 3<sup>rd</sup> party algorithms, enabling unlimited creativity. The solution pushes the system performance to ultra-low power with its custom core design, and accelerates times to market with its unique combination of hardware, software, and firmware.

### **Product Features**

- High-accuracy Voice Wake and Voice ID keyword recognition to wake-up any system from a trigger phrase
- Minimum latency when burst out three-second audio buffer using SPI
- Ultra-low-power "always on" Acoustic Activity Detector (AAD) capable waking the embedded DSP
- Interrupt signal to the host processor when a voice keyword trigger is detected

- Integrated power tree from a single 1.8 V supply
- Extra flexibility with I<sup>2</sup>C/UART interfaces
- 248 KB RAM, 160 MFLOPS, 43 MHz, 32-bit complexvalued floating-point ALU, low-power open developer platform with SDK
- High-Performance Acoustic SiSonic MEMS with ±1 dB matched sensitivity, 65.5 dB SNR and 132.5 dB SPL AOP
- Packaged in SPK 4.00 x 3.00 x 1.30 mm

## **Typical Applications**

- Smartphones
- Wearables
- Tablets

- Small, portable electronics
- Remote controllers
- Connected home devices



**Proprietary and Confidential** 



### **Typical Application Block Diagrams**



Application Schematic for a Host System using PS with SPI





BOTTOM VIEW DETAIL OF PIN-OUT (HATCHED AREA INDICATES SOLDERABLE SUR

#### Mechanical Specifications

ltem	Dimension	Tolerance	Units
Length (L)	4.00	±0.10	Mm
Width (W)	3.00	±0.10	mm
Height (H)	1.30	±0.15	mm
Acoustic Port (AP)	0.65	±0.05	mm



Application Schematic for a Host System using PS and PC or UART

# Figure 1 Pin Assignments (Bottom View)

Table 1	Pin D	escriptions
---------	-------	-------------

Pin#	Name	Туре	Description
1	VDD	Power	Power Supply
2	LDOD	Power	Connect to Bypass Capacitor
3	P0	Digital I/O	P0 I/O
4	P2	Digital I/O	P2 I/O
5	P1	Digital I/O	P1 I/O
6	P3	Digital I/O	P3 I/O
7	GND	Power	Ground
8	P4	Digital I/O	P4 I/O
9	P5	Digital I/O	P5 I/O

For more information, visit https://solutions.knowles.com/

© 2018, Knowles Electronics, LLC, 1151 Maplewood Drive, Itasca, IL60143, USA

Phone: (630) 250-5100 Fax: (630) 250-0575

All Rights Reserved. SiSonic, Knowles and the logo are trademarks of Knowles Electronics, LLC. Information contained herein is subject to change without notice. It may be used by a party at their own discretion and risk. We do not guarantee any results or assume any liability in connection with its use. This publication is not to be taken as a license to operate under any existing patents.

# **Mouser Electronics**

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Knowles: IA611-RDI-01