

A grey L-shaped graphic consisting of a horizontal bar on top and a vertical bar on the left side, forming an open-bottom-left corner.

Knowles KNO-KMM1 Microphone ASIC

Circuit Analysis Report

A grey L-shaped graphic consisting of a horizontal bar on top and a vertical bar on the left side, forming an open-bottom-left corner.

November 2015

Knowles KMM1 Microphone

Background Information

Design win

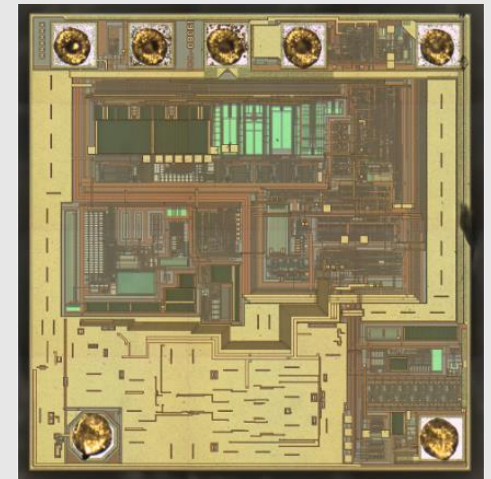
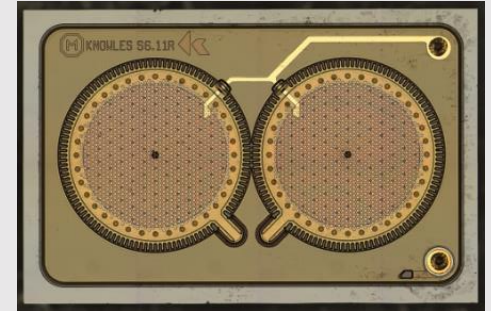
12" Macbook

What's interesting ?

- The ASIC die of the KMM1 MEMS microphone is manufactured in a four metal, double polysilicon 250nm bipolar CMOS (Bi-CMOS) process
- This chip, with a die size of 0.81 mm by 0.84 mm, carries the die markings 19380-001
- The die can be configured through a write-only control interface

Competitive space

- AAC Technologies
 - GoerTek
 - InvenSense
 - Knowles
 - STMicroelectronics
 - Infineon
 - Austria Microsystems
- Other Prominent Vendors
- Bosch
 - BSE
 - Hosiden
 - NeoMEMS Technologies
 - Wolfson Microelectronics



Knowles KMM1 Microphone ASIC

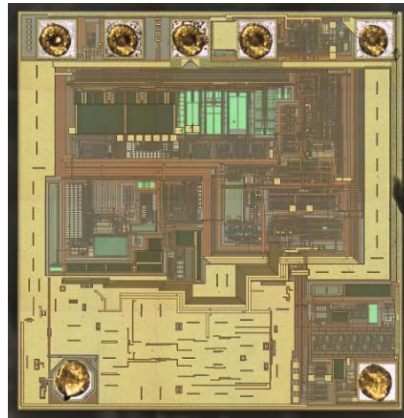
Circuit Analysis Report (CAR-1510-903)

Chipworks has performed a detailed circuit design analysis on the Knowles KMM1 Microphone ASIC

ICWorks browser allows you to see the direct correspondence between the physical layout of the device and the circuit schematics.

The following circuit blocks are included:

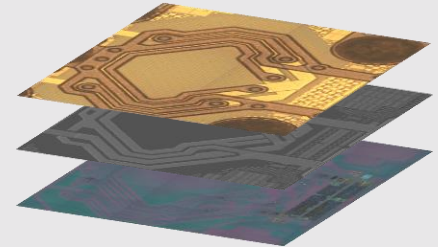
- Transducer Interface
- Pre-Amplifier
- Delta-sigma ADC
- Clock Buffer and Power-up
- Voltage Pump
- Bias Current Generator
- Voltage and Current Sources
- Control Interface
- Test Access Switches
- Data Pad Buffer



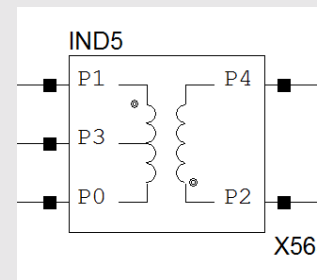
Inquire About Knowles KMM1
Microphone ASIC Analysis

Chipworks ICWorks Browser

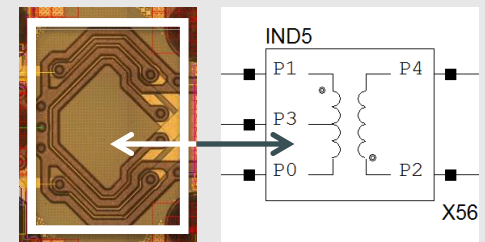
Multi-Layer Image Set



Schematics



Cross Probe Images and Schematics



Note: These images are
not from the KMM1 ASIC



List of Related Microphone Reports

Related Microphone Reports	Report Code
Knowles Microphone ASIC die mark 19380 from MacBook Circuit Analysis (Analysis underway)	CAR-1510-903
Infineon E2150C MEMS Microphone from AAC Technologies SDM0102B-263-M02 Basic Device Overview Report	CWR-1410-901
AAC Technologies SDM0102B Omnidirectional MEMS Microphone Circuit Analysis Report	CAR-1408-902
Knowles S1129 XCO18 Microphone ASIC Circuit Analysis Reports	CAR-1403-901
AAC Technologies M1729D Microphone ASIC (from iPhone 5) Full Analog Circuit Analysis Report	CAR-1301-902

Thank You

Our experienced engineers and analysts deliver top-notch investigative results. You can expect a comprehensive, factual, and detailed report which will give you a solid understanding of your product and market position, and more importantly – your market potential.

For more information on these reports, report bundles, and how we can better suit your needs, please contact Hamza Iqbal at:

hiqbal@chipworks.com

www.chipworks.com