

## PRODUCT BRIEF Processor for Dual Microphone Adaptive Noise Cancelling With Wind Noise Alert

Check for Samples: [LMV1051](#)

### FEATURES

- **Superior Noise Cancellation**
  - Dual Mic Technology
  - Active Directional Pattern
  - Up to 30dB Peak Noise Rejection of Stationary and Non-Stationary Noise Sources
  - No Distortion of Desired Signal
  - Flat Frequency Response
- **Wind Noise Alert and Protection**
  - Automatically Reduces Wind Noise by  $\approx 20$  dB (vs. Directional Mic)
  - Wind Noise Alert can be Used to Further Reduce Impact of Wind on Desired Signal
- **Ultra-Low Power Consumption**
  - 210  $\mu$ A (Typical) Including Mic Bias
  - Battery-Free Operation in Wired Headsets
- **Compatible with Standard ECM Interfaces**
  - 2-Wire or 3-Wire Interface
  - Powered from Mic Bias Supply
- **Complete Signal Processing Solution**
  - No Software Required
  - Enables a Fully Integrated Mic Module
- **Zero-Latency Signal Processing**
- **Noise Cancelling or Omni-Directional Output**
- **Better EMI Noise Rejection than ECM**
- **Supports Telephony Bandwidth**
- **Small Size 3 x 3 mm**

### APPLICATIONS

- **Wired Headset**
- **Webcams**
- **Cellular or Cordless Handsets**

### DESCRIPTION

The LMV1051-LLP is an ultra-low power signal processor that processes the signals from 2 ECM or MEMS microphones to create an adaptive beam forming noise reduction system.

The LMV1051-LLP processor is intended to be integrated with microphones (ECMs or MEMS). By using a proprietary TI algorithm, the processor extracts a clean intelligible signal from noisy environments through the use of an adaptive directional pattern. The resulting solution can reduce noise by up to 30 dB, resulting in a significant improvement to the signal-to-noise ratio (SNR). The signal processing does not introduce artifacts into the talker's voice. The desired signal is unmodified, which improves intelligibility and speech recognition accuracy.

The LMV1051-LLP is designed to replace a standard ECM using a two-wire or three-wire interface. The entire module, including the processing IC, is powered from the mic bias supply. The resulting system uses less power than an individual ECM giving the end-product designer the ability to upgrade current designs without modifying the existing circuit. The result is an easy-to-use, low cost microphone alternative, providing superior noise reduction for end users.

**Notice: This document is not a full datasheet. For more information regarding this product or to order samples please contact your local TI sales office or visit <http://www.ti.com/support/dir.html>**



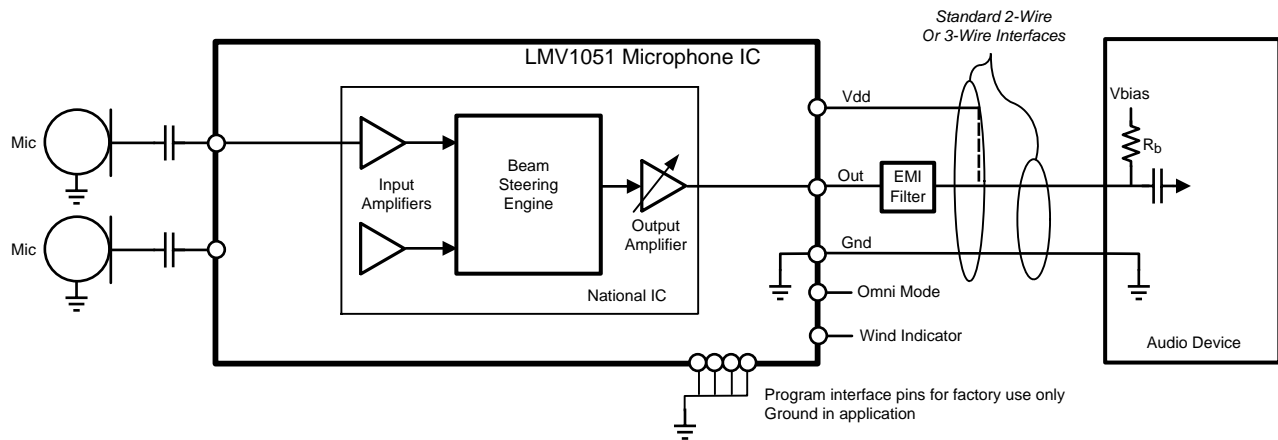
These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.



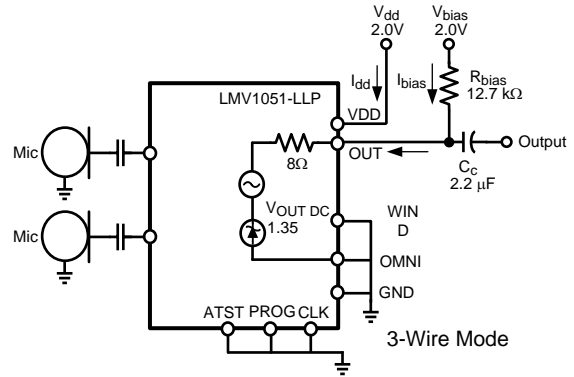
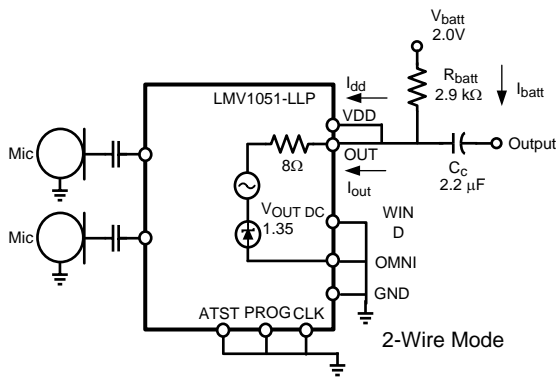
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Block Diagram



Typical Applications Circuit



**REVISION HISTORY**

<b>Changes from Original (May 2013) to Revision A</b>	<b>Page</b>
• Changed layout of National Data Sheet to TI format .....	<a href="#">2</a>

**PACKAGING INFORMATION**

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)	Op Temp (°C)	Top-Side Markings (4)	Samples
LMV1051SDX-BA/NOPB	NRND	WSON	DSC	10	4500	Green (RoHS & no Sb/Br)	Call TI	Level-1-260C-UNLIM	0 to 60	L1051	

(1) The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(3) MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) Multiple Top-Side Markings will be inside parentheses. Only one Top-Side Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Top-Side Marking for that device.

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**TAPE AND REEL INFORMATION**

**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**


\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
LMV1051SDX-BA/NOPB	WSO	DSC	10	4500	330.0	12.4	3.3	3.3	1.0	8.0	12.0	Q1

TAPE AND REEL BOX DIMENSIONS

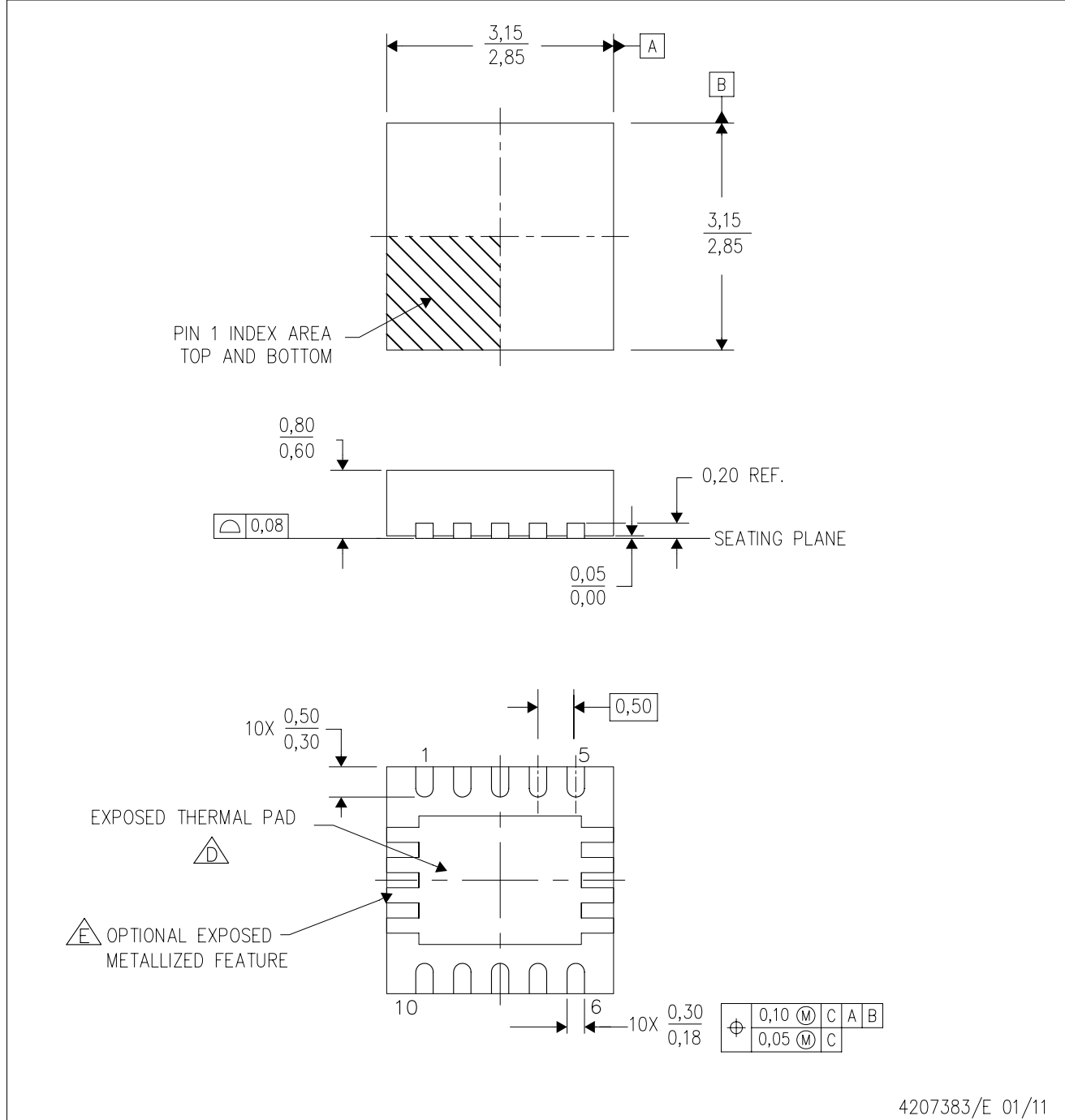




\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
LMV1051SDX-BA/NOPB	WSON	DSC	10	4500	367.0	367.0	35.0

DSC (S-PWSON-N10)

PLASTIC SMALL OUTLINE NO-LEAD



- NOTES:
- A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.
  - B. This drawing is subject to change without notice.
  - C. Small Outline No-Lead (SON) package configuration.
  -  D. The package thermal pad must be soldered to the board for thermal and mechanical performance.
  -  E. See the Product Data Sheet for details regarding the exposed thermal pad features and dimensions.

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### Applications

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