

## KEY ADVANTAGES

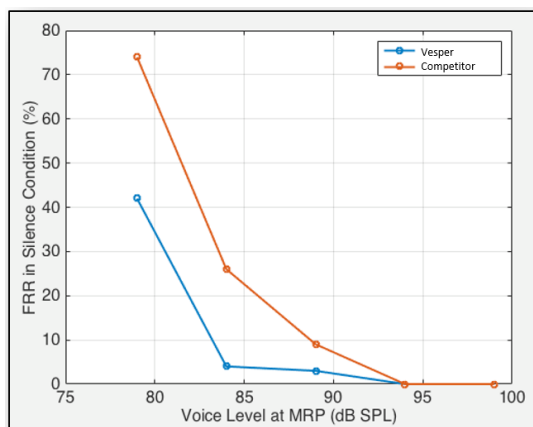
- High performance MEMS microphone with PDM output
- Less than 1 $\mu$ A current consumption in Sleep mode
- Ultra-fast startup, 200  $\mu$ Sec, from all modes
- Dust and moisture resistant, IP57
- Industry standard 3.5 x 2.65mm LGA package footprint
- No Mesh Required

## TYPICAL APPLICATIONS

- Beamforming Arrays
- Smart Home Devices
- IP Security Cameras
- Outdoor Applications
- Wearables
- Automotive

## WAKE WORD ACCURACY

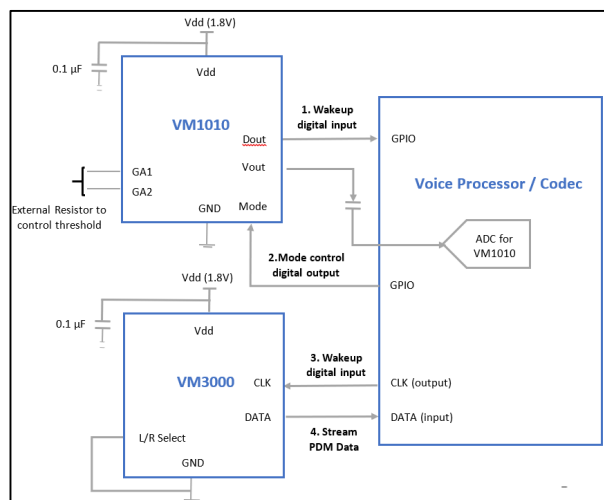
VM3000 offers a startup time of 200  $\mu$ Sec, which is 50X better than the closest competition. Fast wake up time from sleep mode helps increase wake-word accuracy as seen below.



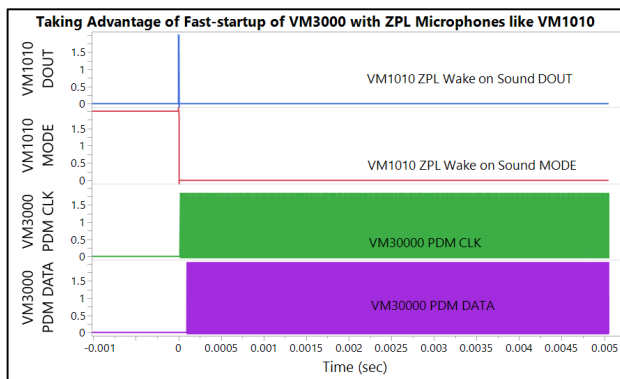
## COMPATIBILITY WITH ZEROPOWER LISTENING™

Fast start-up time of the VM3000 enables it to be part of ultra-low power systems that are turned on when the acoustic activity interrupt is triggered by a ZeroPower Listening™ microphone like the VM1010. In sleep mode, the VM3000 consumes less than <1 $\mu$ A of current and outputs PDM data within 200  $\mu$ Sec of receiving clock.

Key Parameters	Specification
Sensitivity	-26 $\pm$ 1 dBFS
SNR (20Hz – 20kHz)	62.5 dB(A)
SNR Voice Band (20Hz – 8kHz)	64.5 dB(A)
THD AOP	0.1 % @ 94dB SPL 10 % @ 122dB SPL
Roll Off Frequency	100 Hz
Supply Voltage	1.6V – 3.6V
Supply Current (Normal Mode, 2.4MHz)	700uA
Supply Current (Low Power, 768kHz)	400uA
Sleep Current (No Clock)	< 1uA
Startup Time	200uSec



Timing diagram below shows the transition between ZPL mode of the VM1010 and the PDM output of the VM3000 without losing any valuable audio information for wake-word or command processing

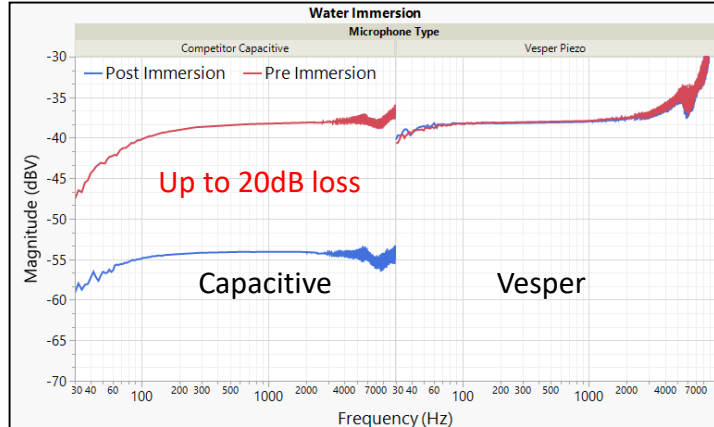
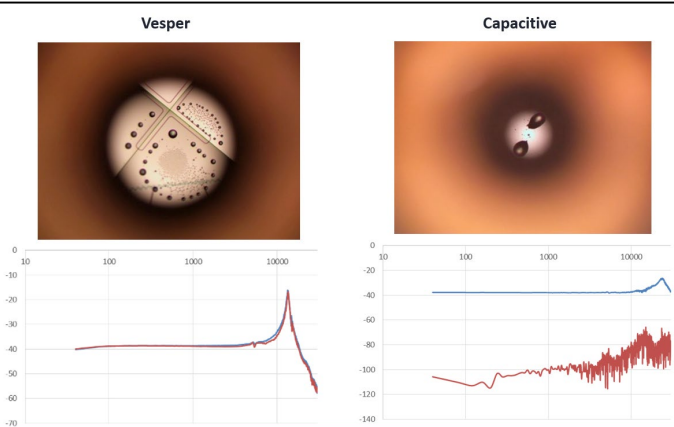
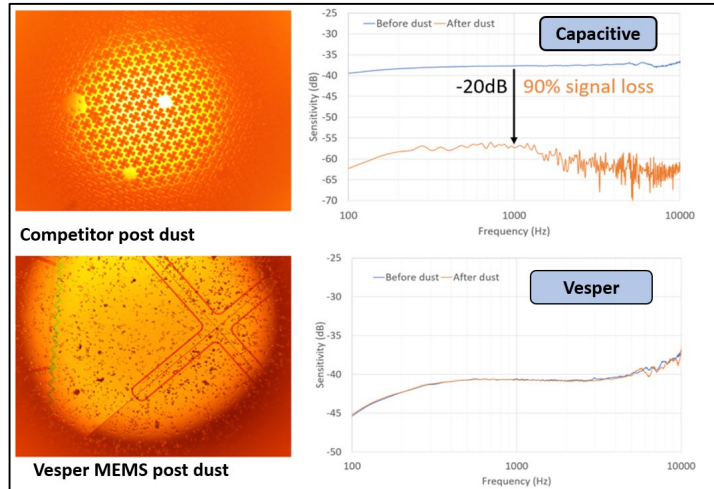


### ENVIRONMENTAL ROBUSTNESS

Vesper is the only MEMS microphone manufacturer with IP57 rating for all its microphones. **They do not require a protective mesh** which has several advantages at the system level.

- Decreases cost up to 20 cents
- No degradation in SNR after assembly (up to 3dB)
- No variability in manufacturing
- Less complex assembly procedure
- Longer lasting life for final product

Difference in results from Oil (Bottom), Dust (Right) and Water (Bottom Right) tests highlights the robustness of the piezoelectric technology.



### INDUSTRY STANDARD PACKAGE

The VM3000 has an industry standard 3.5mm x 2.65mm bottom port package and is a drop-in replacement for most PDM mics with the same footprint.

Pin Number	Pin Name	Description
1	DATA	PDM Digital Output
2	L/R SELECT	Left/Right Channel Select
3	NC	No Connect
4	NC	No Connect
5	CLK	PDM Clock Input
6	VDD	Power Supply
7	GND	Ground

