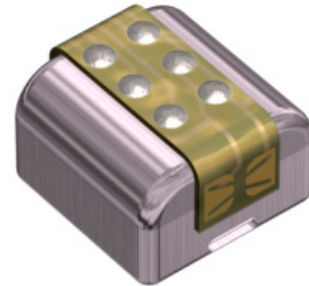


### Description

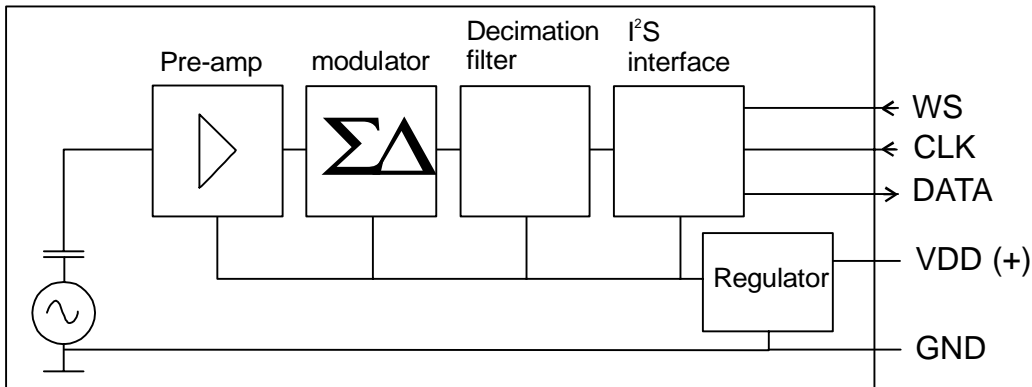
Digital microphone for hearing instruments with a custom IC, including a low voltage, low power integrated amplifier and a high resolution A/D converter with I<sup>2</sup>S interface. A flexible circuit provides the electrical interface to the hearing instrument. An additional toggle hart on this flexible circuit provides a switch.



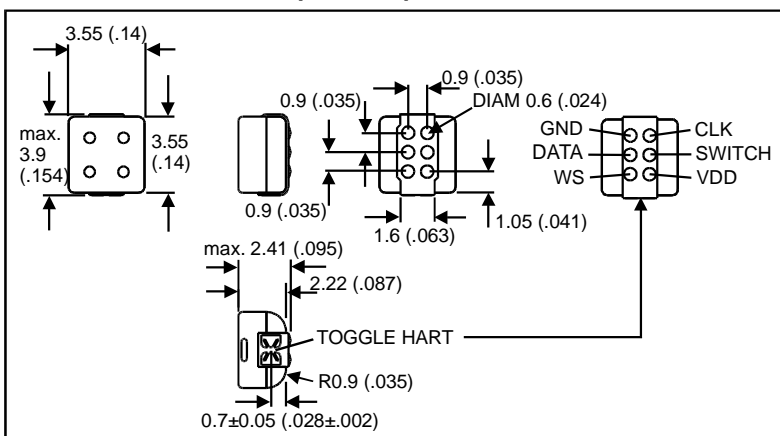
### Features

- $\Sigma\Delta$  A-to-D converter
- integrated low noise preamplifier
- large suppression of EMI
- high power supply suppression
- programmable via IISHIA protocol (i.e. standby mode)

### Functional Block Diagram



### Dimensions in mm (inches).



### Specifications

Measurement conditions: Free field at Vsupply = 1.3 V, Temp = 23°C, 40 - 60 % R.H., Fclk = 1.024 MHz.

Parameters		Min	Typ	Max	Unit	Comments
Sensitivity *	@ 1 kHz	-22	-20	-18	dB FS/Pa	
	@ 100 Hz	-9	-6	-3	dB	re 1 kHz value
	@ 4500 Hz	+1	+4	+7	dB	re 1 kHz value
Peak frequency		4	4.5	5	kHz	
Equivalent noise (A-weighted)			27		dB SPL	
Maximum input level			111		dB SPL	dist. 3% (at 1 kHz)
Total harmonic distortion				2	%	input 90 dB SPL, 1 kHz
Supply voltage		1.05	1.3	1.5	VDC	operating range
Battery drain **		205	240	275	µA	
End of life voltage ***		1.05	1.1	1.15	VDC	
PSRR		64	70		dB	10 mV 1 kHz signal, input referred
Temperature range (operating)		0	37	50	°C	
* Sensitivity change on reducing supply from 1.3 VDC to 1.05 VDC: 0.2 dB FS/Pa max.						
** Battery drain will decrease with decreasing F <sub>CLK</sub> .						
*** This is the minimum supply voltage required for operation.						

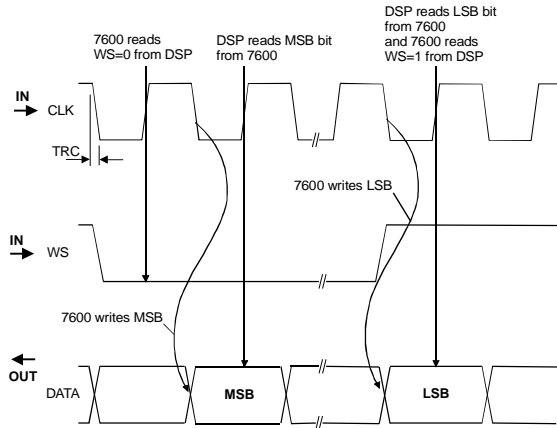
### Static Digital Specifications

Specifications valid for meeting performance as listed in "Specifications".

Parameters	Symbol	Min	Typ	Max	Unit	Comments
Input voltage low	V <sub>IL</sub>			0.2 VDD	V	
Input voltage high	V <sub>IH</sub>	0.8 VDD			V	
Output voltage low	V <sub>OL</sub>		0.1 VDD	0.15 VDD	V	
Output voltage high	V <sub>OH</sub>	0.85 VDD	0.9 VDD		V	
Load capacitance	C <sub>L</sub>		35	50	pF	
CLK input capacitance	C <sub>IN</sub>		7		pF	
Output current sink	I <sub>L</sub>	160			mA	Vdata = 0.1 VDD; VDD = 0.9 V
Output current source	I <sub>H</sub>	120			mA	Vdata = 0.1 VDD; VDD = 0.9 V

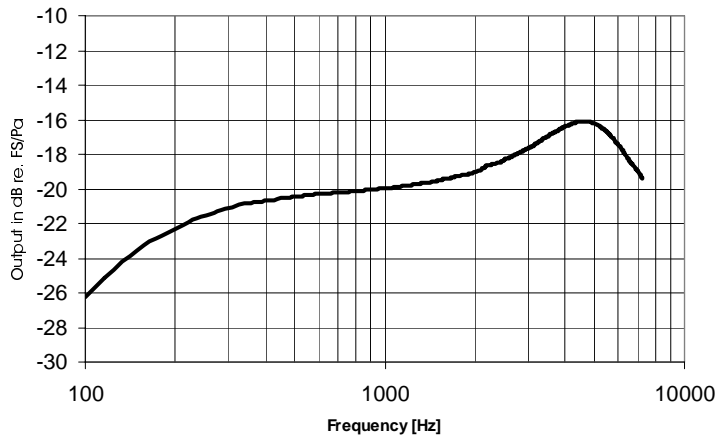
### Dynamic Digital Specifications

Parameters	Symbol	Min	Typ	Max	Unit	Comments
Clock frequency	$F_{CLK}$	512		1024	MHz	
Digital input rise and fall time	TRC			100	ns	
Jitter tolerance	$T_J$			10	ns	



### Typical response curve

The response curves shown below are typical for this microphone in a free field setup.



### Maximum ratings

Parameters	Min	Max	Unit	Comments
Voltage on any pin	-0.3	3.5	VDC	
ESD sensitivity	0.5		kV	IEC 802-1 (typical value: 2 kV)
Temperature range (storage)	-20	70	°C	