

Data Sheet

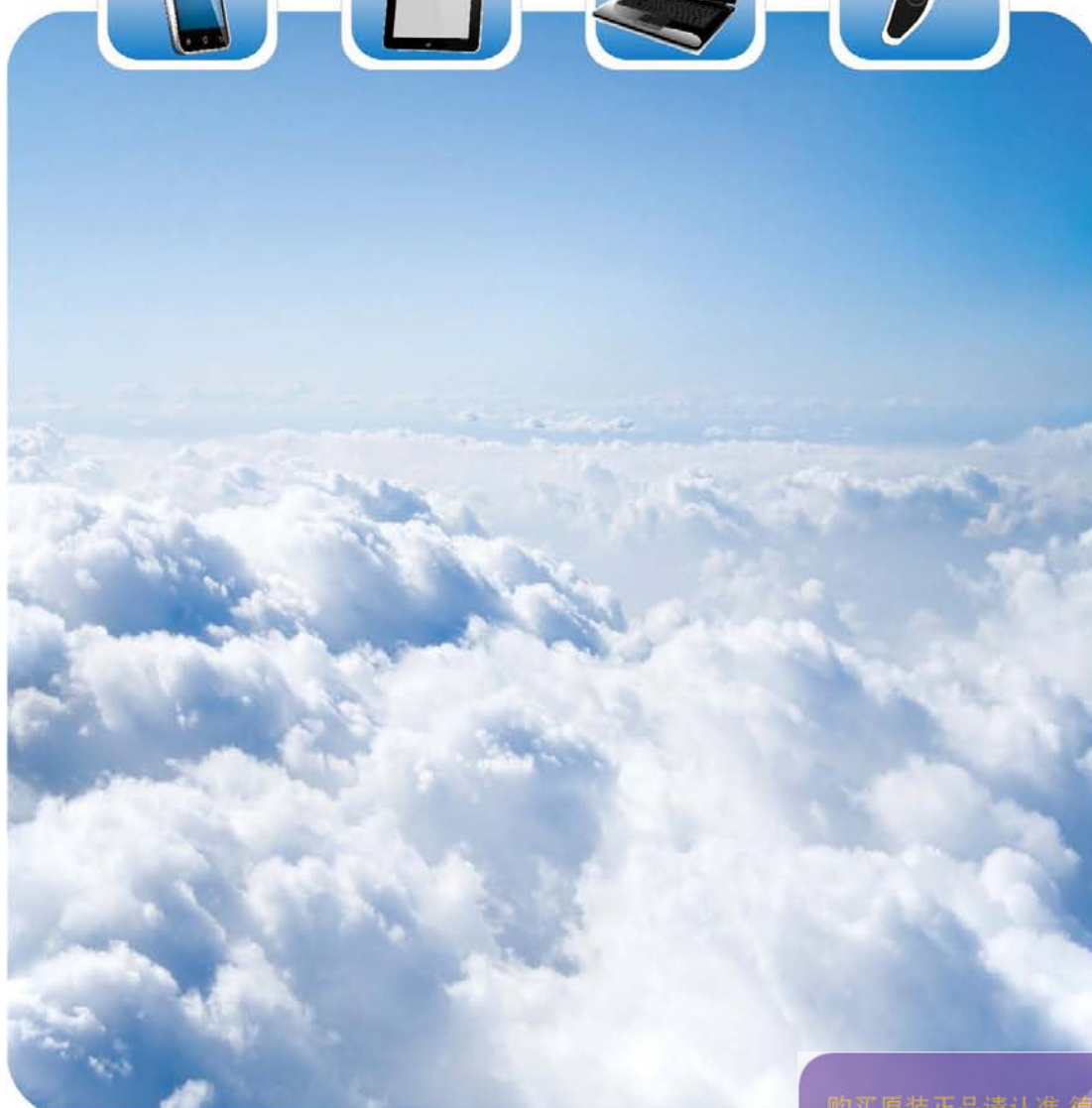
V 1.4 / Feb. 2014

MSM38A3729H3-C

Analog output MEMS microphone



苏州敏芯微电子技术有限公司
MEMSensing Microsystems Co., Ltd



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GENERAL DESCRIPTION

MSM38A3729H3-C is an omnidirectional, analog output MEMS microphone. It has high performance and reliability. It is RF enhancement product.
(isolation ability of enhancement products is 15dB higher than standard ones in the range of high frequency)

MSM38A3729H3-C is available in a thin 3.76 mm × 2.95 mm × 1.1 mm OCLGA package. It is SMT compatible with no sensitivity degradation.

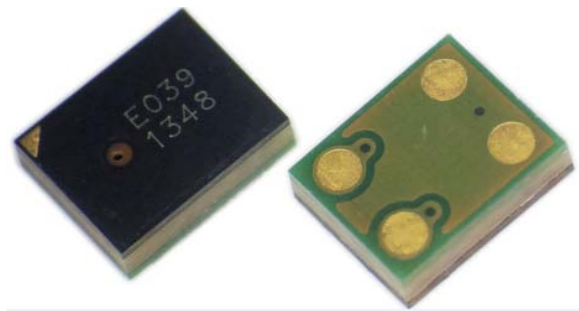
FEATURES

- ✧ Omnidirectional
- ✧ RF enhancement products
- ✧ Standard SMD Reflow
- ✧ Compatible with Sn/Pb and Pb-free solder processes
- ✧ RoHS/Halogen free compliant

APPLICATIONS

- ✧ Mobile Phone
- ✧ Laptop
- ✧ Tablet computer
- ✧ Bluetooth headset
- ✧ Earphone
- ✧ Wearable intelligent equipment

PRODUCT VIEW



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ABSOLUTE MAXIMUM RATINGS

Parameter	Maximum value	Unit
Supply Voltage	-0.3 to 4.0	V
Sound Pressure Level	140	dB SPL
Mechanical Shock	10,000	g
Temperature Range	-40 to 100	°C
Electrostatic discharge protection	8 (HBM)	kV

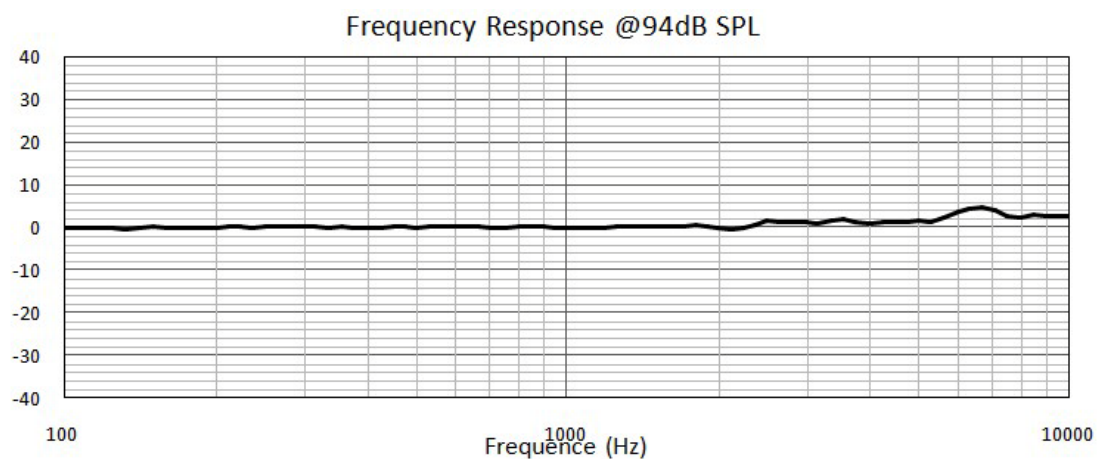
SPECIFICATIONS

All data taken at 25°C, Relative Humidity 45±5% unless otherwise specified

	Limits			unit	condition
	Min.	Nom.	Max.		
Directivity	Omni directional				
Sensitivity	-41	-38	-35	dB	@1kHz ref 1V/Pa
Operation voltage	1.5		3.6	V	
Freq. range	Refer to the frequency response			Hz	
Sensitivity loss across supply voltage	No change across the voltage range			dB	
Signal to noise ratio (A-weighted)		62	N/A	dB	@1kHz ref 1V/Pa
THD	N/A	N/A	1%		100dB SPL @1kHz
	N/A	N/A	10%		120dB SPL @1kHz
Out impedance	N/A	N/A	100	Ω	
PSRR		-73		dB	
Current consumption	N/A	N/A	180	μA	
Operating temperature	-40	N/A	100	°C	
Storage temperature	-40	N/A	100	°C	

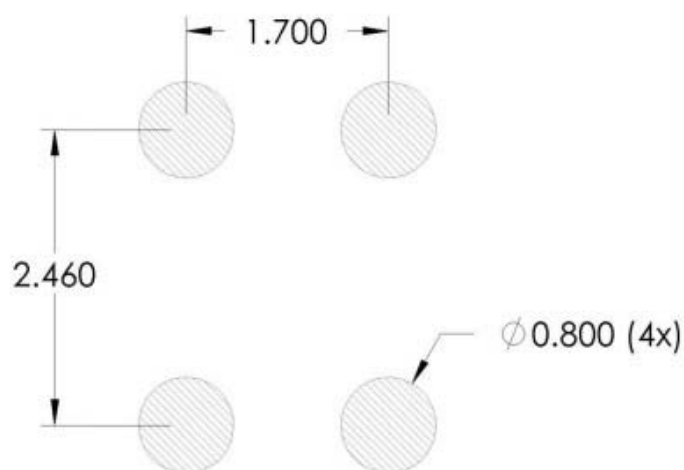


TYPICAL FREQUENCY RESPONSE



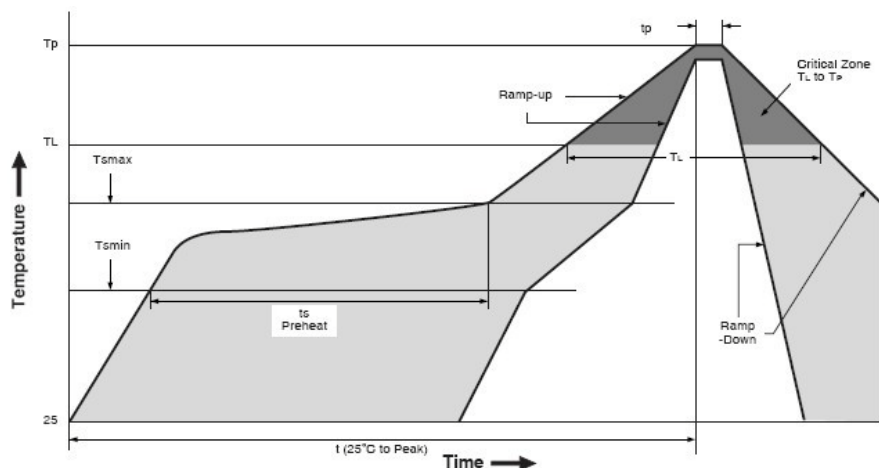
SMT Parameters:

1. Recommend PCB land pattern layout: (unit: mm)





2. Recommend reflow profile:



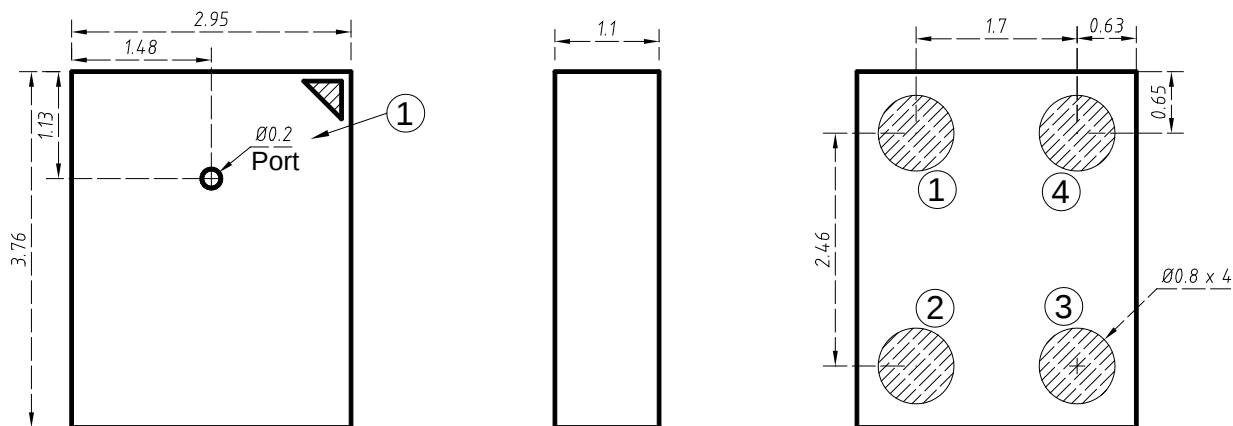
Description	Parameter	Pb-free
Average ramp rate	T_L to T_P	3 °C/sec max
Preheat		
Minimum temperature	T_{SMIN}	150 °C
Maximum temperature	T_{SMAX}	200 °C
Time(T_{SMIN} to T_{SMAX})	t_S	60 sec to 120 sec
Ramp-up rate	T_{SMAX} to T_L	
Time maintained above liquidous temperature	t_L	60 sec to 150 sec
Liquidous temperature	T_L	217 °C
Peak temperature	T_P	260 °C max
Time within 5°C of actual peak temperature		20 sec to 40 sec
Ramp-down rate		6 °C/sec max
Time 25 °C ($t_{25\text{ °C}}$) to peak temperature		8 minutes max

3. note:

When washing the PCB, ensure that water does not make contact with the microphone port.
Do not use blow-off procedures or ultrasonic cleaning.



OUTLINE DIMENSIONS AND PIN DEFINITION:



PIN function description

PIN#	Function
1	VDD
2	GND
3	GND
4	OUT

Item	Dimension	Tolerance
Length (L)	3.76	± 0.10
Width (W)	2.95	± 0.10
Height (H)	1.10	± 0.10
Acoustic Port (AP)	$\varnothing 0.5$	± 0.10

Dimensions are in millimeters
Tolerance is $\pm 0.15\text{mm}$ unless otherwise specified.

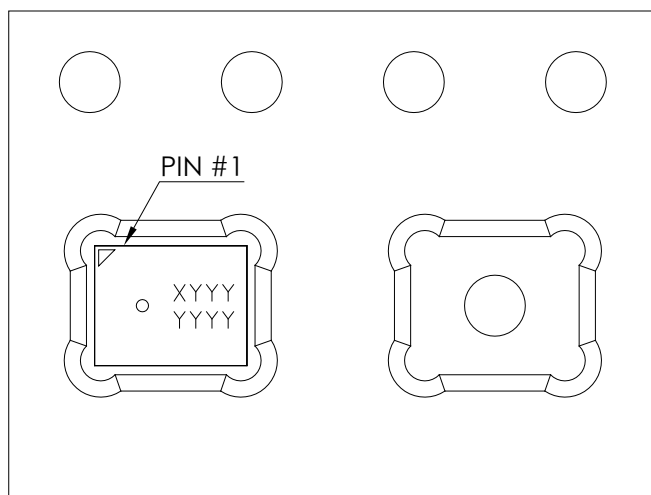
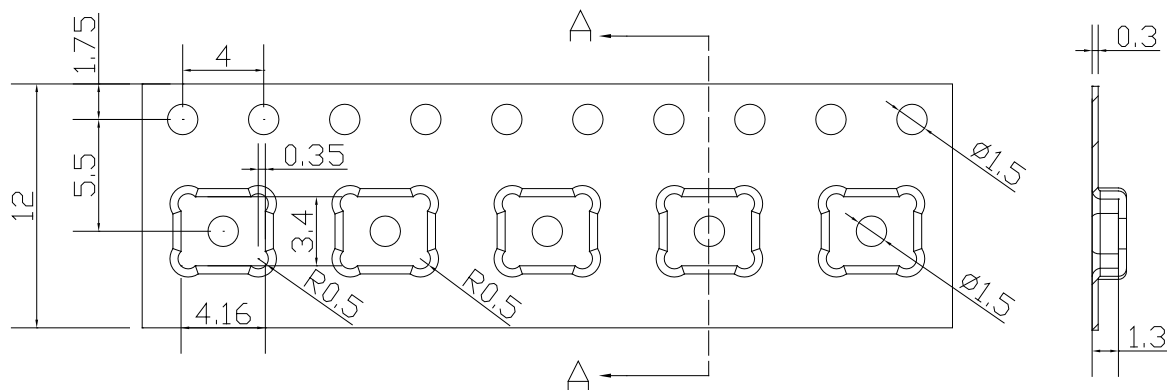
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PACKAGING & MARKING DETAIL:



Note: Dimensions are in mm.

DIRECTION OF FEED →

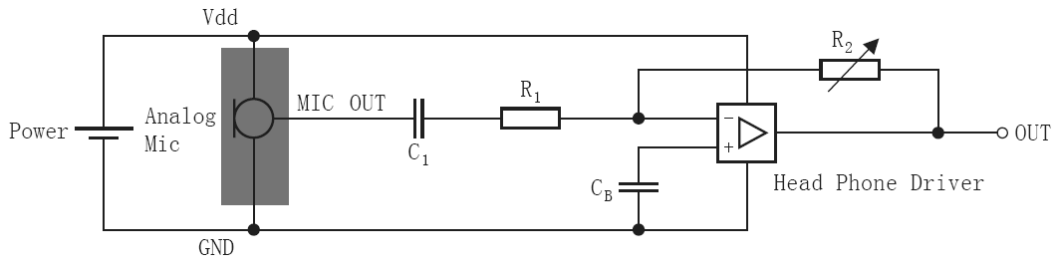
Component Orientation

Model Number	Reel Diameter	Quantity Per Reel
MSM38A3729H3-C	13 inch	5000
	7 inch	1000

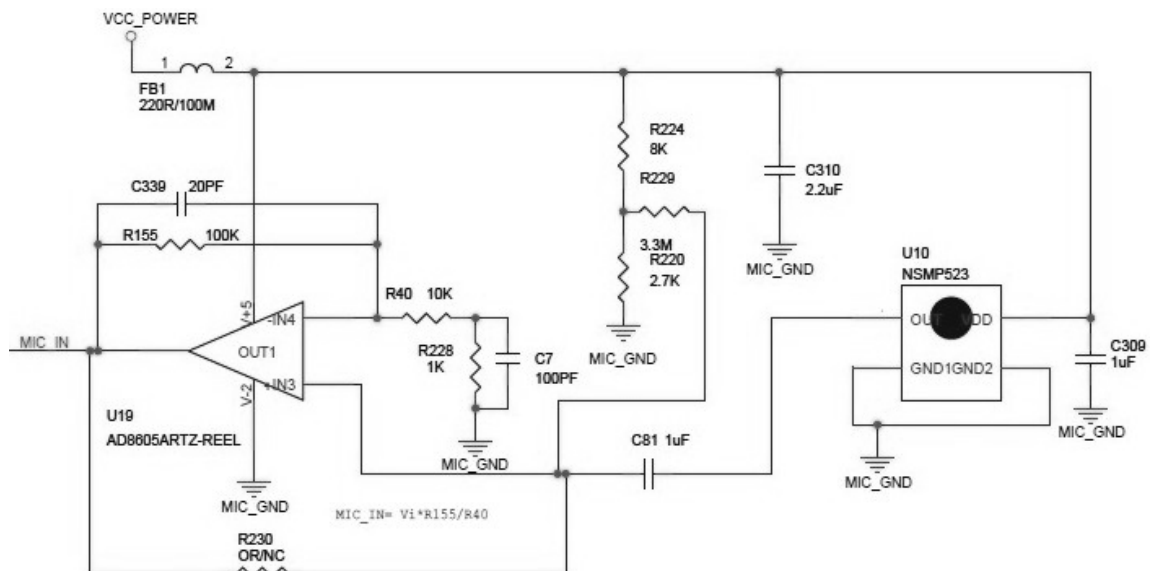


RECOMMENDED INTERFACE CIRCUIT:

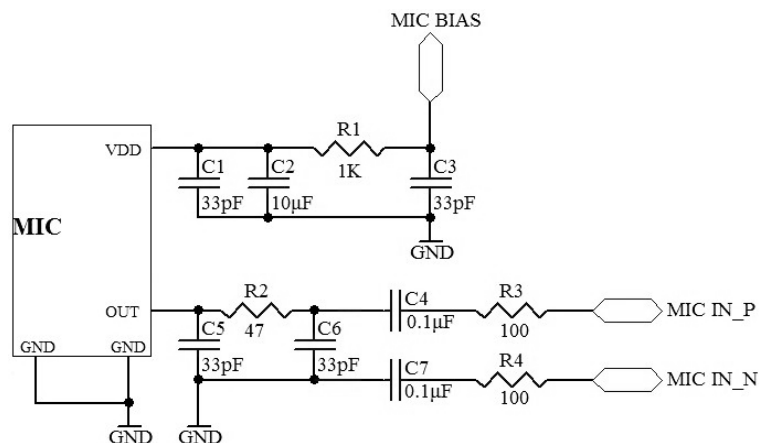
● Demonstrator Application Circuit



● Recommended Application Example 1(single end amplification with OP)



● Recommended Application Example 2 (differential amplification circuit)



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REVISION HISTORY:

Revision	Subjects (major changes since last revision)	Date
1.0	Initial Release	2013-7-25
1.1	Update the application circuit. Update the outline drawing. Increase the PSRR.	2013-9-10
1.2	Update the packaging detail. (increase the laser text)	2013-10-22
1.3	Update page layout & contact information	2013-12-11
1.4	Update the outline drawing.(increase the specific tolerance)	2014-2-20

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