

Product Specification

Number: L-KLS14-MC2718
Name: Silicon MEMS Omni-directional Microphone
Specification: _____
Customer: E32
Date: 2020-08-13

Customer Signature:



NINGBO KLS ELECTRONIC CO; LTD

Tel : 0086-574-86828566

Fax : 0086-574-86824882

ADD : NO. 8-1, RONGXIA RD. XIAPU SHANQIAN
INDUSTRIAL ZONE BEILUN NINGBO ZHEJIANG.

Compile	Check	Review	Approval
Jenny	Jack.C		

Never stop developing

Abreast of the times

L-KLS14-MC2718

Silicon MEMS Omni-directional Microphone



客戶名稱： _____

客戶料號： _____

Customer's Name : _____

Customer's Part No : _____

產品名稱： _____ 2718 硅咪 _____

送樣編號： _____

Production Name : _____

Sample No : _____

靈敏度： _____ -38±1dB _____

型號： _____

Sensitivity : _____

Model : _____

承認者 CUSTOMER	審核 CHECKER	核准 APPROVER

Prepare		CHECKER		APPROVER	
DATE		DATE		DATE	

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1.Introduction

L-KLS14-MC2718 is an analog top port MEMS microphone with high performance and low-power consumption. It integrates a MEMS microphone element, an impedance converter, and an output amplifier. Other high-performance specifications include 130 dB SPL acoustic overload point in high performance mode, ± 1 dB sensitivity tolerance and enhanced immunity to both radiated and conducted RF interface.

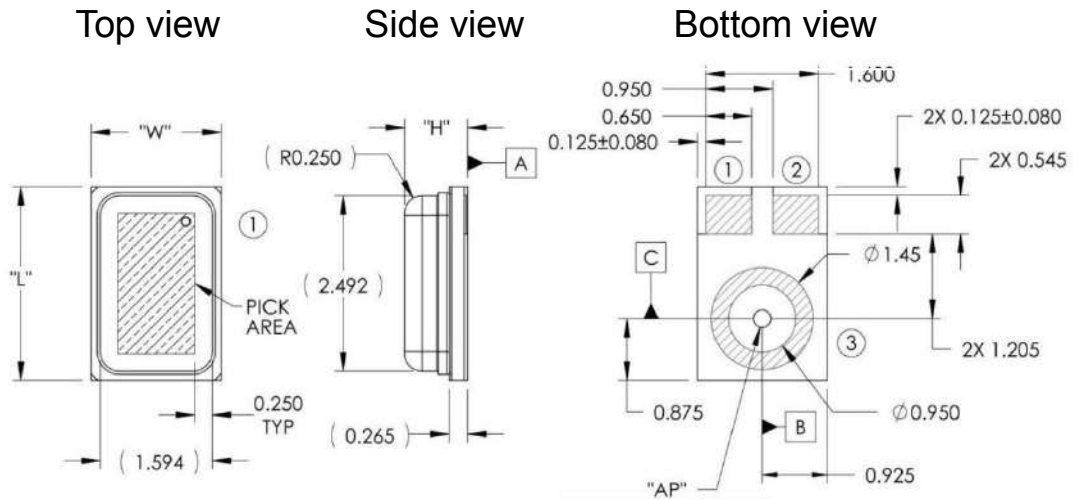
Excellent acoustic performance, along with the compact size is best-suited for a wide range of consumer electronic products, offering a product with high-quality to meet the application requirement.

L-KLS14-MC2718 is used in many products, such as Cellphones; TWS Headsets; Smartphones. It also applicate to Smart home devices and Internet of Things.

L-KLS14-MC2718 have many product features listed below:

1. RF Protection
2. HD Voice MEMS Microphone
3. Omnidirectional
4. Pb-free and RoHS Compliant
5. Standard SMD Reflow
6. Small Package
7. Flat Frequency Response
8. Sensitivity Matching
9. Low Noise

2.Mechanical Layout and Dimensions



Item	Dim	Tol	Units
Length	2.75	±0.10	mm
Width	1.85	±0.10	mm
Height	0.95	±0.10	mm
AP	ø0.25	±0.05	mm

Pin	Pin name	Type	Description
1	V _{DD}	Power	Power Supply
2	OUTPUT	Signal	Output Signal
3	GND	Power	Ground

Mechanical Dimension Pin Definition

Notes:

All dimensions are in millimeters (mm).

Tolerance is ±0.15mm unless otherwise specified.

Weight is 0.022±10%g.

3. Acoustic & Electrical Characteristics

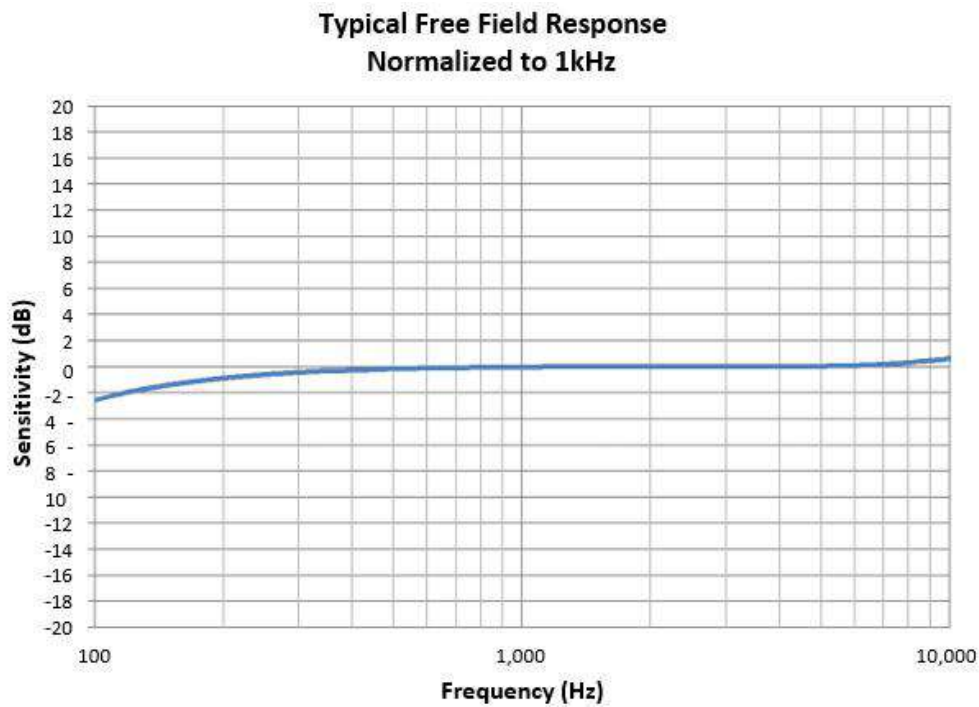
Test conditions:

Ta=23± 2°C, RH=55±20%, VDD = 1.8V, VDD (min) < VDD < VDD (max)

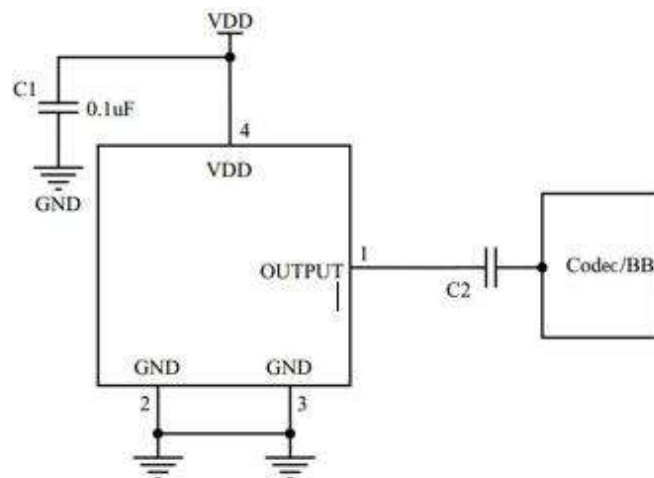
no load, unless otherwise indicated

No.	ITEM	Symbol	Condition	Min	Typ.	Max	Unit
1	Directivity	-	Omnidirectional				
2	Operating Voltage	V _{DD}	-	1.5	-	3.6	V
3	Sensitivity	S	94dB SPL@ f=1KHz	-39.5	-38	-36.5	dB/V/Pa
4	Current consumption	I	-	-	85	110	μA
5	Output impedance	Z _{out}	f=1KHz	-	-	300	Ω
6	Signal to Noise Ratio	S/N(A)	94dB SPL@ f=1KHz, (A-weighted)	-	62.5	-	dB(A)
7	Total Harmonic Distortion	THD	94dB SPL@1kHz,S=Typ, VDD =2.2V	-	0.15	-	%
8	Acoustic Overload Point	AOP	10%THD@1kHz	120	123	-	dB SPL
9	Power Supply Rejection	PSR	100 mVpp square wave @ 217Hz,	-	-101	-	dB/V
10	Power Supply Rejection Ratio	PSRR	200 mVpp sinewave@ 1kHz, VDD = 2.0V	-	65	-	dB

4. Frequency Response Curve



5. Measurement Circuit



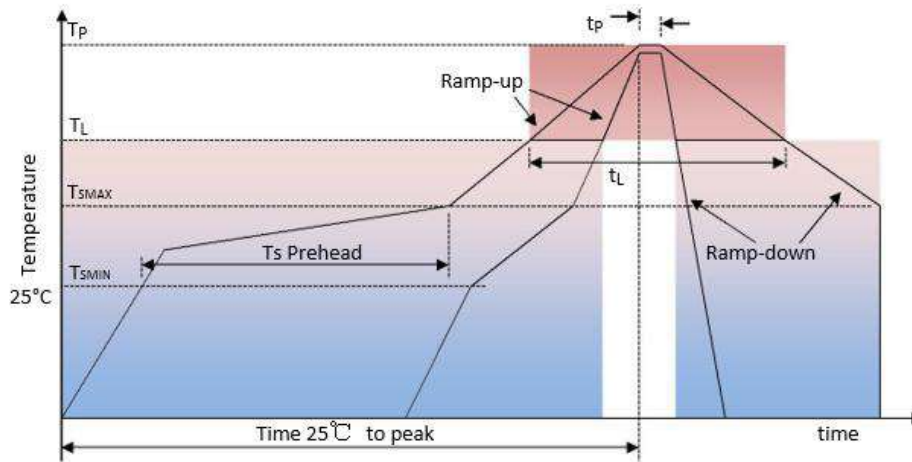
Typical Application Circuit

Notes:

All Ground pins must be connected to ground.

Capacitors near the microphone should not contain Class 2 dielectrics due to their piezoelectric effects.

7. Recommended Reflow Profile



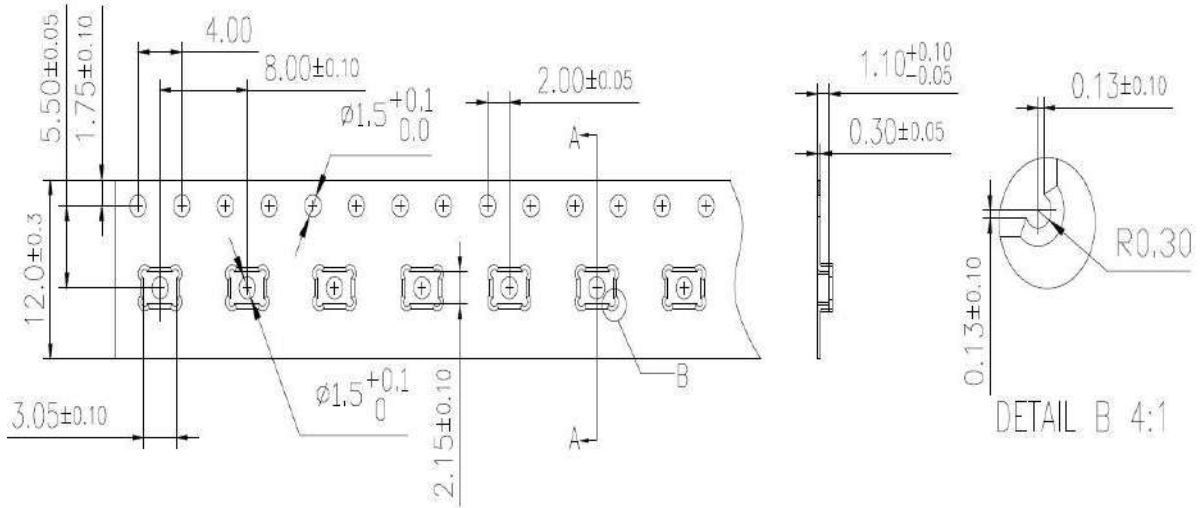
Profile Feature	Pb-Free
Average ramp-up rate (Tsmax to Tp)	3°C/second max
Preheat:	
- Temperature Min (Tsmmin)	150°C
- Temperature Max (Tsmmax)	200°C
- Time (Tsmmin to Tsmmax) (ts)	60-180 seconds
Time maintained above	
- Temperature (TL)	217°C
- Time (TL)	60-150 seconds
Peak Temperature (Tp)	260°C
Time within 5°C of actual Peak Temperature (tp)	20-40 seconds
Ramp-down Rate	6°C/second max
Temperature 25°C to Peak Temperature	8 minutes max

Notes:

1. Do not board wash or clean after the reflow process.
2. Do not brush board with or without solvents after the reflow process.
3. Do not directly expose to ultrasonic processing, welding, or cleaning.
4. Do not insert any object in acoustic port hole of device at any time.
5. Do not apply air pressure into the acoustic port hole.
6. Do not pull a vacuum over acoustic port hole of the microphone.
7. Do not apply a vacuum when repacking into sealed bags at a rate faster than 0.5 atm/sec.
8. Recommended number of reflow is not more than 5 times.

8. Packing & Marking Detail

8.1 Tape Specification



Model Number	Reel Diameter	Quantity Per Reel
ST2718H09B-38C-FSM	13"	5000

Notes:

1. Mensions are in millimeters unless otherwise specified.
2. Tape and Reel Per EIA-481 standard.
3. The label is attached to the outer package and directly onto the reel.
4. Shelf life: Twelve(12)months when devices are stored in the factory supply, unopened ESD moisture sensitive under maximum environmental conditions of 30°C,70%RH.

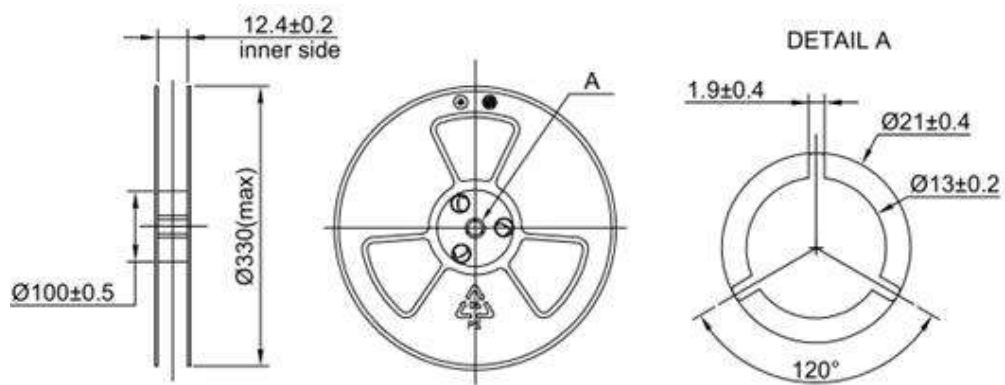
8.3 Tape Material and Color

Tape material: PS ESD

Surface resistance: $10^5 \sim 10^{11} \Omega/\text{Square}$

Tape color: Black

8.4 Reel Specification



8.5 Packing Information

Qty/reel (PCS)	Weigh/reel (kg)
5000	$0.6 \pm 10\%$

9. Reliability Specifications

Test item	Detail	Standard
Reflow Simulation	Refer to Sec.9 for solder reflow profile , total 5 times	/
Low Temperature Bias	Conditions:-40°C Duration:168 hours while under bias	IEC 60068-2-2 Test Aa
High Temperature Bias	Conditions:105°C Duration:168 hours while under bias	IEC 60068-2-2 Test Ba
Thermal Shock	Conditions:100 cycles of air-air thermal shock from -40°C to 125°C with 15-minute soaks	IEC 60068-2-4
Temperature/ Humidity Bias	Conditions:85°C/85%RH environment while under bias for 168 hours	JESD22-A101A-B
Mechanical Shock	Conditions:3 pulses of 10,000g in the X Y and Z direction	IEC 60068-2-27 Test Ea
Vibration Test	Test axis : X Y Z Conditions:2-400Hz 1 oct/min Test time:15 mins per axis Use fixture during the testing	IEC 60068-2-6
Drop Test	Conditions :For each sample drop by all corners edges surfaces respectively Steel floor Drop height: 1800mm	IEC 60068-2-32
ESD	Conditions: ±8KV direct contact to the lid when unit is grounded, ±4KV direct contact to the I/O pins.10 times	IEC 60068-4-2

10. Cautions When Using MEMS MIC

10.1. Board Wash Restrictions

It is very important not to wash this silicon microphone , otherwise this could damage the microphone.

10.2. Sound Hole Protection

It is very important not to operate vacuum and air blow into sound hole(without any covering over sound holes), otherwise this could damage the microphone. And it is necessary to be careful about substances into sound hole inside silicon microphone.

10.3 .ESD Protection

The microphone is sensitive element,it is necessary to be careful when using.otherwise this maybe damage the microphone.

10.4. Ultrasonic Restrictions

It is very important not to use ultrasonic process. otherwise this could damage the microphone