KLS electronic
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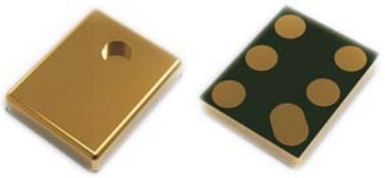
Silicon MEMS Omni-directional Microphone

Features:

1.SMD MEMS microphone for automated surface mount assembly
2.Reflow soldering up to 260°C（Lead free）
3.High long-term temperature stability
4.Stable sensitivity over power supply range of 0.3~4.0V
5.Low current consumption of 80uA
6.Excellent power supply rejection of -72dB
7.High integrated immunity to EMI
8.RoHS-compliant, halogen-free package with small footprint and low height of 1.25mm



Applications.

1.Mobile Phones (Handsets, Headsets)
2.Consumer (Game Consoles, PDA's)
3.Computer (Personal Computers, Notebooks)
4.Cameras (Digital Still Cameras, Video Cameras)
5.Navigation Device(Portable GPS)
6.Blue-tooth (Headsets)

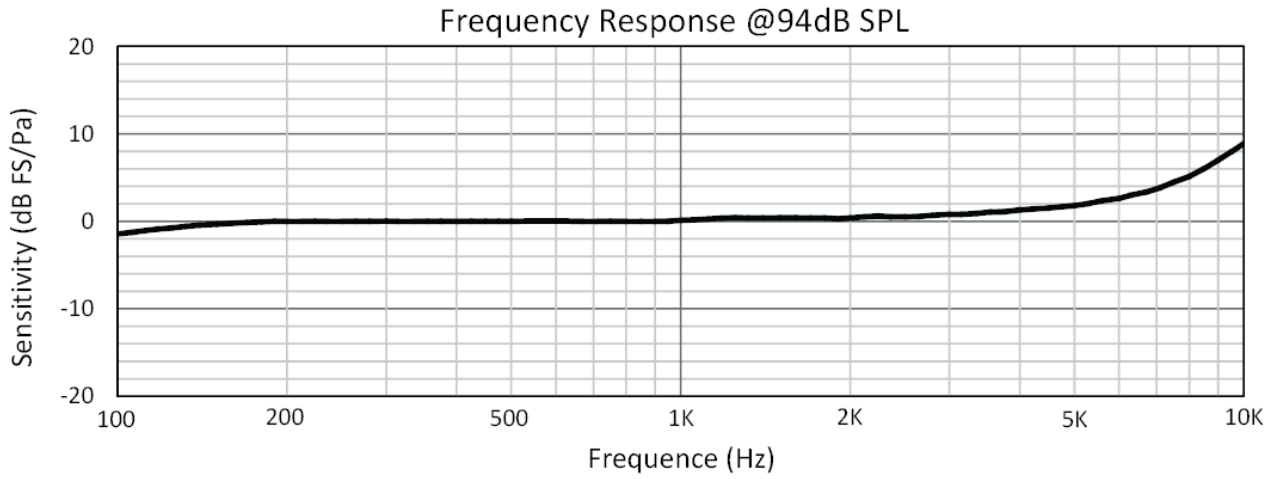
Max. Ratings

Storage Temperature:	T_{STG}	-40°C ~ 100 °C
Operating Temperature Range:	T_A	-40°C ~ 100°C
Operating Voltage Range:	V_{DD}	1.6V~ 3.3 V

Typical robustness to electrostatic discharge

ESD capability all pins (HBM, JESD22-A114)	V_{ESD_HBM}	4 kV
ESD capability all pins (MM, JESD22-A115)	V_{ESD_MM}	400 V

Typical Measurements Results :



Typical frequency response curve relative to the sensitivity at a frequency of 1 kHz

ORDER INFORMATION

Product NO.:KLS3 - MEMS - 4737H12 - 263

- MEMS: Silicon MEMS Omni-directional Microphone
- 4737H12: Dimensions
- 263: Sensitivity

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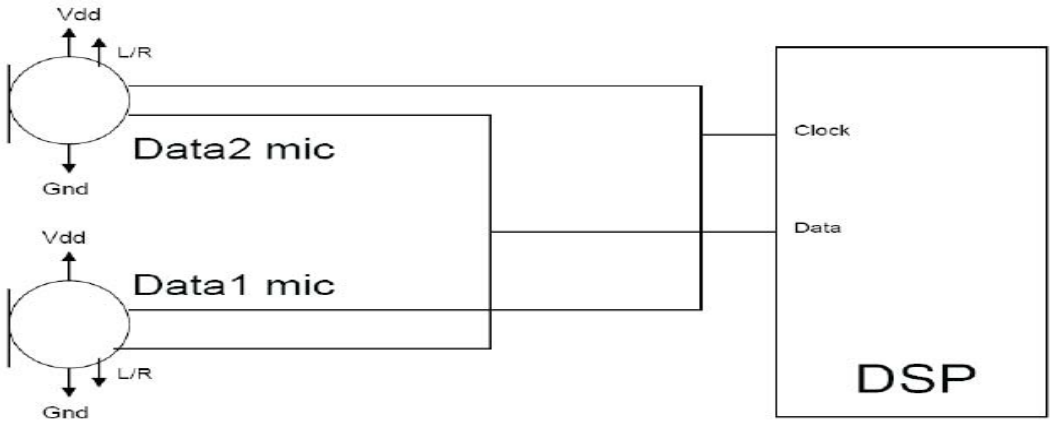
Acoustical and Electrical Characteristics

Unless otherwise noted, typical test conditions are *T*A = 23 °C, *V*DD = 2.1 V and R.H. = 50 % measured in a pressure chamber test setup. All voltages refer to GND node						
Parameter	**Symbol**	**Values**			Unit	**Note / Test Condition**
		Min.	Typ.	Max.		
Sensitivity 1 kHz	*S* 1kHz	-29	-26	-23	dB(V/Pa)	1 kHz, 94 dB SPL
PSR			-72		dB	dBFS(A)
Freq. range	Refer to the frequency response				Hz	Relative to sensitivity 1 kHz
Sensitivity loss across supply voltage	No change across the voltage range				dB	
Signal-to-Noise Ratio			57		dB(A)	A-weighted
Total Harmonic Distortion	*THD*			1	%	100 dB SPL, 1 kHz
				10	%	120 dB SPL, 1 kHz
Clock frequency		1.5	2.4	3.5	MHz	
Clock duty cycle		40		60	%	
Logic low		?0.3		0.35 xVdd	V	
Logic high		0.65 xVdd		Vdd + 0.3	V	
Current Consumption	I_{CC}			700	u A	
				50		Clock frequency<1KHz
Delay time for valid data		20		40	ns	
Delay time for High Z		0		15	ns	
1) Psophometrically weighted noise measurement with CCITT-filter (ITU-T Rec. P.53)						
2) Noise measurement with A-weighting filter (IEC 651)						

Schematic Measuring Diagram :



Label:	L/R:	Drives data after:	High-Z after:
Data2	High	Rising clock edge	Falling clock edge
Data1	Low	Falling clock edge	Rising clock edge

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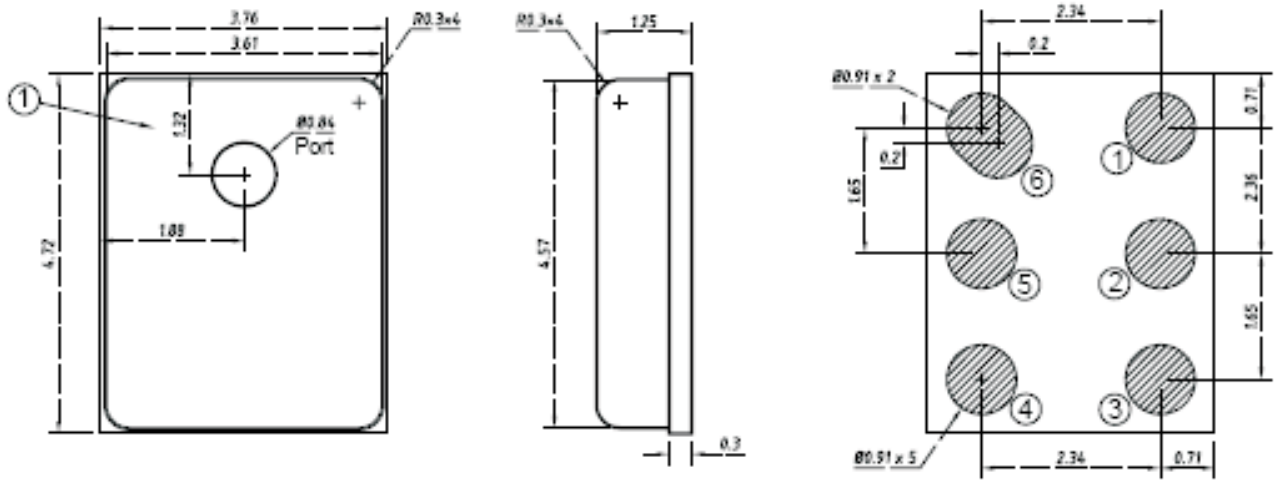
Package Outline



TOP VIEW SIDE VIEW BOTTOM VIEW

PIN function description

PIN#	Function
1	GND
2	L/R
3	GND
4	CLK
5	DATA
6	VDD

Item	Dimension	Tolerance
Length (L)	4.72	±0.10
Width (W)	3.76	±0.10
Height (H)	1.25	±0.10
Acoustic Port (AP)	Ø0.84	±0.10

Dimensions are in millimeters

Tolerance is ±0.15mm unless otherwise specified.

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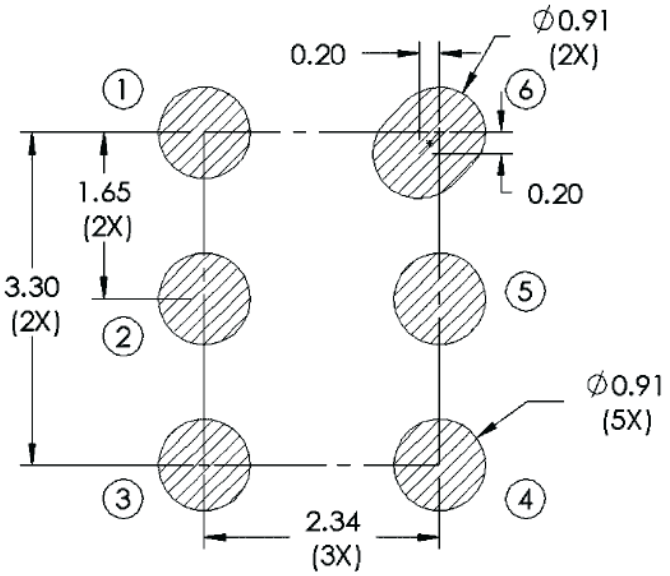
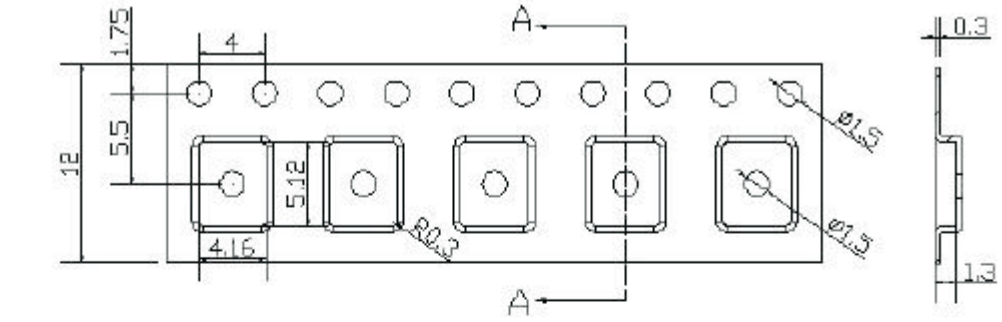
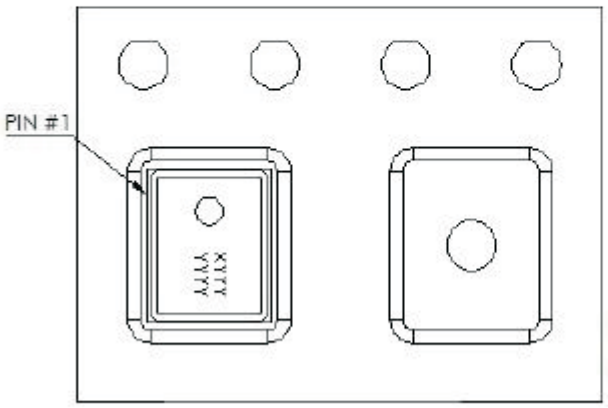
Recommended Customer Land Pattern



Tape Outline





Note: Dimensions are in mm.

DIRECTION OF FEED

Component Orientation

Quantity Per Reel	5000
Reel Diameter	13 inch

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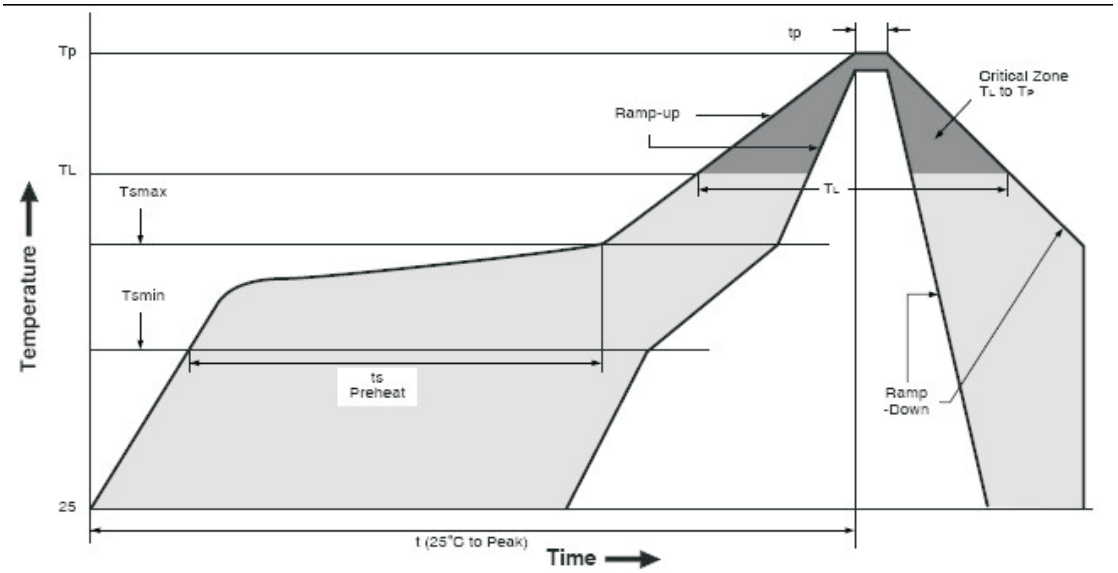
Solder Reflow Profile



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	1.25 °C/sec max
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	t_P	20 sec to 40 sec
Ramp-down rate	T_L to T_P	6 °C/sec max
Time 25 °C (t25 °C) to peak temperature	t	8 minutes max