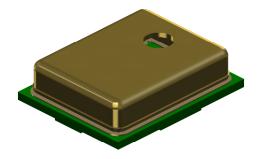
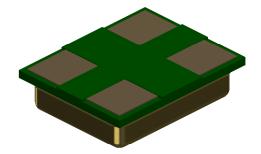


"Mini" SiSonic[™] Microphone Specification With MAX RF Protection - *Halogen Free*





Knowles Acoustics 1151 Maplewood Drive Itasca, IL 60143



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Revision: E Release Level: ACTIVE Sheet 1 of 10



1. DESCRIPTION AND APPLICATION

1.1 DESCRIPTION

"Mini" Surface Mount Silicon Microphone with MAX RF Protection - Halogen Free

1.2 APPLICATION

Hand held telecommunication devices

2. PART MARKING

Identification Number Convention

S 1 2 3

4 5 6 7

S: Manufacturing Location
"S" - Knowles Electronics Suzhou
Suzhou, China

"No Alpha Character" - Knowles Electronics Itasca, IL USA

"E" - Engineering Samples

Digits 1-7: Job Identification Number

3. TEMPERATURE RANGE

- 3.1 Operating Temperature Range: -40°C to +100°C
- 3.2 Storage Temperature Range: -40°C to +100°C



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Revision: E Release Level: ACTIVE

Sheet 2 of 10



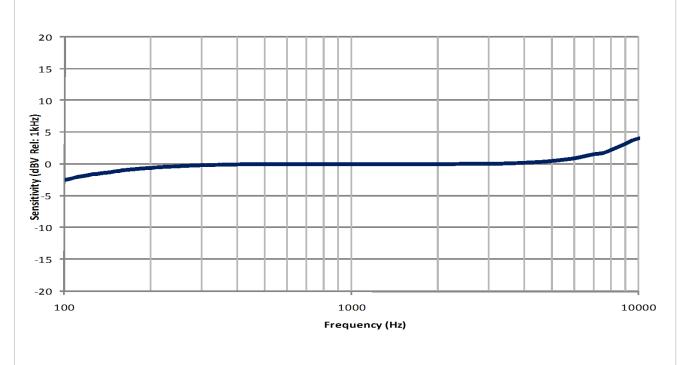
4. ACOUSTIC & ELECTRICAL SPECIFICATIONS

TEST CONDITIONS: +20°C, 60-70% R.H.

	Symbol	Condition	Limits		Unit	
	Зуппоот	Condition	Min.	Nom.	Max.	OF III
Directivity		Omni-directional				
Sensitivity	S	@ 1kHz (0dB-1V/Pa)	-45	-42	-39	dB
Output Impedance	Zout	@ 1kHz (0dB-1V/Pa)			400	Ω
Current Consumption	ldds	Across 1.5 to 3.6 volts			250	μA
Signal to Noise Ratio	S/N	@ 1kHz (0dB-1V/Pa)		59		dB
Supply Voltage	Vs		1.5		3.6	V
Sensitivity Loss Across		Change in sensitivity	No Change Across Voltage		dB	
Voltage		over 3.6V to 1.5V	Range		αв	
Maximum Input Sound		At 100dB	At 100dB SPL, THD < 1%			
Level		At 115dB \$	SPL, THD <u><</u> 10%			

5. FREQUENCY RESPONSE CURVE

TYPICAL FREE FIELD RESPONSE NORMALIZED TO 1kHz



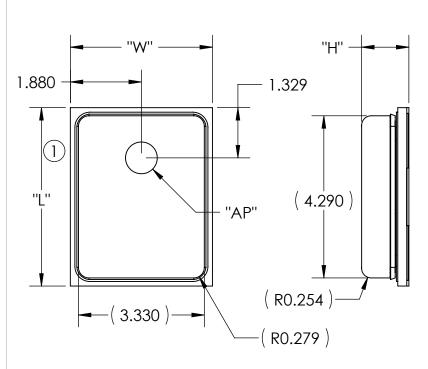


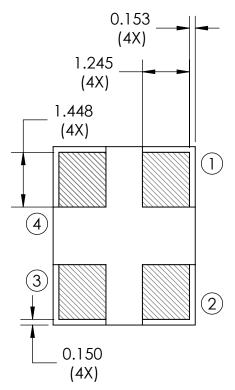
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Revision: E Release Level: ACTIVE Sheet 3 of 10



6. MECHANICAL SPECIFICATIONS





ITEM	DIMENSION	TOLERANCE	UNITS
LENGTH (L)	4.724	±0.100	mm
WIDTH (W)	3.759	±0.100	mm
HEIGHT (H)	1.250	±0.100	mm
ACOUSTIC	Ø0.840	±0.100	mm
PORT (AP)	Ø0.040	±0.100	mm

	PIN OUTPUT		
PIN #	FUNCTION		
1	OUTPUT		
2	GROUND		
3	GROUND		
4	POWER (Vdd)		

Note:

Dimensions are in milimeters unless otherwise specified.

Tolerance ± 0.15 mm unless otherwise specified.

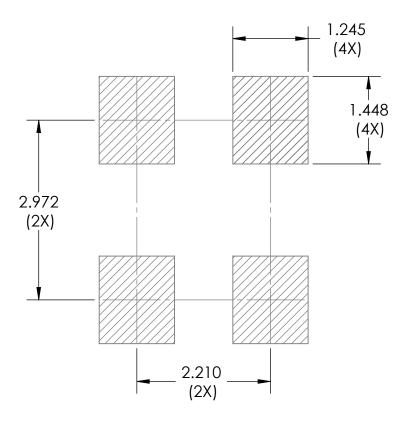


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Revision: E Release Level: ACTIVE Sheet 4 of 10



7. RECOMMENDED CUSTOMER LAND PATTERN



8. RECOMMENDED SOLDER STENCIL PATTERN

N/A

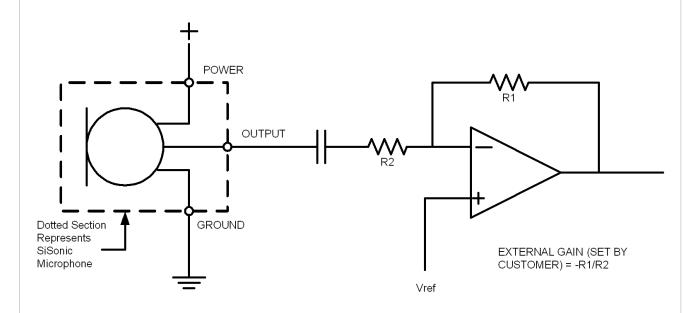


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Revision: E Release Level: ACTIVE Sheet 5 of 10



9. RECOMMENDED INTERFACE CIRCUIT



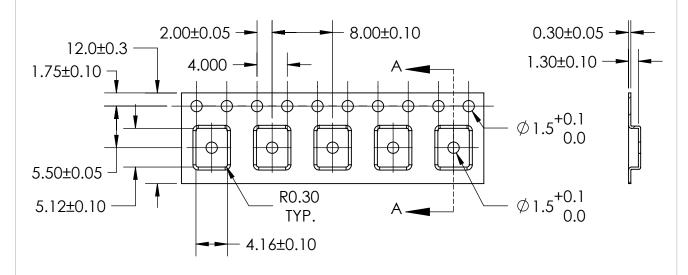


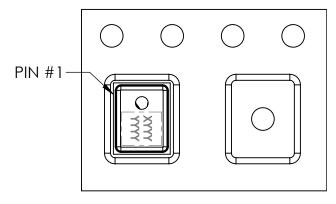
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Revision: E Release Level: ACTIVE Sheet 6 of 10



10. PACKAGING DETAIL





COMPONENT **ORIENTATION**

MODEL NUMBER	SUFFIX	REEL DIAMETER	QUANTITY PER REEL
SPM0410HR5H-PB	-2	7''	1,200
31740410111(3)1-1 b	-6	13"	4,800

TAPE & REEL	PER EIA-481
II ABFI	LABEL APPLIED TO EXTERNAL PACKAGE & DIRECT TO REEL.

Note:

Dimensions are in milimeters unless otherwise specified.



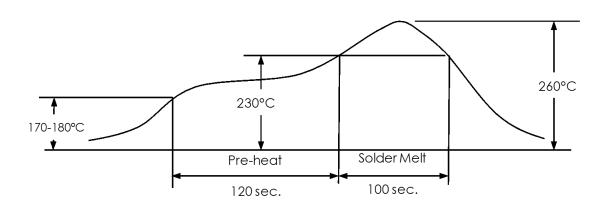
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Revision: E

Release Level: ACTIVE Sheet 7 of 10



11. SOLDER FLOW PROFILE



Stage	Temperature Profile	Time (maximim)
Pre-heat	170 ~ 180°C	120 sec.
Solder Melt	Above 230°C	100 sec.
Peak	260°C maximum	30 sec.

12. ADDITIONAL NOTES

- (A) Shelf life: Twelve (12) months when devices are to be stored in factory supplied, unopened ESD moisture sensitive bag under maximum environmental conditions of 30°C, 70% R.H. MSL (moisture sensitivity level) Class 2a.
- (B) Do not pull a vacuum over port hole of the microphone. Pulling a vacum over the port hole can damage the device.
- (C) <u>Do not board wash</u> after the reflow process. Board washing and cleaning agents can damage the device. Do not expose to ultrasonic processing or cleaning.
- (D) Do not brush board after the reflow process. Brushing the board with/without solvents can damage the device.
- (E) Do not insert any object in port hole of device at any time as this can damage the device.
- (F) Number of reflow Recommend no more than 3 cycles.



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Revision: E Release Level: ACTIVE

Sheet 8 of 10



13. RELIABILITY SPECIFICATIONS

Note: After test conditions are performed, the sensitivity of the microphone shall not deviate more than 3dB from its initial value.

Test	Description	
Thermal Shock	100 cycles of air-air thermal shock from -40°C to	
THE THE STEER	+125°C with 15 minute soaks. (ICE 68-2-4)	
High Temperature	+105°C environment for 1,000 hours. (ICE 68-2-2 Test	
Storage	Ba)	
Low Temperature	-40°C environment for 1,000 hours. (ICE 68-2-2 Test Aa)	
Storage	1-40 C CHVIIOHITICHI 101 1,000 110013. (ICE 00-2-2 1031 Adj	
High Temperature Bias	+105°C environment while under bias for 1,000 hours.	
	(ICE 68-2-2 Test Ba)	
Low Temperature Bias	-40°C environment while under bias for 1,000 hours.	
leav temperature bias	(ICE 68-2-2 Test Aa)	
Temperature / Humidity	idity +85°C/85% R.H. environment while under bias for 1,000	
Bias	hours. (JESD22-A101A-B)	
	4 cycles lasting 12 minutes from 20 TO 2,000 Hz in X, Y	
Vibration	and Z direction with peak acceleration of 20g. (MIL	
	883E, Method 2007.2, A)	
	3 discharges at +/-8kV direct contact to lid when unit	
Electrostatic Discharge	is grounded (IEC 61000-4-2) and 3 discharges at +/-2kV	
	direct contact to I/O pins. (MIL 883E, Method 3015.7)	
	, ,	
Reflow	5 reflow cycles with peak temperature of +260°C.	
Mechanical Shock	3 pulses of 10,000g in the X, Y and Z direction. (IEC 68-2-	
THE STIGHT STIFF OF THE STIFF	27, Test Ea)	



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Revision: E Release Level: ACTIVE Sheet 9 of 10



14. SPECIFICATION REVISIONS

Revision	Detailed Specification Changes	Date
E	Updated to new format. (DMS)	8/14/2009

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Revision: E Release Level: ACTIVE Sheet 10 of 10