
 <b>AAC</b> AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.	ISSUE: X2	
PART No. <b>SDM0401-RS261-G04</b>	Remark: GP compliant	DATE: May.31 <sup>th</sup> . 2018

## APPROVAL SHEET FOR MICROPHONE

CUSTOMER: \_\_\_\_\_

CHECKER: Chen Zhiyuan

APPROVER: Wu Zhijiang

 <b>AAC</b> AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.		ISSUE: X2
PART No. <b>SDM0401-RS261-G04</b>	Remark: GP compliant	DATE: May.31 <sup>th</sup> . 2018

# CONTENTS

- 1. Mechanical Layout and Dimensions-----3
- 2. Product Specifications----- 4
- 3. Test Setup----- 8
- 4. Recommended Interface Circuit ----- 8
- 5. Reliability Specifications----- 9
- 6. Packaging Specifications-----10
- 7. Solder Reflow Profile-----13
- 8. Recommended Customer Land Pattern-----14
- 9. Specification History-----14

**AAC**

AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.

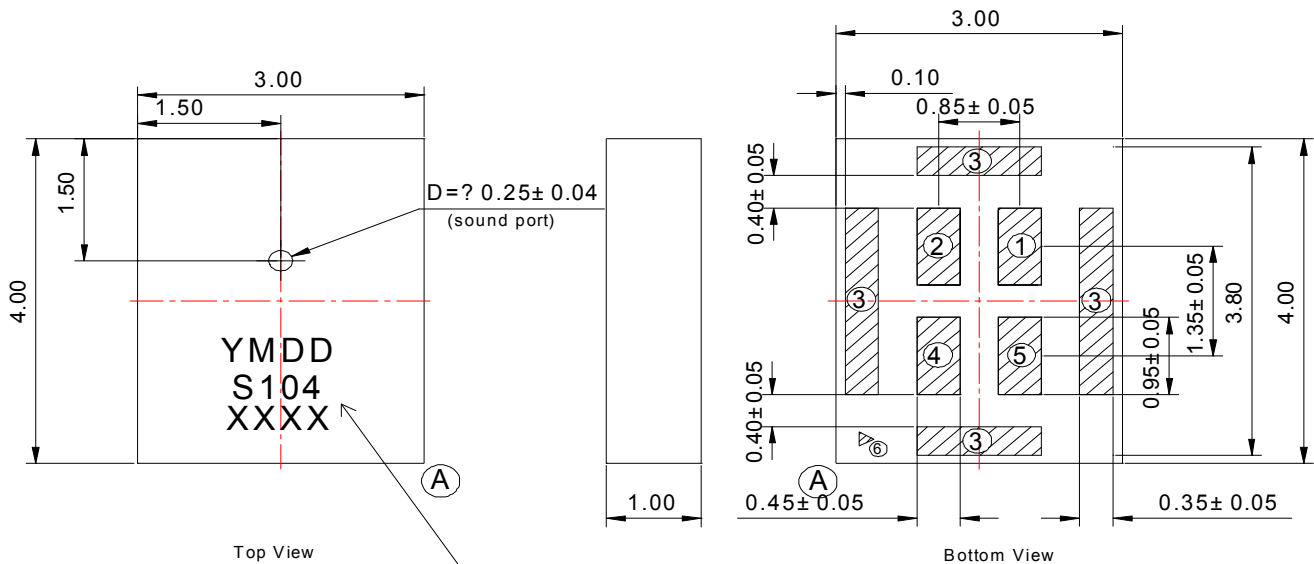
ISSUE: X2

PART No. **SDM0401-RS261-G04**

Remark: GP compliant

DATE: May.31<sup>th</sup>. 2018

# 1. Mechanical Layout and Dimensions



Y	Year, 1 number, 0-9 stand for 2010-2019
M	Month, 1 number, 0-9, A, B, C
DD	Date, 2 numbers, 01-31

## Pin description

No.	Name	Description
1	Clock	Clock input to the microphone
2	L/R	Left/Right(DATA2/DATA1) channel selection
3	Ground	Ground
4	Power	Supply and IO voltage for the microphone
5	Data	PDM data output from the microphone
6	/	Orientation mark in AAC test line

## Product size

Item	Dim.	Tol.(+/-)	Unit
Length	4.00	0.10	mm
Width	3.00	0.10	mm
Height	1.00	0.10	mm
Port Hole	0.25	0.05	mm

Note: Tolerance +/-0.15mm unless otherwise specified

**AAC**

AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.

ISSUE: X2

PART No. **SDM0401-RS261-G04**

Remark: GP compliant

DATE: May.31<sup>th</sup>. 2018

## 2. Product Specifications:

Unless otherwise specified, test conditions are:

- V<sub>dd</sub> = 1.8V
- Duty cycle = 50%
- F<sub>IN</sub> = 1 kHz @ 94dB SPL
- T<sub>a</sub> = 27°C, Room Humidity = 50%

SNR &amp; noise measurement is based on 20-20kHz pass band with A-weighting filter applied.

Items	Symbol	Condition	Limits			Unit
			Min.	Typ.	Max.	
<b>ELECTRICAL CHARACTERISTICS</b>						
2.1 Directivity		Omni-Directional				
2.2 Supply Voltage	V <sub>dd</sub>		1.64	1.8	3.6	V
2.3 Clock Frequency	F <sub>clk</sub>	Standard Performance Mode	1.12	2.4	4.8	MHz
		Low Power Mode	0.6	0.768	0.885	MHz
		Sleep Mode			250	KHz
2.4 Duty Cycle			40	50	60	%
2.5 Logic high IO Voltage	V <sub>IOH</sub>		0.65*V <sub>dd</sub>		V <sub>dd</sub> +0.3	V
2.6 Logic Low IO Voltage	V <sub>IOL</sub>		-0.3		0.35*V <sub>dd</sub>	V
2.7.1 Sleep Current (50kHz<clk<250kHz)	I <sub>sleep1</sub>	Output Load<5pF			50	μA
2.7.2 Sleep Current(clk=GND)	I <sub>sleep1</sub>	Output Load<5pF			10	μA
2.8 Short Circuit Current		Maximum logic output current	1		20	mA
2.9 Load Capacitance					150	pF
2.10 Delay Time for Data Driven	t <sub>A</sub>		40		80	ns
2.11 Delay Time for High-Z	t <sub>B</sub>		5		25	ns
2.12 Wake-up Time					10	ms
2.13 Fall-asleep Time	t <sub>FSL</sub>				10	ms
2.14 Polarity		Increase Sound Pressure	Increase 1's density			

**AAC**

AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.

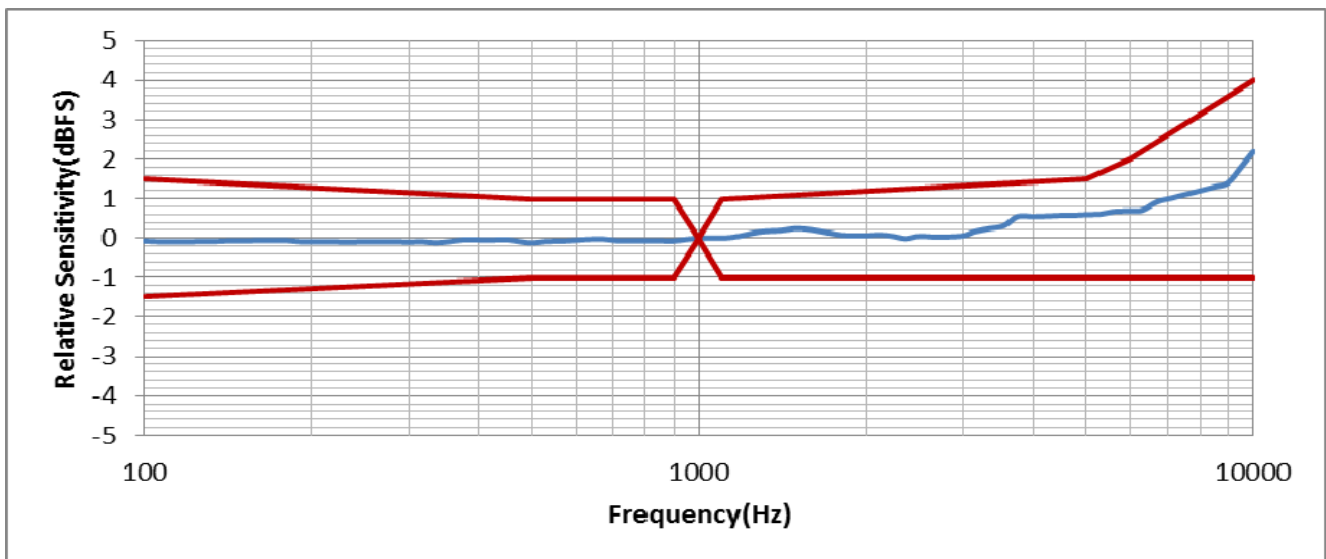
ISSUE: X2

PART No. **SDM0401-RS261-G04**

Remark: GP compliant

DATE: May.31<sup>th</sup>. 2018**Standard Performance Mode****Clk=2.4MHz, Vdd=1.8V**

2.15 Sensitivity	S	1kHz, 94dB SPL	-27	-26	-25	dBFS
2.16 Signal-to-Noise Ratio	SNR	A-weighting at 1kHz 1Pa		65		dB(A)
2.17 Total Harmonic Distortion	THD	1KHz, 94dB SPL			0.5	%
		1KHz, 105dB SPL			3	%
2.18 Power Supply Rejection	PSR	217Hz, 100mVpp square wave superimposed on Vdd=1.8V, A weighted		-90		dBFS
2.19 Acoustic Overload Point	AOP	1kHz THD @ 10%		120		dB SPL
2.20 Current Consumption	I <sub>s</sub>	No load			700	μA

**2.21 Frequency Response Limits**

**AAC**

AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.

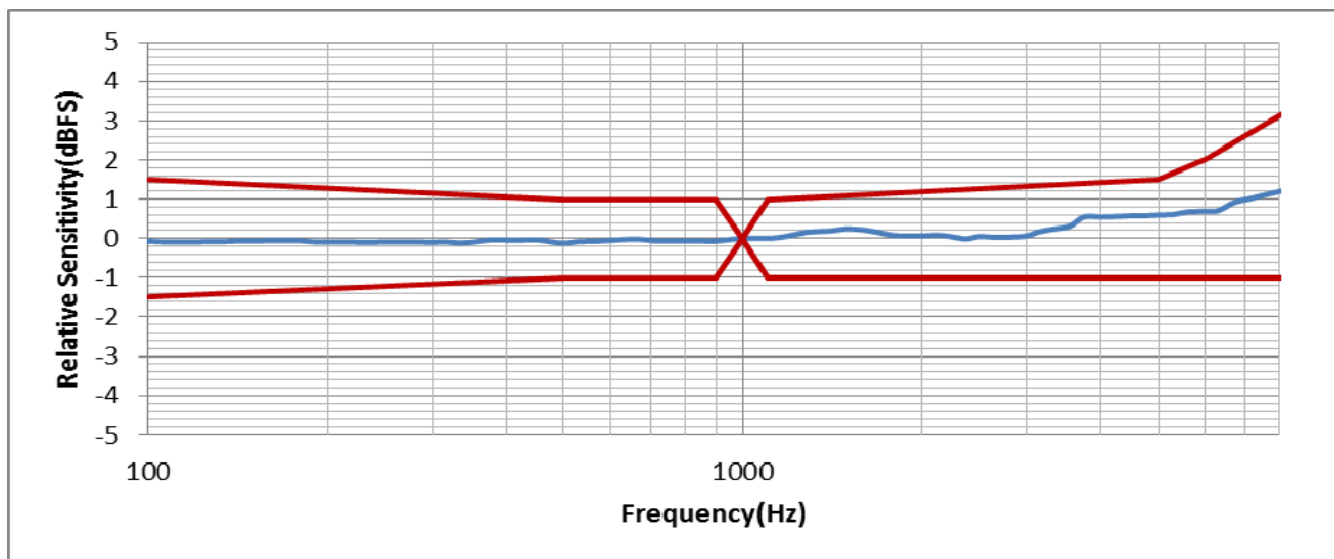
ISSUE: X2

PART No. **SDM0401-RS261-G04**

Remark: GP compliant

DATE: May.31<sup>th</sup>. 2018**Low Power Mode****Clk=768kHz, Vdd=1.8V**

2.22 Sensitivity	S	1kHz, 94dB SPL	-27	-26	-25	dBFS
2.23 Signal-to-Noise Ratio	SNR	A-weighting at 1kHz 1Pa		62.5		dB(A)
2.24 Total Harmonic Distortion	THD	1KHz, 94dB SPL			0.5	%
		1KHz, 105dB SPL			1	
2.25 Power Supply Rejection	PSR	217Hz, 100mVpp square wave superimposed on Vdd=1.8V, A weighted		-85		dBFS
2.26 Acoustic Overload Point	AOP	1kHz THD @ 10%		120		dB SPL
2.27 Current Consumption	I <sub>s</sub>	No load			200	uA

**2.28 Frequency Response Limits**

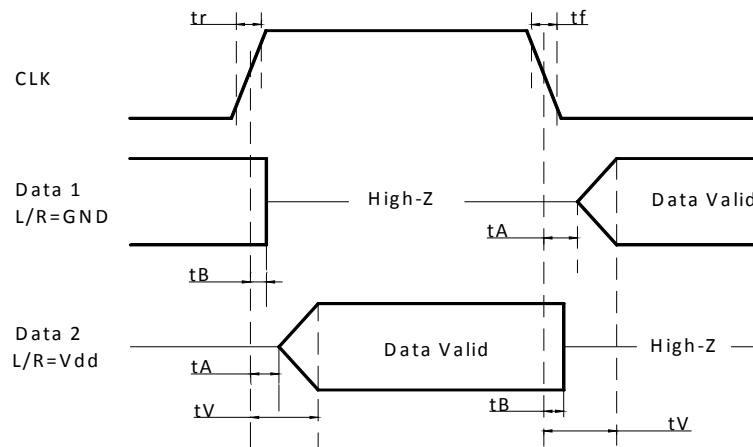
**AAC**

AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.

ISSUE: X2

PART No. **SDM0401-RS261-G04**

Remark: GP compliant

DATE: May.31<sup>th</sup>. 2018**2.29 Timing Diagram**

Label	L/R	Drives Data After	High-Z After
Data 1	Low (L)	Falling Clock Edge	Rising Clock Edge
Data 2	High (H)	Rising Clock Edge	Falling Clock Edge

**ENVIRONMENTAL CHARACTERISTICS**

2.30 Operating Temperature			-30		+70	°C
2.31 Storage Temperature		Soldered onto PC Board	-40		+85	°C
		In Tape/Reel's	-10		+50	°C
2.32 Relative Humidity			25		85	%
2.33 Air Pressure			860		1060	mBar



**AAC**

AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.

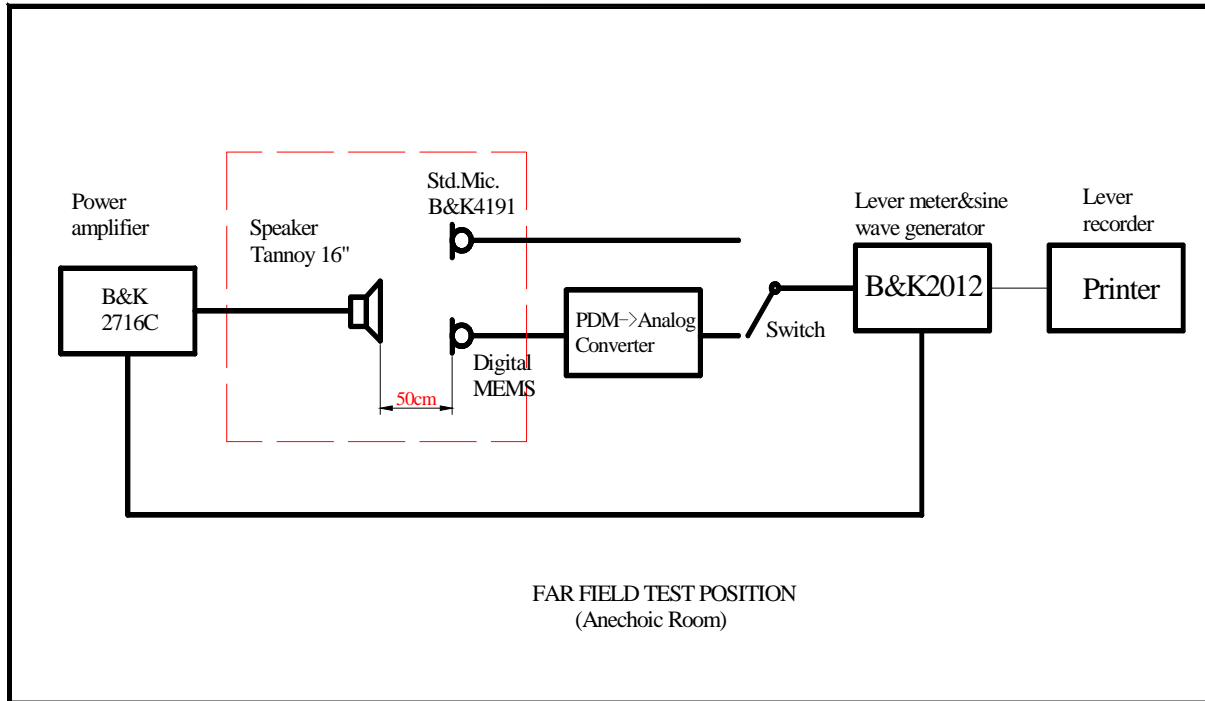
ISSUE: X2

PART No. **SDM0401-RS261-G04**

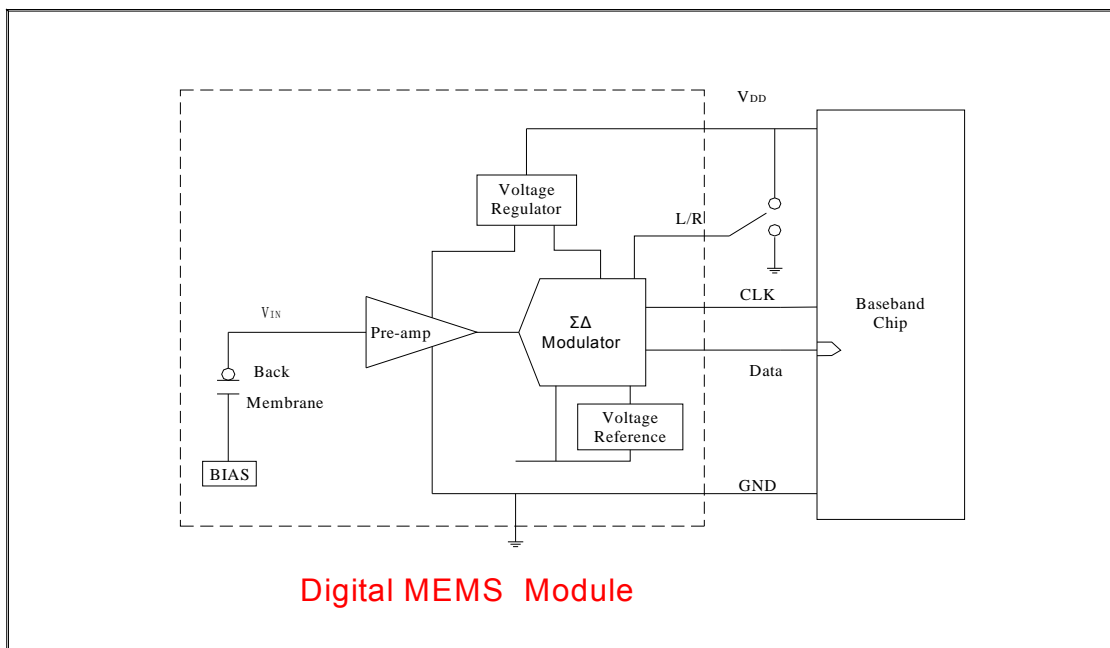
Remark: GP compliant

DATE: May.31<sup>th</sup>. 2018


### 3. Test Setup



### 4. Recommended Interface Circuit





 <b>AAC</b> AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.		ISSUE: X2
PART No. <b>SDM0401-RS261-G04</b>	Remark: GP compliant	DATE: May.31 <sup>th</sup> . 2018

## 5. Reliability Specifications

As per customer's requirements. If no customer's requirements available please refer to following tests.

Test item	Detail	Standard
Reflow Simulation	Refer to 7. solder reflow profile, total 3 times	/
Low Temperature	Conditions: -40±3°C Duration: 72 ho rs	IEC60068-2-1
High Temperature	Conditions: 85±3°C Duration: 72 hours	IEC60068-2-2
Temperature Shock	Conditions: 30 minutes at -40 °C followed by 30 minutes at 85 °C ,20 second maximum transition time between temperature extremes.32 cycles	EC60068-2-14
Vibration Test	Conditions: 10~60Hz: 0.35mm 60~500Hz: 5g 1 oct/min Duration: 15 minutes per plane.	IEC60068-2-6
Damp heat	Conditions: 55±3°C 93%RH Duration: 96 hours	IEC60068-2-56
Drop Test	Conditions:1.5 Meter height onto a concrete surface each time at three direction in state of 150g weight packing	IEC60068-2-32
ESD	Conditions: 3 discharges at +/-8kV, 150pF, 330Ω direct contact to housing and per MIL-883F, method 3015.7, 3 discharges at +/-2kV direct contact to all pins	IEC61000-4-2

The measurement shall to be done after 2 hours of conditioning at room temperature.

The sensitivity change within ±3dBFS relative to initial value.

**AAC**

AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.

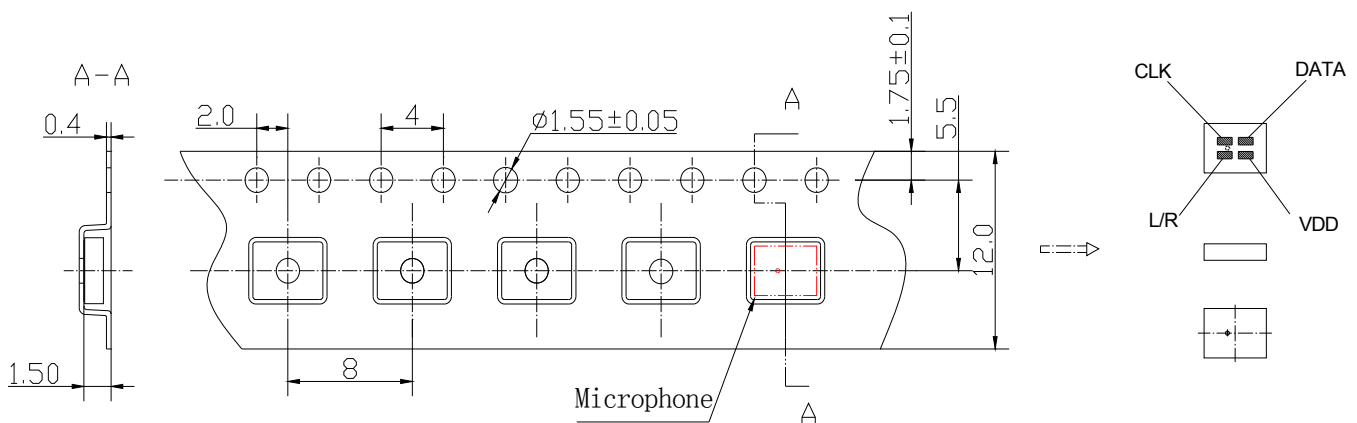
ISSUE: X2

PART No. **SDM0401-RS261-G04**

Remark: GP compliant

DATE: May.31<sup>th</sup>. 2018

## 6. Packaging Specifications

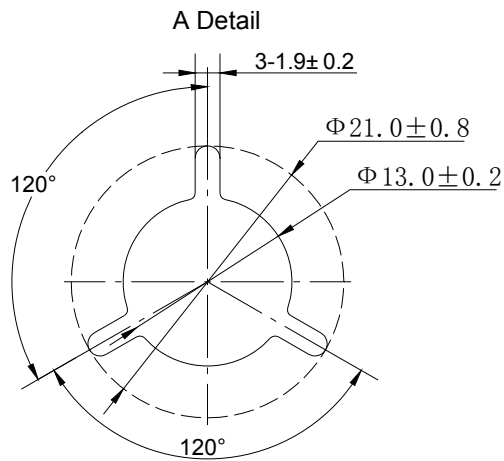
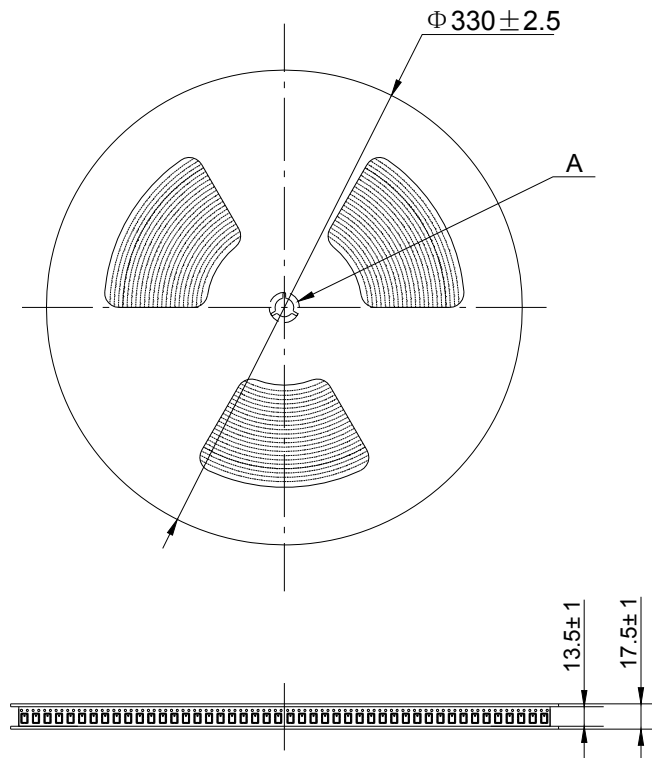


### Notes:

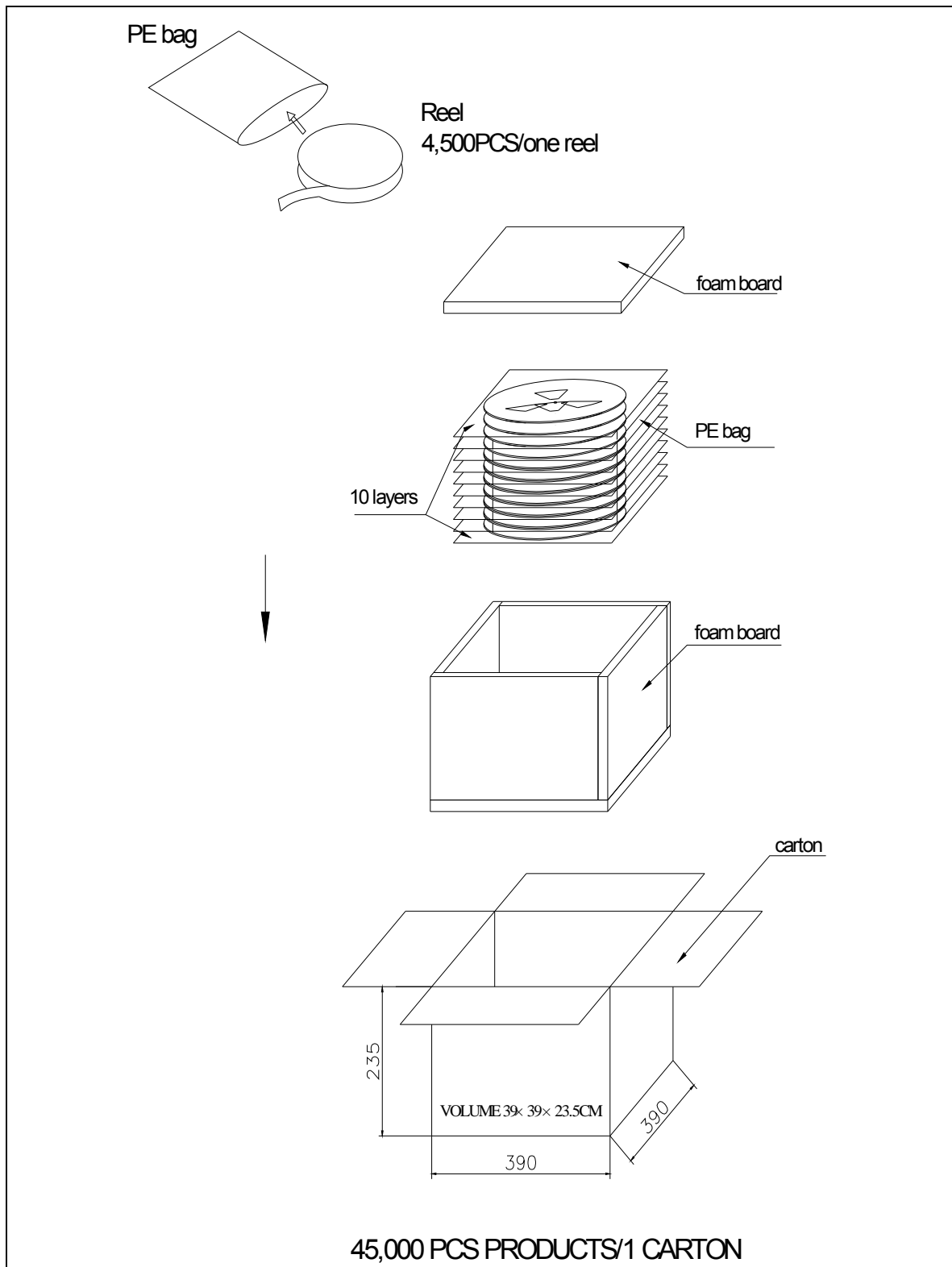
1. 10 sprocket hole pitch cumulative tolerance +/-0.2;
2. Camber in compliance with EIA481;
3. Pocket position relative to sprocket hole measured as true position of pocket. Not pocket hole.

Package Type	Part Number	Reel Diameter	Qty per Reel
SIP	SDM0401-RS261-G04	13"	4500

Leader length	Cells at leading end and trailing end of tape should be empty for a length of 350~450mm.
Label	Label applied to external package and directs to reel. Per JEDEC.
Empty Units	No consecutive empty pockets; No more than 3 empty pockets per reel. (Does not include empty pockets for leader/follower).



4,500 PCS PRODUCTS/1 reel



**AAC**

AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.

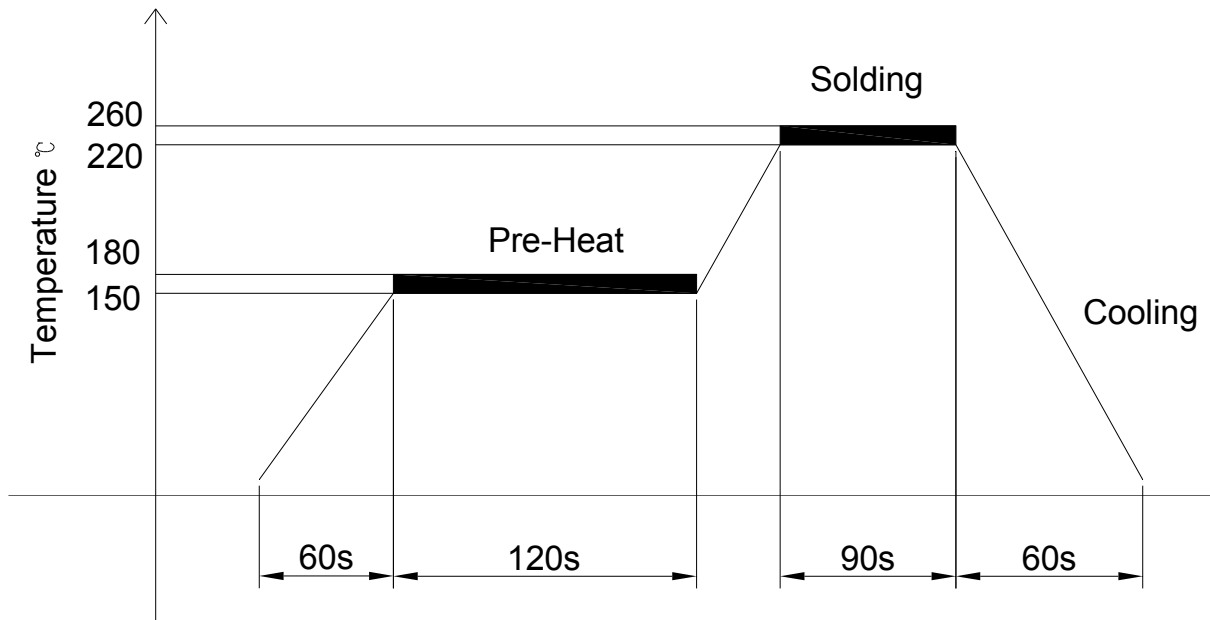
ISSUE: X2

PART No. **SDM0401-RS261-G04**

Remark: GP compliant

DATE: May.31<sup>th</sup>. 2018

## 7. Reflow Profile



Stage	Temperature Profile	Time(maximum)
Pre-heat	150-180°C	120sec.
Soldering	Above 220°C	90sec.
Peak	260°C(Max)	30sec.

### Notes:

- Pulling vacuum or blowing air over acoustical hole of the microphone is not allowed, because the device can be damaged by vacuum.
- Wash the board after reflow process is not allowed, because board washing and cleaning agents can damage the device. Device should not be exposed to ultrasonic processing or cleaning.
- Recommended number of reflow is no more than 3 times.

**AAC**

AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.

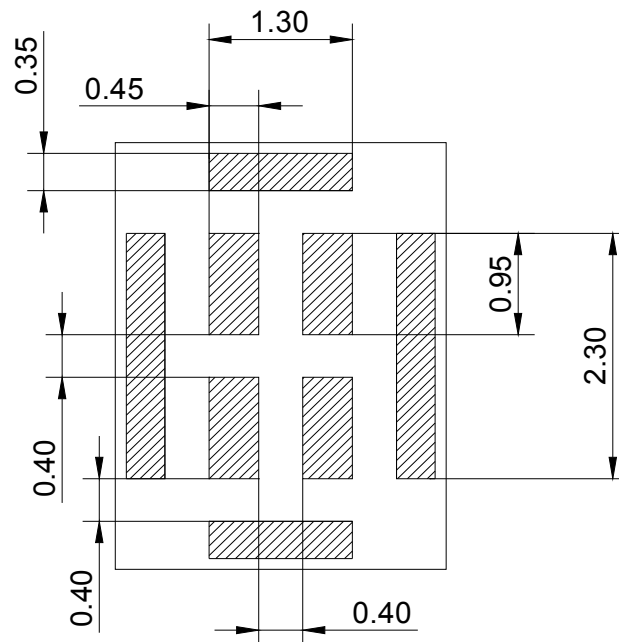
ISSUE: X2

PART No. **SDM0401-RS261-G04**

Remark: GP compliant

DATE: May.31<sup>th</sup>. 2018

## 8. Recommended Customer Land Pattern:



## 9. Specification History

ISSUE	PREP	CHKD	DETAIL SPEC CHANGES:	DATE
X1	Chen Zhiyuan	Wu Zhijiang	Priliminary Spec.	Jan 4 <sup>th</sup> . 2018
X2	Chen Zhiyuan	Wu Zhijiang	Update mechanical layout	May. 31 <sup>th</sup> .2018