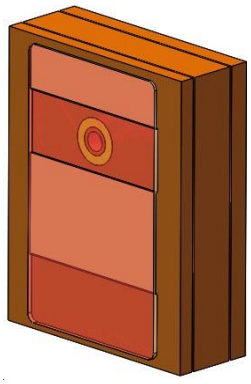
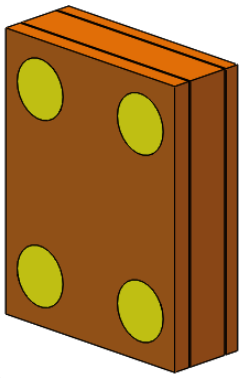
Specification of Analog MEMS Microphone

RoHS Compliance & Halogen Free

YG Model: SA3729T381-WJ21-2
Customer:
Customer Model：





YG

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Approved by: Jack Liu

Customer Approval

Approval by:_____

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ISO 9001:2015
ISO 14001:2015

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Contents

1. Introduction....3
2. Electrical Characteristics....3
3.Frequency Response Curve....4
4.Test Setup....4
5.Measurement Circuit....4
6.Mechanical Characteristics....5
6.1. Weight....5
6.2. Appearance Drawing....5
7.Application....6
7.1. Pickup Tool Pick Location & PCB Solder Pad Layout....6
7.2. Recommended Reflow Process Condition....6
7.3. Storage Condition....7
8.Packing....7
8.1. Tape Specification....7
8.2. Reel Specification....8
8.3. Packing Quantity....9
8.4. Packing Information....9
9.Reliability Test....10

MEMS Microphone

1. Introduction

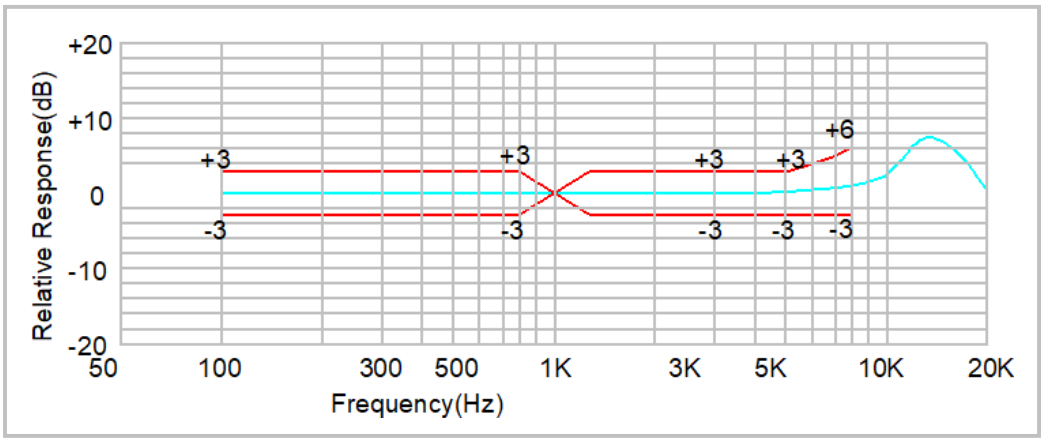
The SA04T MEMS Microphones are integrated with specialized Pre-amplification ASIC to provide high sensitivity, high SNR output from a capacitive audio sensor. It's packaged fro surface mounting and high temperature re-flow assembly.

2. Electrical Characteristics

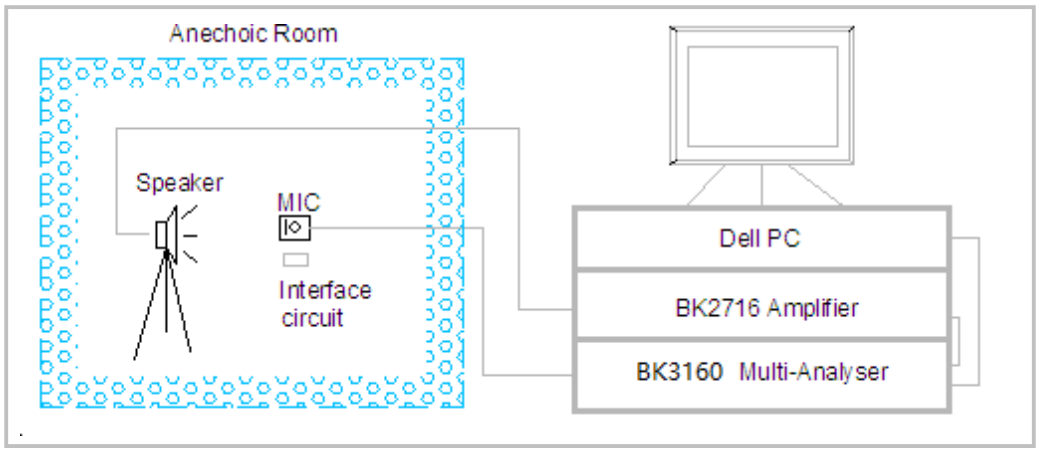
Test Condition: V_{DD}=1.8V, 23+/-2℃, 55+/-10%R.H., unless otherwise specified.

Specification	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Directivity			Omni-directional			
Sensitivity Range	S	94dB SPL @1kHz,	-39	-38	-37	dB
Output Impedance	Z_{out}	94dB SPL @1kHz,			300	Ω
Current Consumption	I				200	μA
S/N Ratio	SNR	94dB SPL @1kHz, A-Weighted		64		dB(A)
Operating Voltage	V_{DD}		1.5		3.6	V
Total Harmonic Distortion	THD	94dB SPL @1kHz,			0.5	%
Sensitivity Drop	ΔS	94dB SPL @1kHz, V_{DD}=3.6V--1.5V			0.5	dB
Maximum Input S.P.L	AOP	10% THD @1kHz		123		dB
Power Supply Rejection	PSR	100mVpp Square wave @217Hz, A-weighted		-90		dB

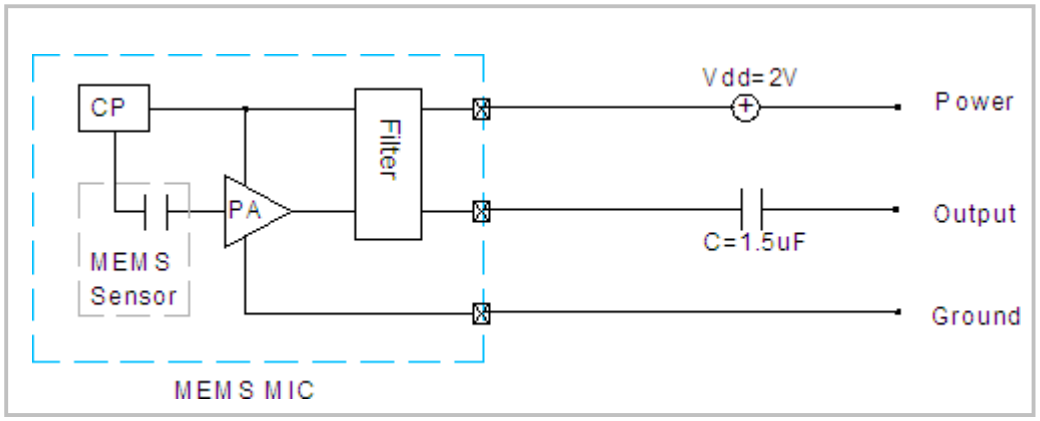
3. Frequency Response Curve



4. Test Setup (Sensitivity Test in Anechoic Room)



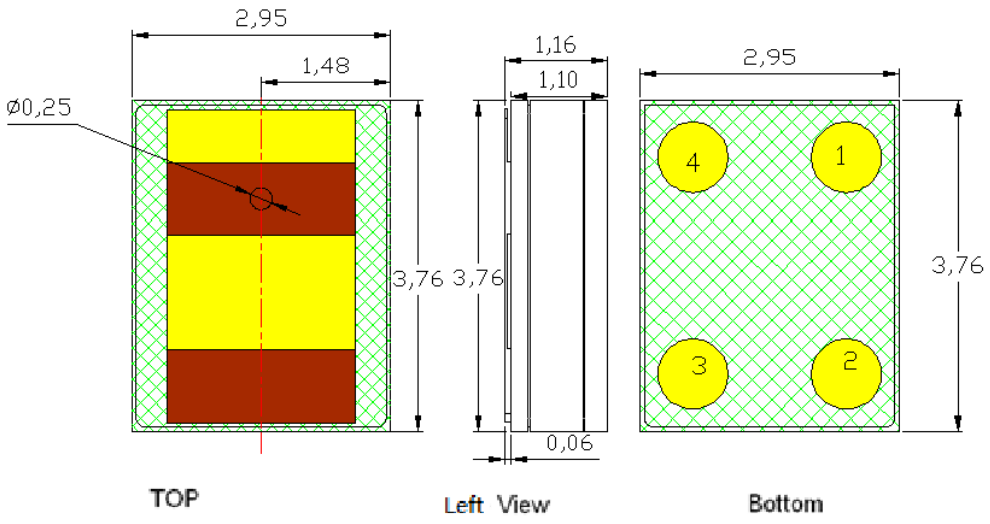
5. Measurement Circuit



6. Mechanical Characteristics

6.1 Weight： Less than 0.3g

6.2 Appearance Drawing(unit: mm)



Data Code	
YYWW	YY:Year WW: Work Week
XXXX	XXXX: Lot No.

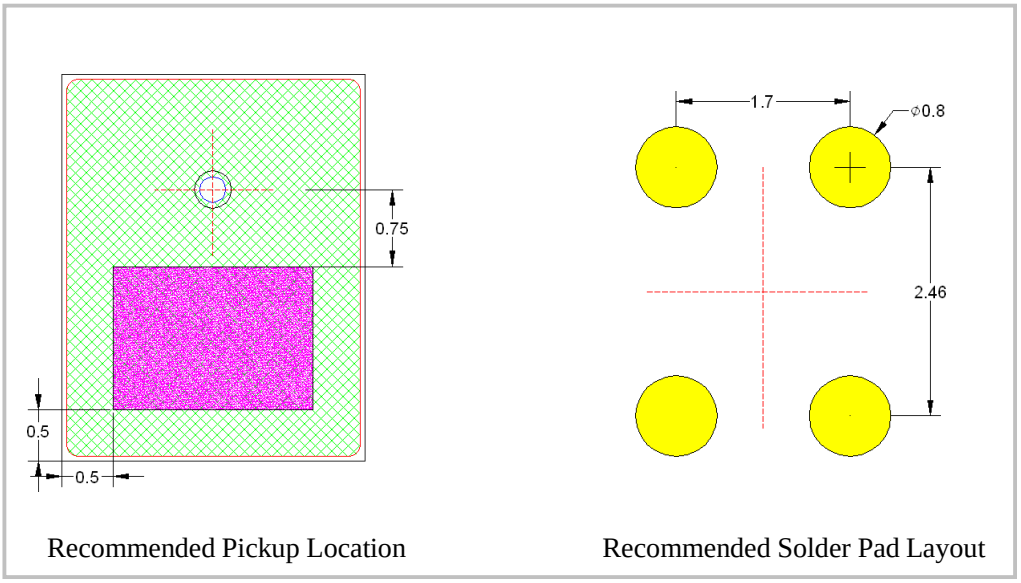
Item	Dimension	Tolerance(+/-)	Units
Length(L)	3.76	0.10	mm
Width(W)	2.95	0.10	mm
Height(H)	1.16	0.10	mm
Acoustic Port(AP)	Ø0.25	0.05	mm

Pin #	Pin Name	Type	Description
1	Output	Signal	Output Signal
2	GND	Ground	Ground
3	GND	Ground	Ground
4	V_{DD}	Power	Power Supply

Notes:
All dimensions are in millimeter (mm).
Tolerance±0.15mm unless otherwise specified.

7. Application

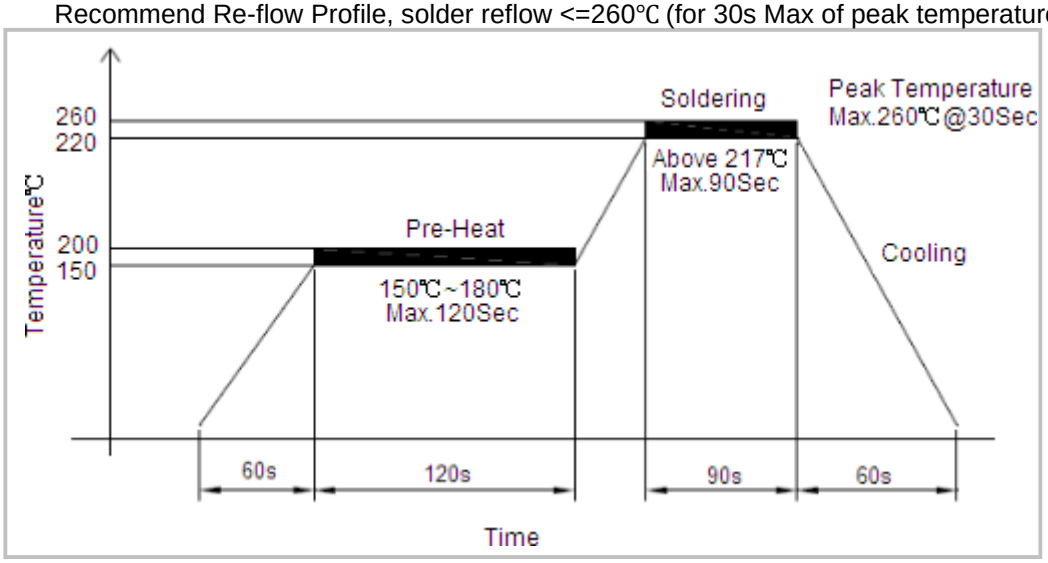
7.1 Pickup Tool Pick Location& PCB Solder Pad Layout



Recommended Pickup Location　　Recommended Solder Pad Layout

7.2 Recommended Reflow Process Condition

Recommend Re-flow Profile, solder reflow <=260℃ (for 30s Max of peak temperature).



Important Notes

In order to minimize device damage:

1. Do not boards wash or clean after the reflow process.
2. Do not apply over 0.3Mpa of air pressure into the port hole.
3. Do not expose to ultrasonic processing or cleaning.
4. Do not pull a vacuum over port hole of the microphone.

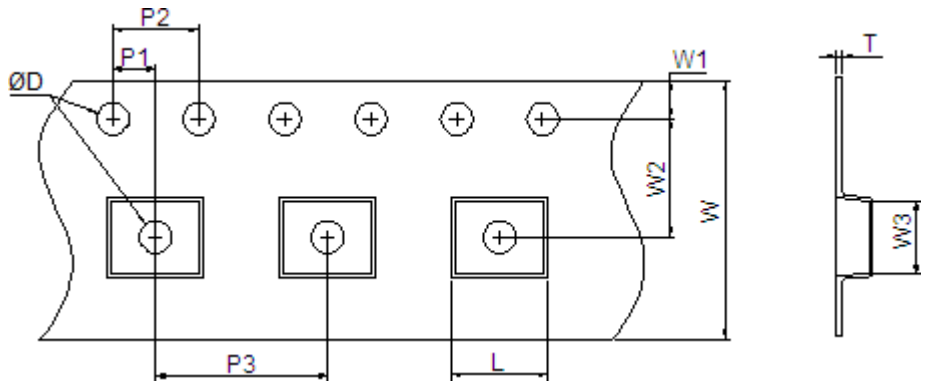
7.3 Storage Condition

7.3.1 Storage temperature range:-40～+125℃.

7.3.2 Operating temperature range:-40～+100℃.

8. Packing

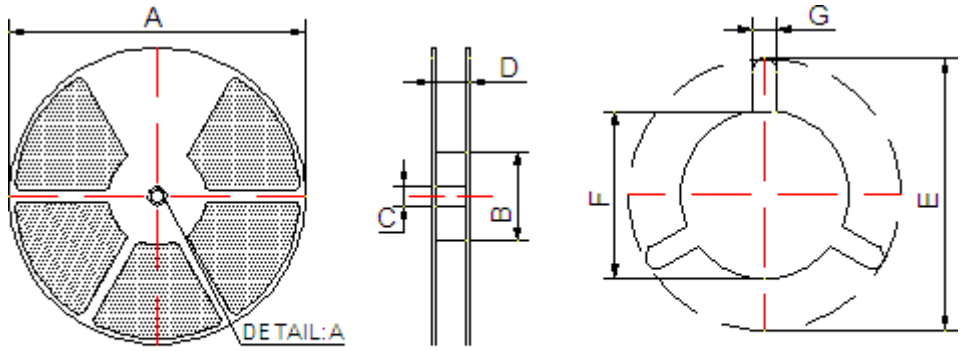
8.1 Tape Specification



Symbol	Dimension		
	Minimum	Nominal	Maximum
¢D	1.5	1.5	1.6
P1	1.9	2.0	2.1
P2	3.9	4.0	4.1
P3	7.9	8.0	8.1
L	4.0	4.1	4.2
W	11.7	12	12.3
W1	1.65	1.75	1.85
W2	5.4	5.5	5.6
W3	3.3	3.4	3.5
T	0.25	0.3	0.35

Notes
All dimensions are in millimeter (mm).
Tolerance±0.15mm unless otherwise specified.

8.2 Reel Specification



Top View Side View DETAIL:A

7'' Reel

Description	Symbol	Dimension（mm）		
		Minimum	Nominal	Maximum
Reel Diameter	A	-	180	-
Hub Diameter	B	58	60	62
Hub Hole Diameter	C	12.8	13	13.5
Reel Width(Measured at hub	D	-	16	16.4
Arbor Hole	E	20.2	-	-
Arbor Hw in mm Diameter	F	12.8	13.0	13.5
Arbor Slot Width	G	1.5	-	-

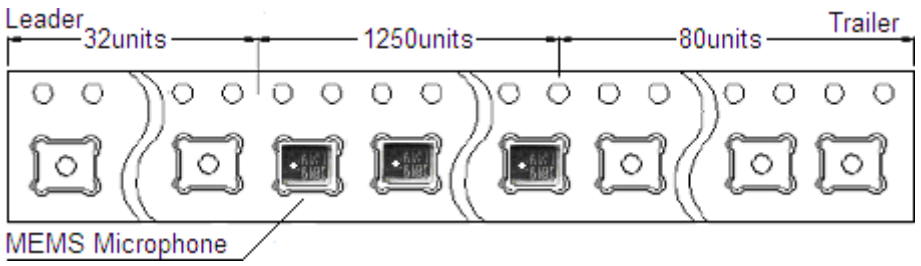
13'' Reel

Description	Symbol	Dimension（mm）		
		Minimum	Nominal	Maximum
Reel Diameter	A	-	330	-
Hub Diameter	B	98	100	102
Hub Hole Diameter	C	12.8	13	13.5
Reel Width(Measured at hub	D	-	18	18.4
Arbor Hole	E	20.2	-	-
Arbor Hw in mm Diameter	F	12.8	13.0	13.5
Arbor Slot Width	G	1.5	-	-

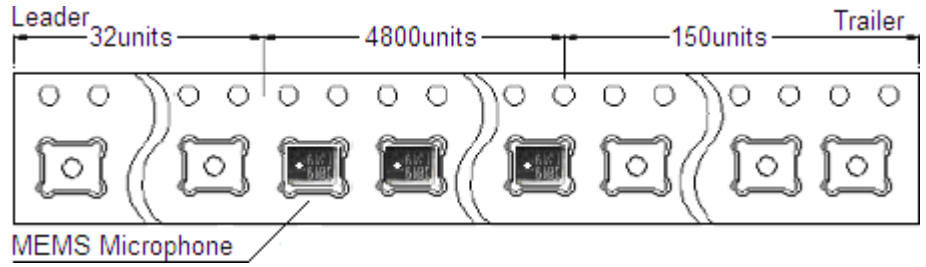
Notes
All dimensions are in millimeter (mm).

8.3 Packing Quantity

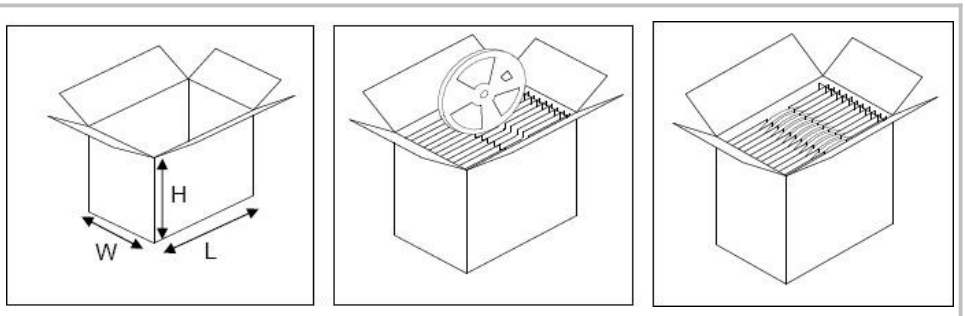
7” Reel Packing



13” Reel Packing



8.4 Packing Information



Tape & Reel 7”

Qty/reel	Weight/reel	Reel/Carton	Qty/carton	Weight full	Dimension carton Box	Storage
Pcs	Kg	Nos	Nos	Load(kg)	(LxWxH)mm	Temp
1250	0.25	4	5000	~3.00	272 x 159 x 236	-10℃~50 ℃

Tape & Reel 13”

Qty/reel	Weight/reel	Reel/Carton	Qty/carton	Weight full	Dimension carton Box	Storage
Pcs	Kg	Nos	Nos	Load(kg)	(LxWxH)mm	Temp
4800	0.7	10	48000	~10.00	419 x 276 x 381	-10℃~50 ℃

9. Reliability Test

Item	Detail	Standard
Simulated Reflow (Without Solder)	Samples for qualification testing require 3 passes 260±5 ℃ reflow solder profiles. 2 hours of setting time is required between each reflow profile test.	±2 dB
Static Humidity	Precondition at +25℃ for 1 hour. Then expose to +85℃ with 85% relative humidity for 1000 hours. Finally dry at room ambient for 3±1 hours before taking final measurement.	±3 dB
Temperature Shock	Each cycle shall consist of 30 minutes at -40℃, 30 minutes at +125℃ with 5 minutes transition time. Test duration is for 30 cycles, starting from cold to hot temperature.	±3 dB
ESD Sensitivity	Perform ESD sensitivity threshold measurements for each contact according to MIL-STD-883G, Method 3015.7 for Human Body Model. Identify the ESD threshold levels indicating passage of 8000V Human Body Model.	±3 dB
Random Vibrations	Vibrate randomly along three perpendicular directions for 30 minutes in each direction,4cycles from 20Hz~2000Hz with a peak acceleration 20g.	±3 dB
Mechanical Shock	Subject samples to half sine shock pulses (3000g±15% for 0.3ms) in each direction, totally 18 shocks.	±3 dB
Operation Life	Subject samples to +125℃ for 168 hours under full maximum rated voltage.	±3 dB
Drop Test	The test was repeated in six directions for three times, Dropped from 1.5m height on to a steel surface, total 18 times and inspected for mechanical damage. Note: Sensitivity should vary within +/-3dB from initial sensitivity after test conditions are performed.	±3 dB

Revision History

Revision	Description	Date
A	New Version Released	19/08/09