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SPECIFICATION FOR APPROVAL

Digital MEMS Microphone

Part Number	OWMMOD-403010A-S261F-BP
Note	This item is in compliance with the following requirements: 1. RoHS directive 2. REACH
Customer P/N	

Ole Wolff	Signature / Date	Prepared	Checked	Approved

Customer	Signature / Date	Confirmation		

REVISION NOTES:

Date	Rev.	Description of Revision
2020.09.18	00	Initial Release

OLE WOLFF ELEKTRONIK A/S Roedengvej 25 4180 Soroe Denmark TEL: +45 57833830 FAX: +45 57820019	OLE WOLFF ELECTRONICS INC. 1525 McCarthy Blvd, Suite 1093 Milpitas, Ca 95035 USA TEL: +1 408 888 8413	OLEWOLFF ELEKTRONIK GmbH Schulstrasse 15A. DE-25451 Quickborn, Germany TEL: +49 (0) 4106 765900 FAX: +49 (0) 4106 627297	OLEWOLFF ELECTRONICS 3 Bedford Street, Woburn, Bedfordshire MK17 9QB, ENGLAND TEL: +44 (0) 1525 290755 FAX: +44 (0) 1525 290855	OLE WOLFF ELEKTRONIK Ylipistonkatu 26 (P.O.BOX 257) FI-40101 Jyväskylä Finland TEL: +358 14 338 3050 FAX: +358 14 338 3059	OLE WOLFF (ASIA) LTD. Unit B, 19/F., Bold Win Ind. Bldg., No. 16-18 Wah Sing St., Kwai Chung, N.T., H.K. TEL: +852 2424 3274 FAX: +852 2424 2219	OLE WOLFF LTD. 5 Floor, Block G, WenTao Industrial Park, YingRenShi, Bao'an District, Shenzhen City, Guangdong Province, PRC. TEL: +86 755 82612542 TEL: +86 755 26406156
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1. SCOPE

THIS SPECIFICATION IS APPLIED TO OLE WOLFF MINI SILICON MICROPHONE UNIT, MODEL NO.: OWMMOD-403010A-S261F-BP

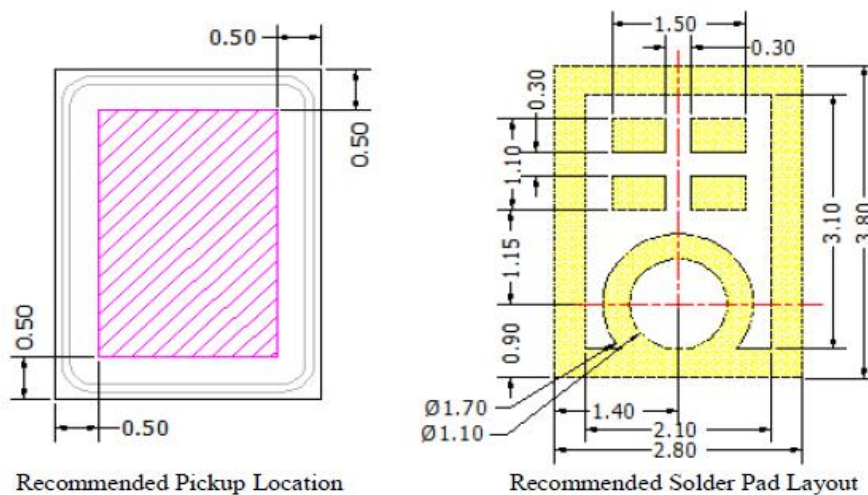
THE MEMS MICROPHONES ARE INTEGRATED WITH SPECIALIZED PRE-AMPLIFICATION ASIC TO PROVIDE HIGH SENSITIVITY, HIGH SNR OUTPUT FROM A CAPACITIVE AUDIO SENSOR. IT'S PACKAGED FOR SURFACE MOUNTING AND HIGH TEMPERATURE RE-FLOW ASSEMBLY.

2. DIMENSIONS AND MECHANICAL LAYOUT

DIMENSIONS: AS SHOWN IN FIGURE 6

WEIGHT: 0.025g

3. PICKUP TOOL PICK LOCATION & PCB SOLDER PAD LAYOUT (FIGURE 1)



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4. ELECTRICAL SPECIFICATIONS

Specification	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Directivity		Omni-directional				
Sensitivity Range	S	94dB SPL @1kHz,	-27	-26	-25	dBFS
Current Consumption	IDD	Fclk=3.072M Hz		1100	1400	uA
		Fclk=2.4M Hz		800	950	uA
		Fclk=768kHz		300	350	uA
		Fclk<250kHz			50	uA
S/N Ratio	SNR	94dB SPL @1kHz, A-Weighted		63		dB(A)
Operating Voltage	V _{DD}		1.64		3.6	V
Total Harmonic distortion	THD	94dB SPL @1kHz, S=Typ			0.5	%
Total Harmonic distortion	THD	100dB SPL @1kHz, S=Typ			1	%
Maximum input S.P.L	AOP	10% THD @1kHz S=Typ, V _{dd} =2V, Rload>2Kohm		120		dB
Power Supply Rejection	PSR	100mVpp Square wave @217Hz, A-weighted		-80		dB
Data Format			½cycle PDM			
Clock Frequency	Fclk		1.0	2.4	3.25	MHz
Clock Duty Cycle			40		60	%
Logic Low Input/Output Voltage			-0.35		0.35* V _{dd}	V
Logic High Input/Output Voltage			0.65* V _{dd}		V _{dd} + 0.3	V
Short Circuit Current	Isc	Grounded puput pin	1		10	mA
Load Capacitance	Cload				100	pF

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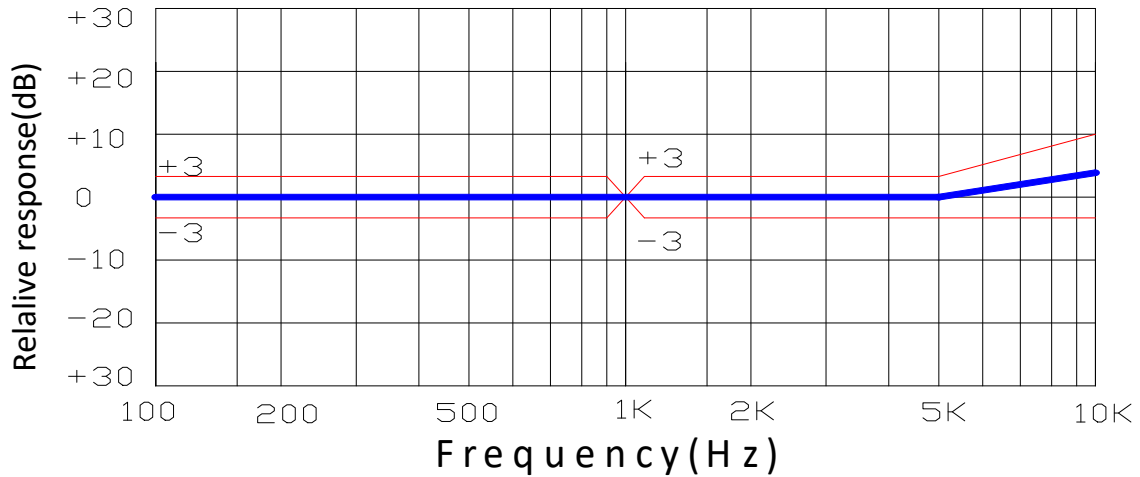
5. RELIABILITY TEST

Test Item	Description	Standard
Reflow	3 reflow cycles with peak temperature of +260°C	IPC-JEDEC J-STD-020D-01
High Temperature Storage	+105°C environment for 1,000 hours	IEC 68-2-2 Test Ba
Low Temperature Storage	-40°C environment for 1,000 hours	IEC 68-2-1 Test Aa
High Temperature Bias	+105°C environment while under bias for 1,000 hours	IEC 68-2-2 Test Ba
Low Temperature Bias	-40°C environment while under bias for 1,000 hours	IEC 68-2-1 Test Aa
High Temperature/Humidity Bias	+85±3°C/85±3% R.H. environment while under bias for 1,000 hours	JESD22-A101A-B
Thermal Shock	100 cycles of air-air thermal shock from -40°C to +125°C with 30 minute soaks	IEC 68-2-4
Tumble test	300 Random Drops of Test Box on to Steel Base from 1.0m, 10 Tumbles/Minute	IEC60068-2-32 Test Ed
Vibration	16 minutes in each X, Y, Z axis from 20 to 2,000 Hz with peak acceleration of 20 G	MIL 883E, Method 2007.2,A
Mechanical Shock	3 pulses of 10,000 G in each of the X, Y, and Z directions	IEC 68-2-27 Test Ea
Drop test	1.5meter height onto a concrete surface each time at three direction	IEC60068-2-32
ESD-HBM	3 discharges of ±2kV direct contact to I/O pins	MIL 883E, Method 3015.7
ESD-LID/GND	3 discharges of ±8kV direct contact to lid while unit is grounded	IEC 61000-4-2
ESD-MM	3 discharges of ±200V direct contact to IO pins	ESD STM5.2

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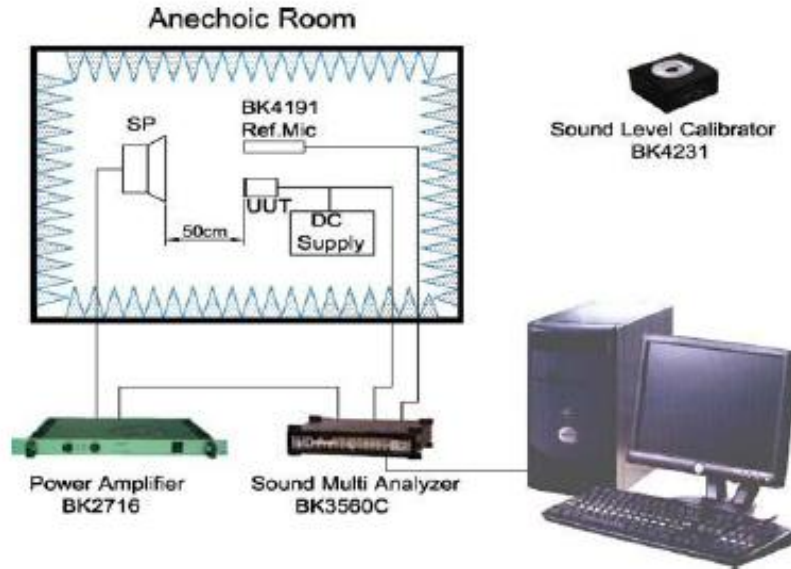
6. TYPICAL FREQUENCY RESPONSE (FIGURE 2)



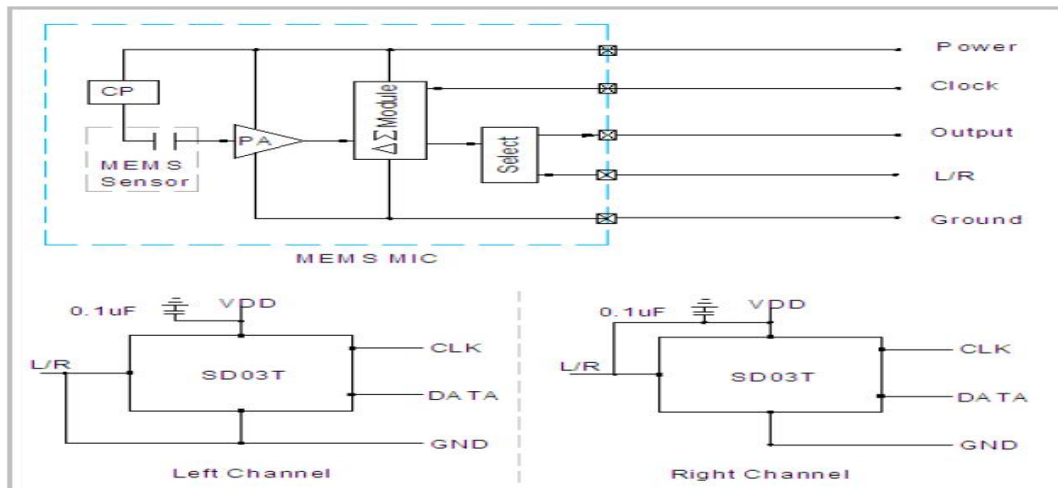
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7. MEASUREMENT CIRCUIT (FIGURE 3)



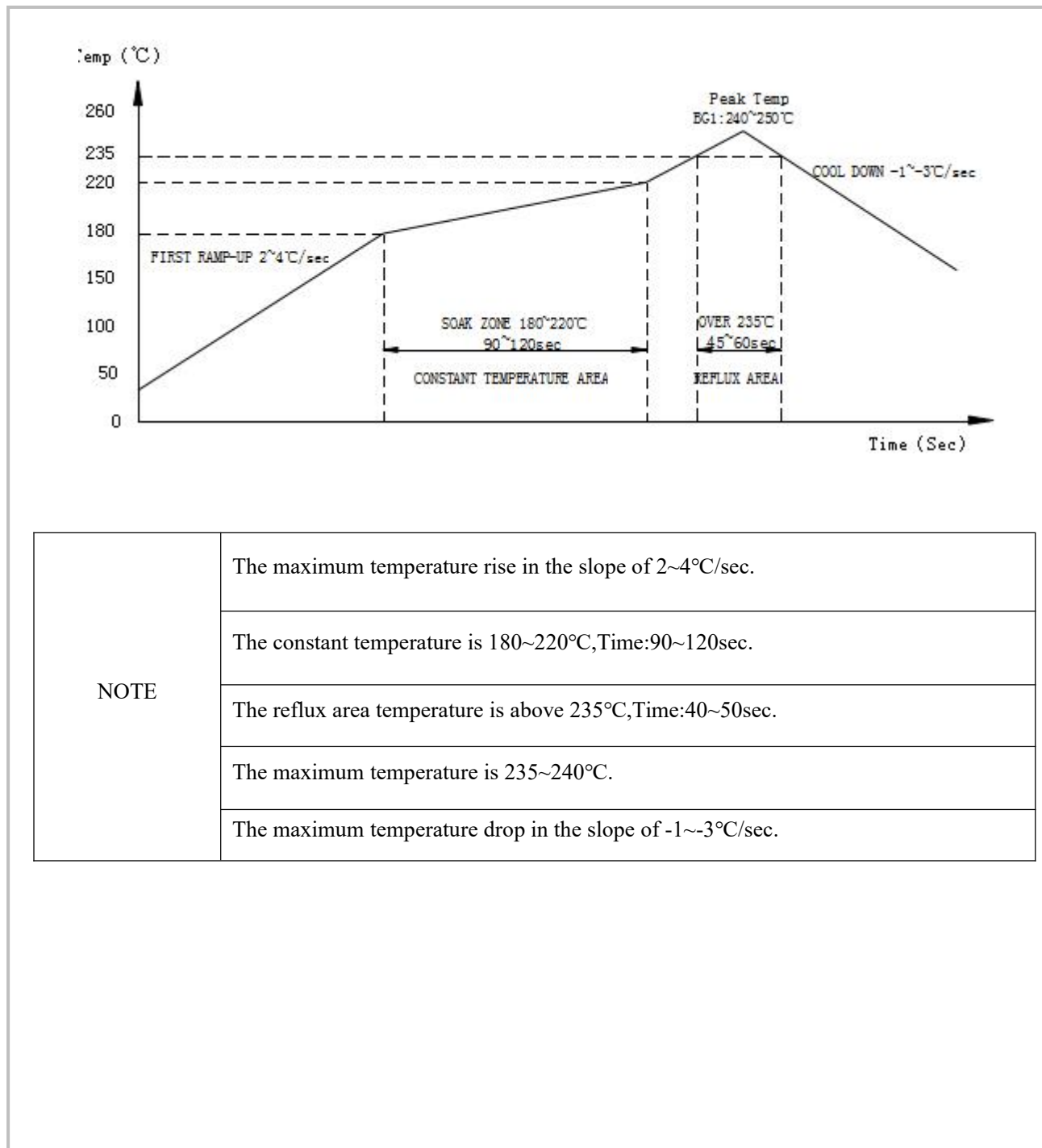
8. APPLICATION CIRCUIT (FIGURE 4)



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9. REFLOW PROFILE (FIGURE 5)



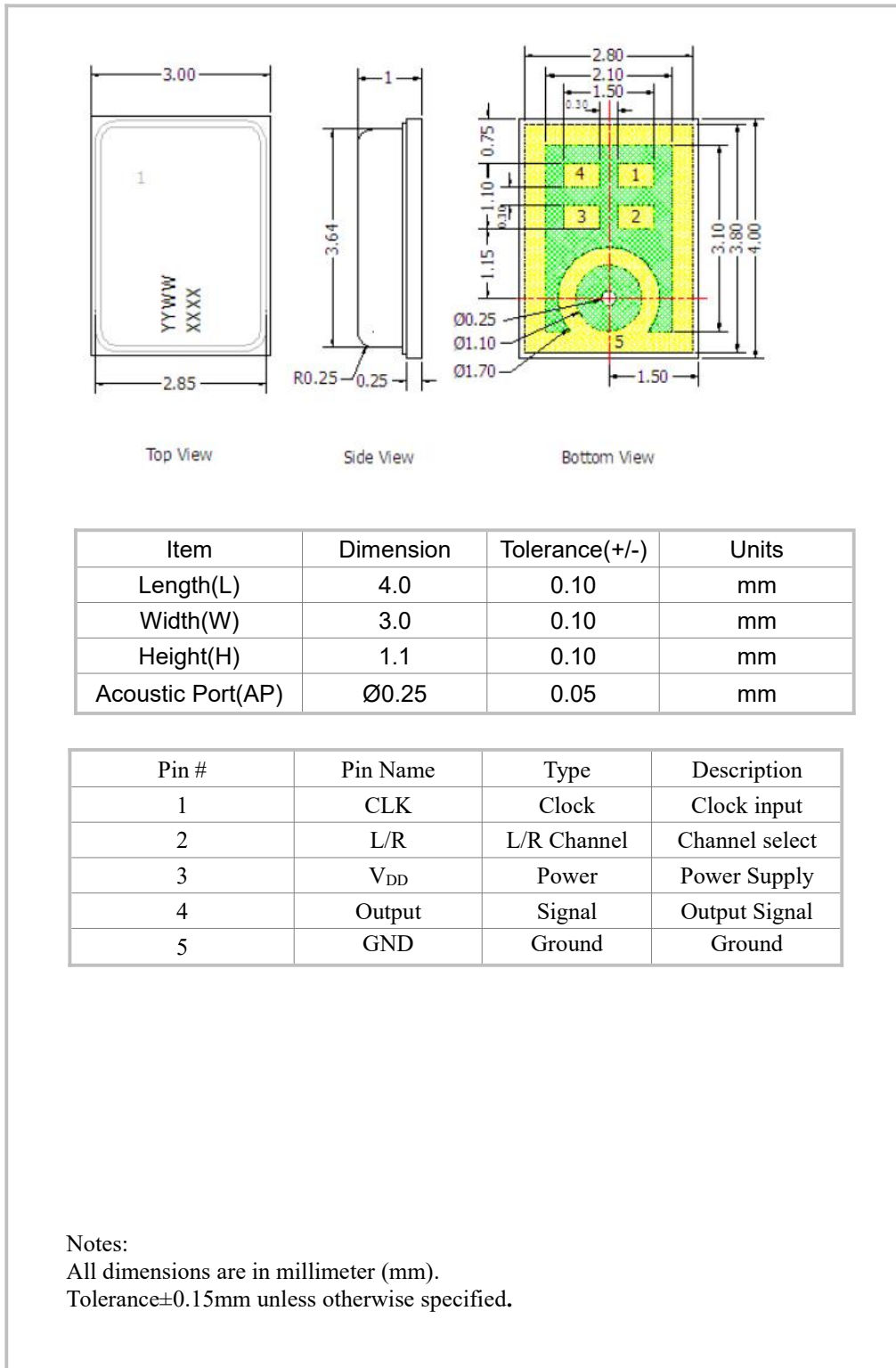
NOTE	The maximum temperature rise in the slope of 2~4°C/sec.
	The constant temperature is 180~220°C, Time: 90~120sec.
	The reflux area temperature is above 235°C, Time: 40~50sec.
	The maximum temperature is 235~240°C.
	The maximum temperature drop in the slope of -1~-3°C/sec.

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10. APPEARANCE & DIMENSIONS (FIGURE 6)

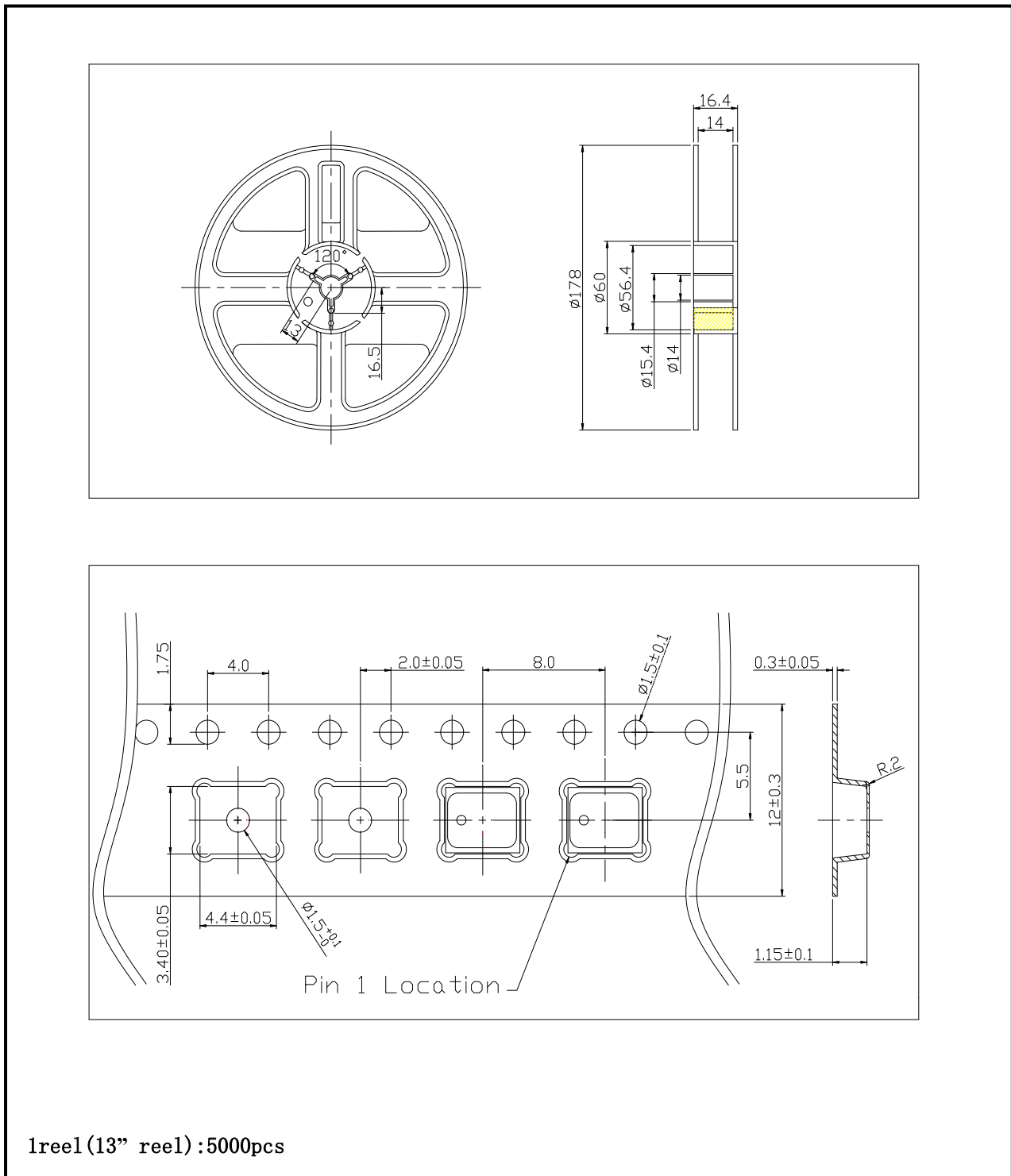
The board surface cleaning pressure is 0.3Mpa limited



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11. PACKING (UNIT: MM) (FIGURE 7)



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12. CAUTIONS WHEN USING MEMS MIC

a. Board Wash Restrictions

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

b. 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.

c. ESD Protection

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

d. Ultrasonic Restrictions

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

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