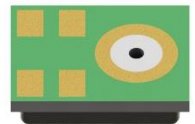


Features

- 3.5x2.65x0.98mm Bottom Port
- PDM digital Output
- SNR of 65dBA
- RF Shielded
- Compatible with Standard SMD Reflow Technology
- RoHS Compliance & Halogen Free

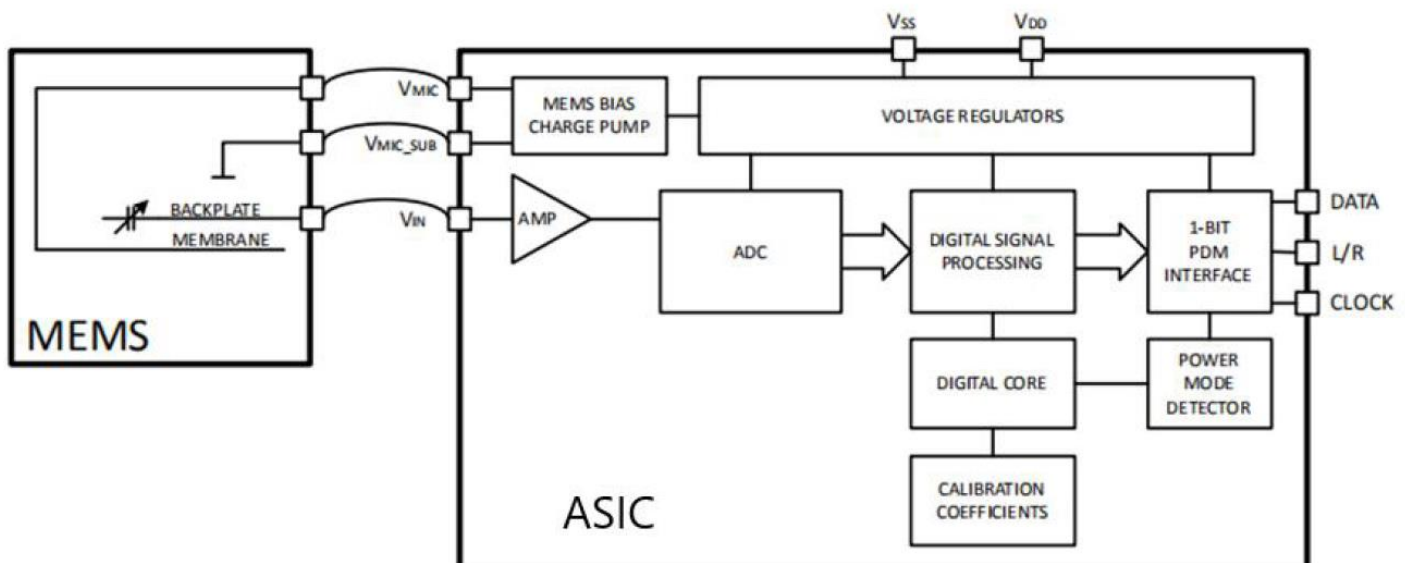
Applications

- Smart Phones
- TWS Headsets
- Smart Speakers
- Wearable Electronics
- Portable Electronics
- Smart Home Electronics



Description: RMIC-9403.6-3526-RG-NS2 is a digital MEMS microphone. 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.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Parameters	Value			Unit
	min	typ	max	
Supply Voltage			3.6	V
Operation Temperature Range	-40		+85	°C
Storage Temperature Range	-40		+125	°C

Note : Stresses at the maximum ratings shown in Table may cause permanent damage to the device. These are stress ratings only at which the device may not function when an operation at these or any other condition beyond those specified under "Electro-Acoustic Specifications".

ELECTRICAL SPECIFICATIONS

Normal Mode: Vdd=1.8V, Fclock=2.4MHz, no load, unless otherwise specified.

Parameters		Value			Unit
		min	typ	max	
Directivity		Omni-Directional			
Clock Frequency (Fclk)		1.38	2.4	3.3	MHz
Sensitivity (S)	94db SPL@ 1kHz	-27	-26	-25	dBFS
Current Consumption (I)	Vdd=1.8V Fclk=2.4MHz		600	800	uA
S/N Ratio (SNR)	94dB SPL @1kHz, A-Weighted		65		dBA
Total Harmonic Distortion (THD)	@ 94dB SPL @1kHz			1	%
Acoustic Overload Point (AOP)	@10% THD @1kHz		120		dB SPL
Power Supply Rejection (PSR)	@100mVpp Square wave, 217Hz, A-weighted			-90	dBFS

Note: Frequency response, sensitivity, phase and current consumption are tested by 100% on product line.

Low Power Mode: Vdd=1.8V, Fclk=768kHz, no load, unless otherwise specified

Parameters		Value			Unit
		min	typ	max	
Clock Frequency (Fc)		512	768	850	kHz
Sensitivity (S)	94db SPL@ 1kHz	-27	-26	-25	dBFS
Current Consumption (I)			240	350	uA
S/N Ratio (SNR)	94dB SPL @1kHz, A-Weighted		63		dBA
Total Harmonic Distortion (THD)	@ 94dB SPL @1kHz			1	%
Acoustic Overload Point (AOP)	@10% THD @1kHz		120		dB SPL
Power Supply Rejection (PSR)	@100mVpp Square wave, 217Hz, A-weighted			-90	dB

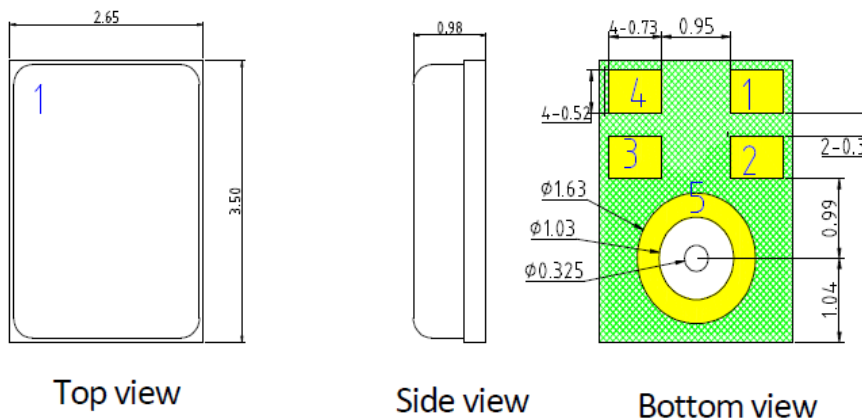
Sleep Mode: Vdd=1.8V, Fclk≤350 kHz.

Parameters		Value			Unit
		min	typ	max	
Clock Frequency (Fc)		0		350	kHz
Current Consumption (I)	Fclk=0kHz		1		uA
Current Consumption (I)	Fclk=350kHz			50	uA

General Microphone Specification

Parameters		Value			Unit
		min	typ	max	
Directivity		Omni-directional			
Operating Voltage	Vdd	1.62	1.8	3.6	V
Data Format		½ Cycle PDM			
Clock Frequency (Fclk)	Sleep Mode	0		350	kHz
	Low Power Mode	512	768	850	kHz
	Normal Mode	1.38	2.4	3.3	MHz
Clock Duty Cycle		40		60	%
Logic Low Input/Output Voltage		-0.30		0.35xVdd	V
Logic High Input/Output Voltage		0.65xVdd		Vdd+0.3	V

DIMENSIONS



Top view

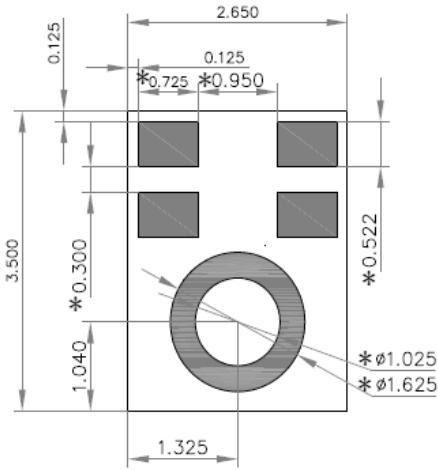
Side view

Bottom view

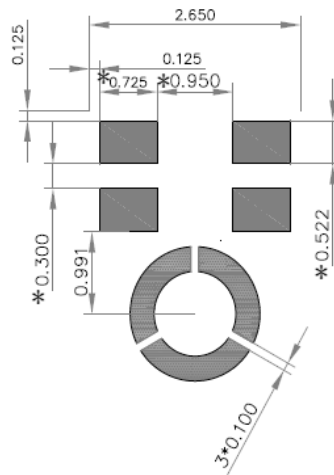
Item	Dimension	Tolerance(+/-)	Units
Length(L)	3.50	0.10	mm
Width(W)	2.65	0.10	mm
Height(H)	0.98	0.10	mm
Acoustic Port(AP)	Ø0.325	0.05	mm

Pin No.	Pin Name	Type	Description
1	Data	Digital output	PDM output
2	L/R	L/R Channel	Channel select
3	CLK	Clock	Clock input
4	V _{DD}	Power	Power Supply
5	GND	Ground	Ground

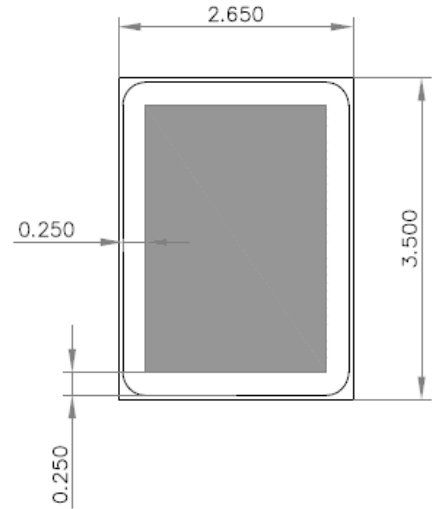
PICKUP TOOL PICK LOCATION & PCB SOLDER PAD



PCB solder land pad

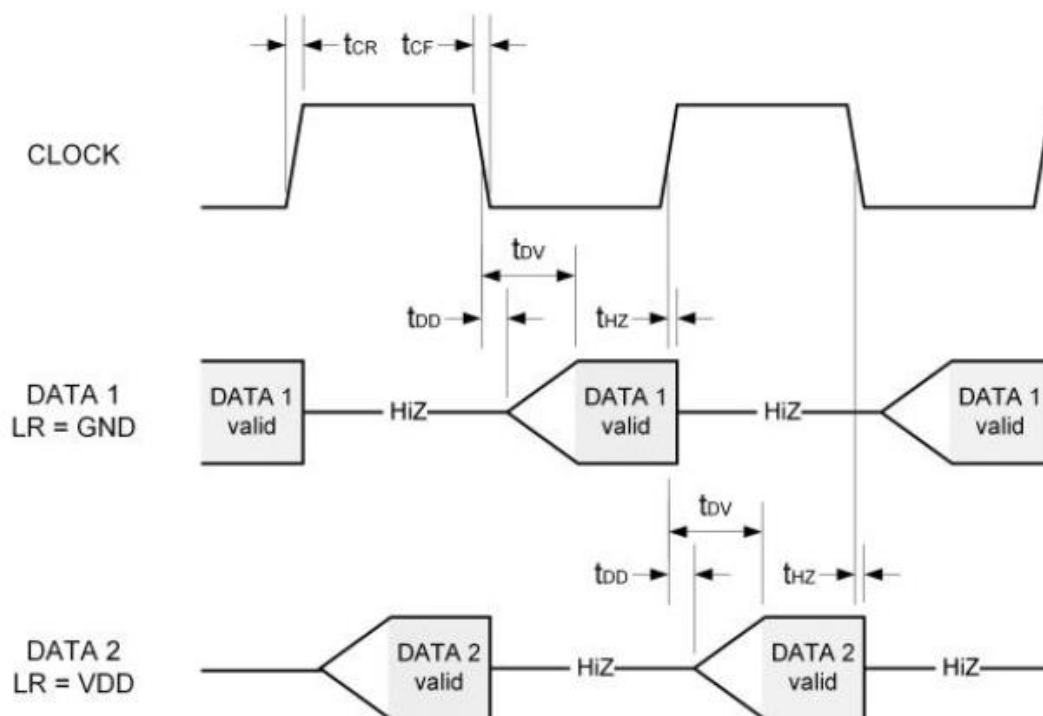


Solder Stencil Pattern

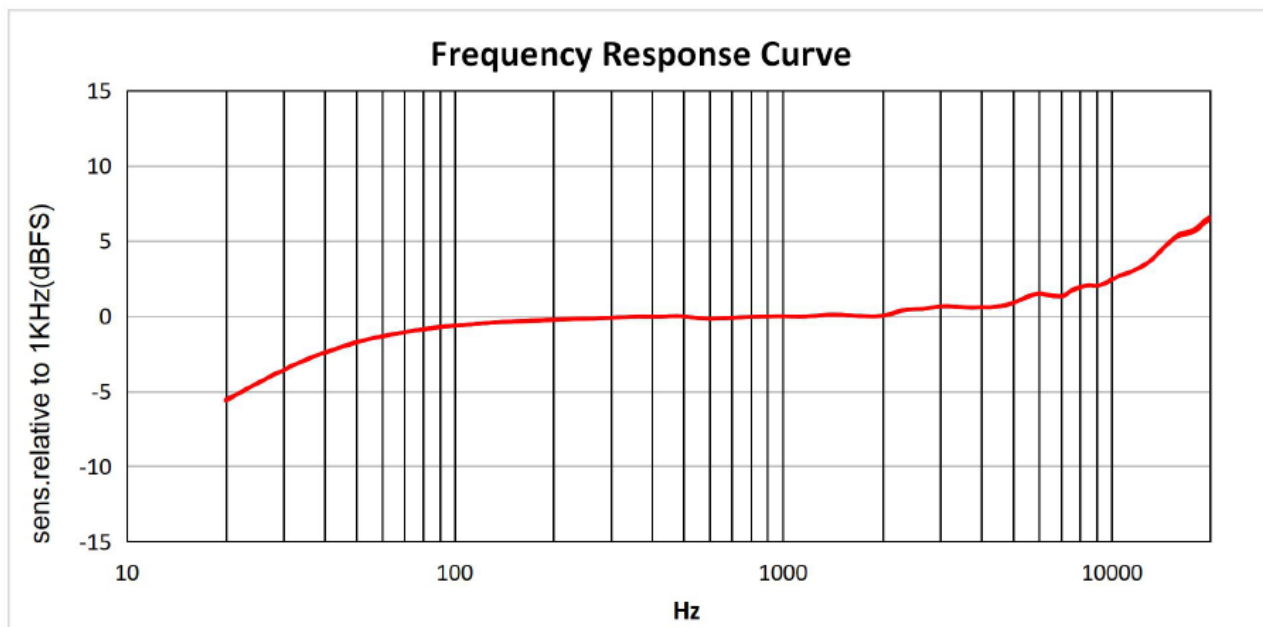


Pick up Area

DIGITAL INTERFACE TIMING SPECIFICATION



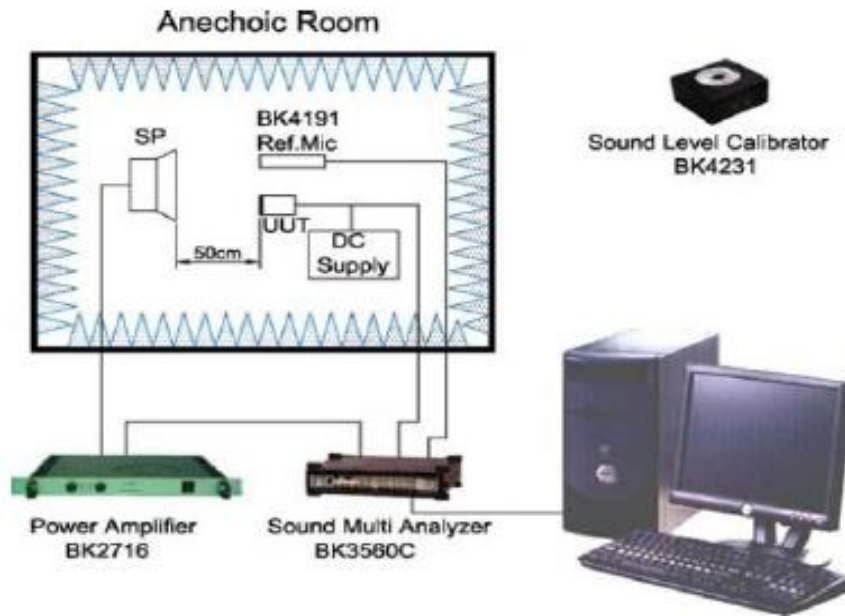
FREQUENCY CHARACTERISTICS



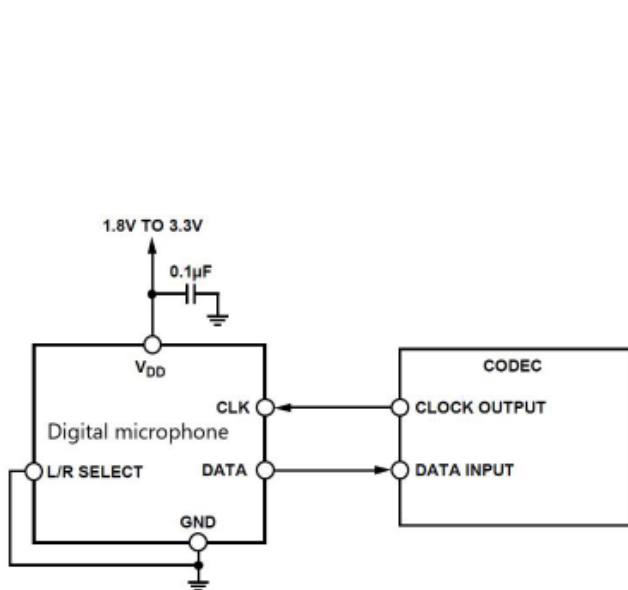
Frequency response curve normalized to 1kHz

Frequency (Hz)	LSL	USL	Unit
100	-3	1	dBFS
900	-1	1	dBFS
1000	0	0	dBFS
1100	-1	1	dBFS
3000	-1	3	dBFS
8000	-1	4	dBFS
10000	-1	6	dBFS

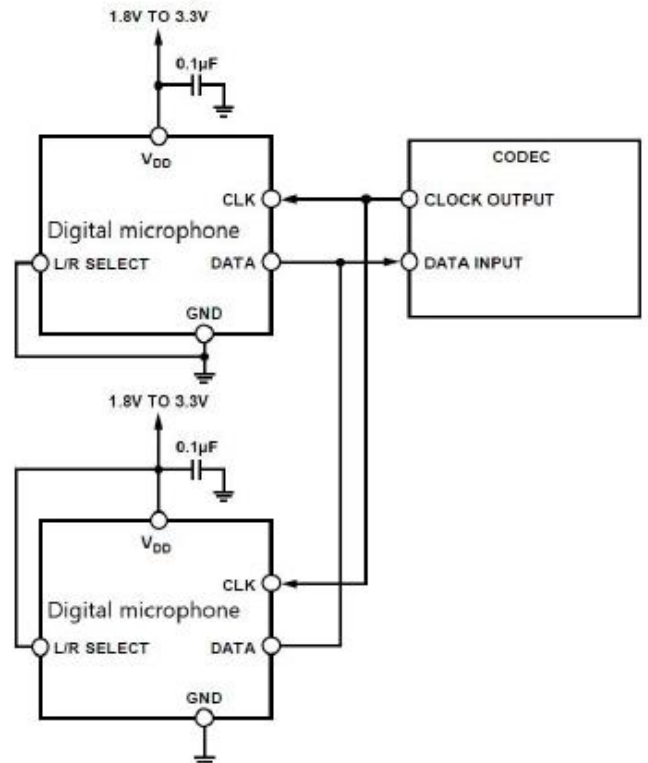
MEASUREMENT SYSTEM SETUP



TYPICAL APPLICATION CIRCUIT

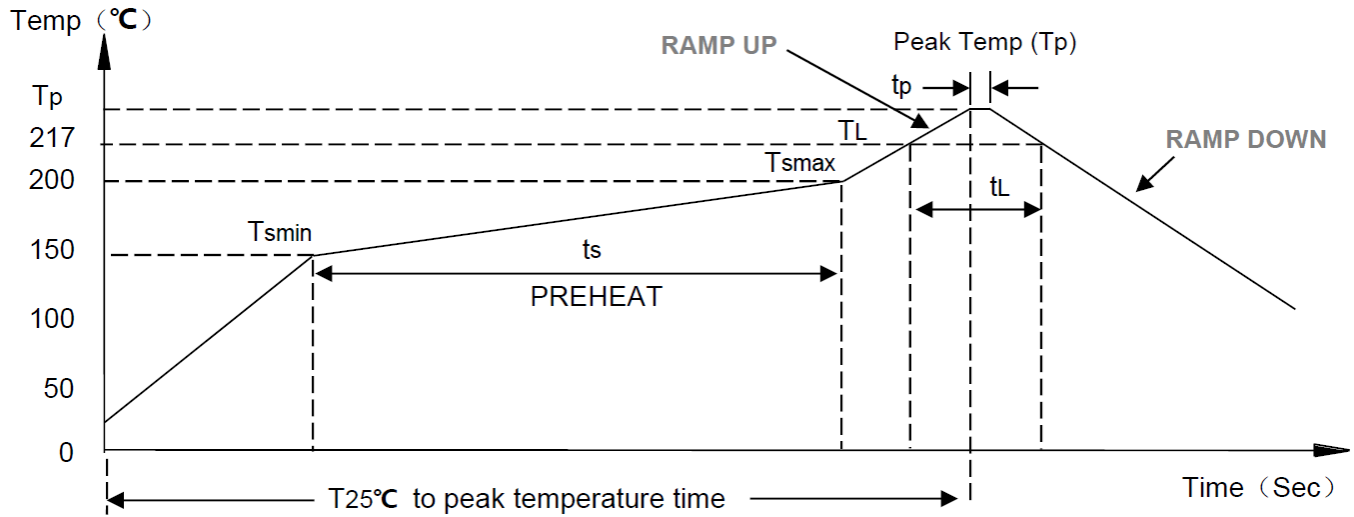


PDM input interface circuit(Single MIC)



PDM input interface circuit(Dual MIC)

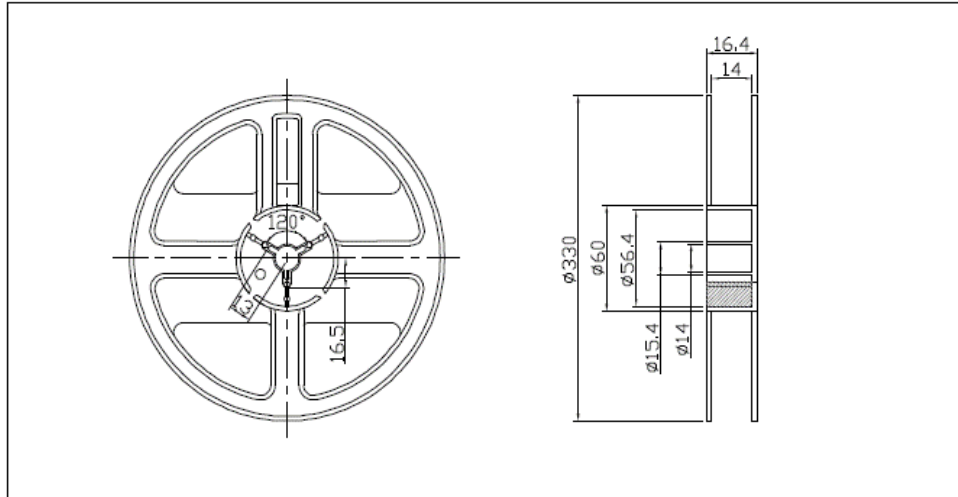
REFLOW PROFILE



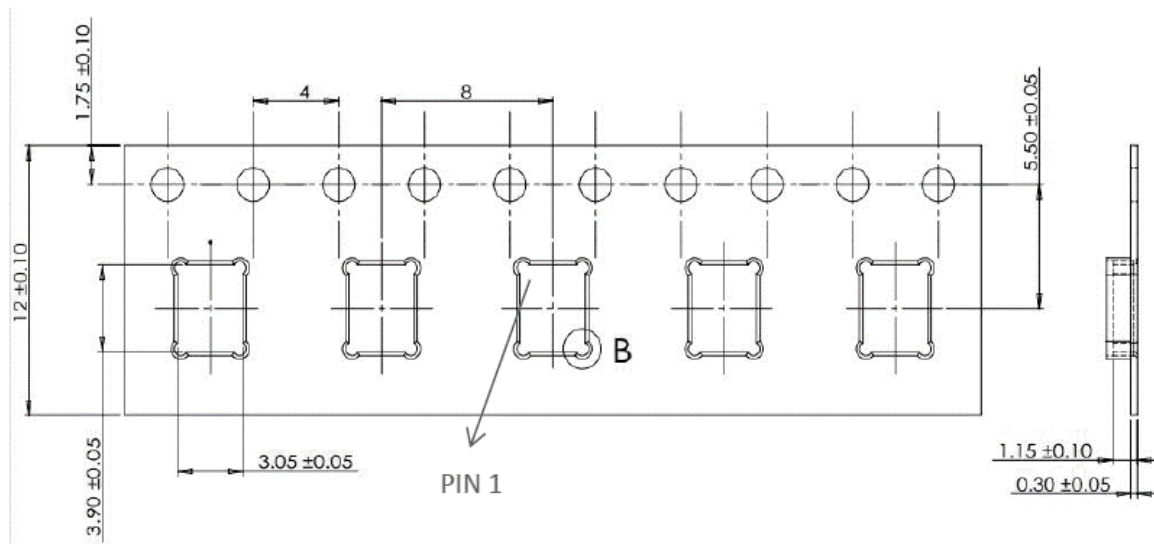
Parameter		Specification
Average temperature change rate (TSMAX to TP)		3°C /second max.
Preheat	Temperature min.(TSMIN)	150°C
	Temperature max.(TSMAX)	200°C
	Time TSMIN to TSMAX	60-180 Seconds
Time Maintained Above Liquidous		60-150 Seconds
Liquidous Temperature		217°C
Peak Temperature		260°C +0°C/-5°C
Time Within +5°C of Actual Peak Temperature		20 sec to 40 sec
Ramp-Down Rate		3°C/sec max
Time +25°C (t25°C) to Peak Temperature		8 min max

PACKAGING

13" Reel drawing:



Tape drawing:



APPROVAL

DRAWN BY	JS, May 31, 2024
APPROVED BY	AR, May 31, 2024
REVISION	A, Initial Release

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