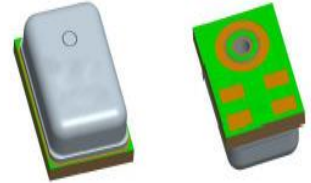


Features

- 2.75x1.85x0.95mm Bottom Port
- PDM digital Output
- SNR of 63dBA
- RF Shielded
- Standard SMD Reflow Thecnology
- RoHS Compliance & Halogen Free
- Meets all rayking's environmental requirements

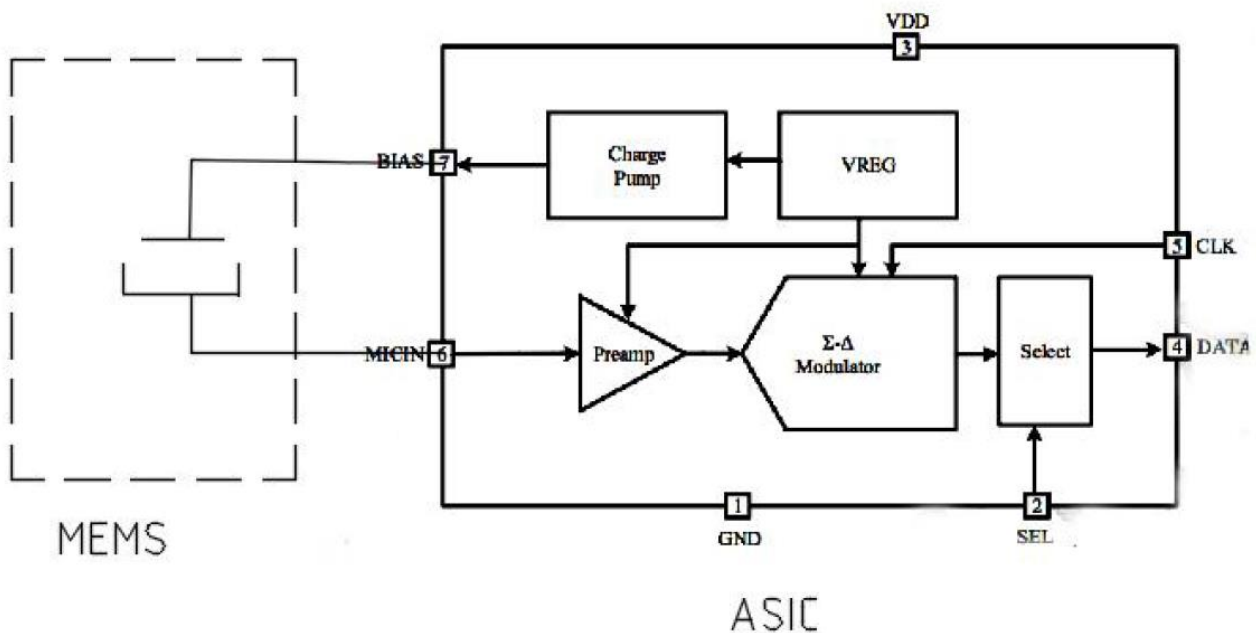
Applications

- Smart Phones
- Smart Speakers
- Wearable Electronics
- Portable Electronics
- Smart Home Electronics
- Laptop Computers
- TWS Headstes



Description: RMIC-94-3.6-2718-RG-NS14 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 1 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

Test condition: Normal Mode: Vdd=1.6-3.6V, Fclock=2.4MHz, no load, unless otherwise specified.

Parameters		Value			Unit
		min	typ	max	
Directivity		Omni-Directional			
Clock Frequency (Fclk)		1		4.8	MHz
Sensitivity (S)	94db SPL@ 1kHz	-27	-26	-25	dBFS
Current Consumption (I)	Vdd=1.8V Fclk=2.4MHz		750	1000	uA
S/N Ratio (SNR)	94dB SPL @1kHz, A-Weighted		63		dB
Total Harmonic Distortion (THD)	@ 94dB SPL @1kHz		0.1	0.5	%
Acoustic Overload Point (AOP)	@10% THD @1kHz		120		dB SPL
Phase Response (PR)	20-10K	-5		5	°
Power Supply Rejection (PSR)	@100mVpp Square wave, 217Hz, A-weighted			-89	dBFS

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

Low Power Mode Vdd=1.8V, Fclk=768kHz, Audio Bandwidth 20Hz to 8kHz

Parameters		Value			Unit
		min	typ	max	
Clock Frequency (Fc)		150	768	900	kHz
Sensitivity (S)	94db SPL@ 1kHz	-27	-26	-25	dBFS
Current Consumption (I)			300	400	uA
S/N Ratio (SNR)	94dB SPL @1kHz, A-Weighted		62		dBA
Total Harmonic Distortion (THD)	@94dB SPL @1kHz		0.1	0.5	%
Acoustic Overload Point (AOP)	@10% THD @1kHz		120		dB
Power Supply Rejection (PSR)	@100mVpp Square wave, 217Hz, A-weighted		-95		dB

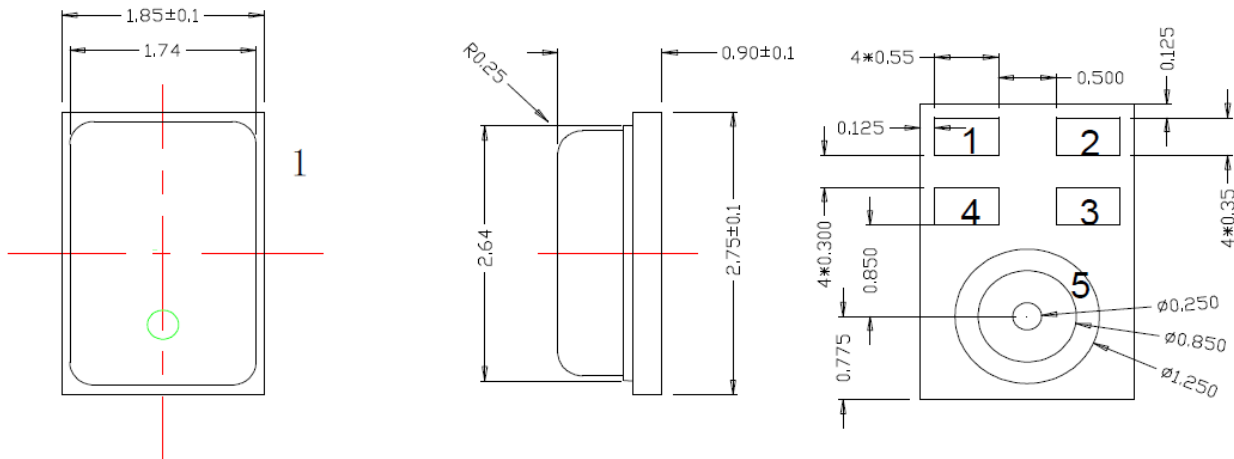
Sleep Mode: Vdd=1.8V, Fclk<50kHz

Parameters		Value			Unit
		min	typ	max	
Clock Frequency (Fc)				50	kHz
Current Consumption (I)	Fclk=0kHz vdd=1.8V		3		uA
Current Consumption (I)	Fclk=0kHz vdd=3.6		6		uA

General Microphone Specification

Parameters		Value			Unit
		min	typ	max	
Directivity		Omni-directional			
Operating Voltage	Vdd	1.6	1.8	3.6	V
Data Format		½ Cycle PDM			
Clock Frequency (Fclk)		1.4		3.6	MHz
Clock Duty Cycle		40		60	%
Logic Low Input/Output Voltage		-0.35		0.35xVdd	V
Logic High Input/Output Voltage		0.65xVdd		+0.3Vdd	V
Short Circuit Current (ISC)	Grounded Puput Pin	1		20	mA
Mode Change Time (Tmc)				50	ms

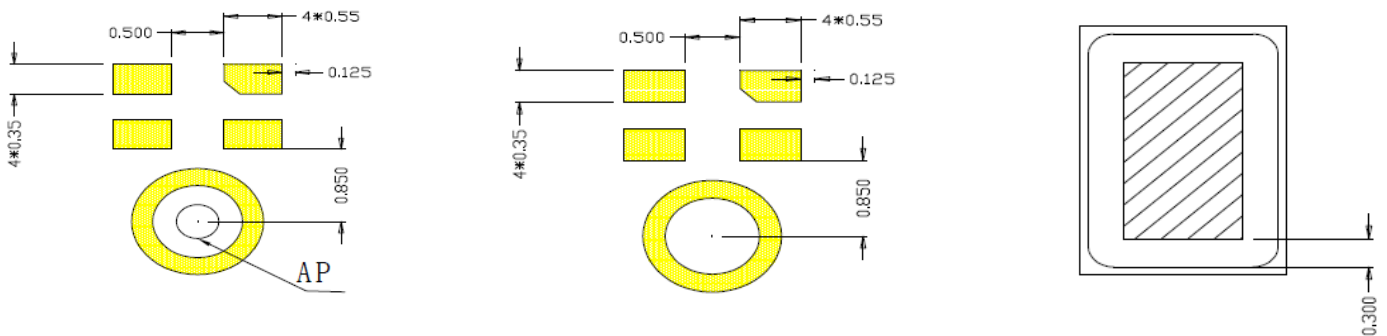
DIMENSIONS



Item	Dimension	Tolerance(+/-)	Units
Length(L)	2.75	0.10	mm
Width(W)	1.85	0.10	mm
Height(H)	0.95	0.10	mm
Acoustic Port(AP)	Ø0.25	0.05	mm

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

PICKUP TOOL PICK LOCATION & PCB SOLDER PAD LAYOUT

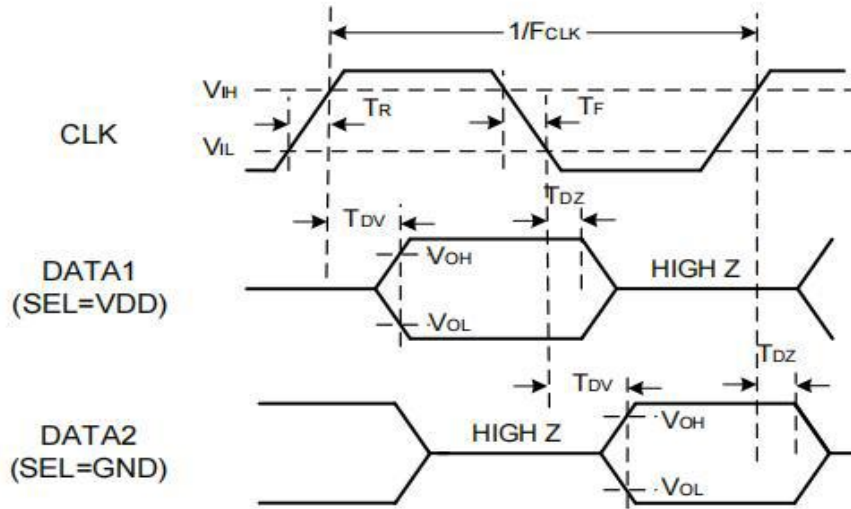


PCB Land Pattern

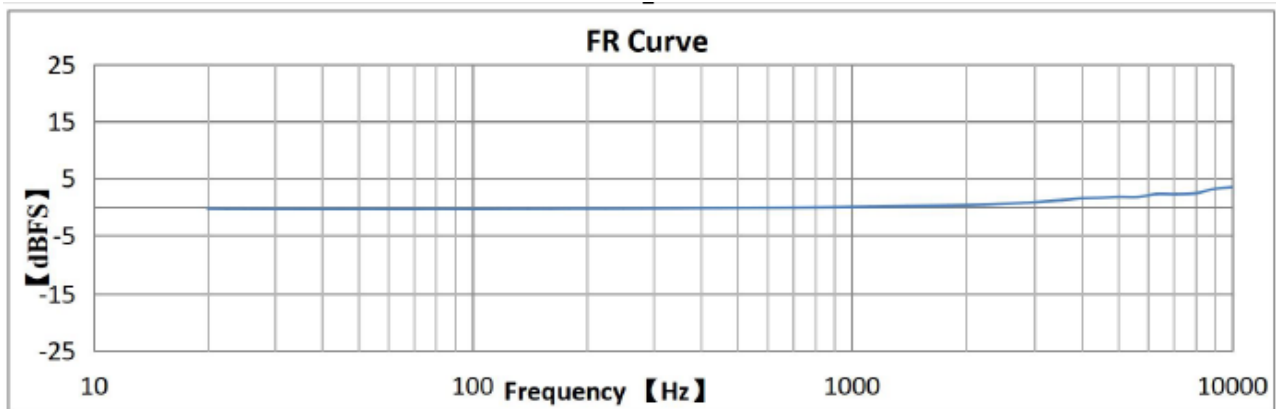
Solder stencil pattern

Pick up area

DIGITAL INTERFACE TIMING SPECIFICATION



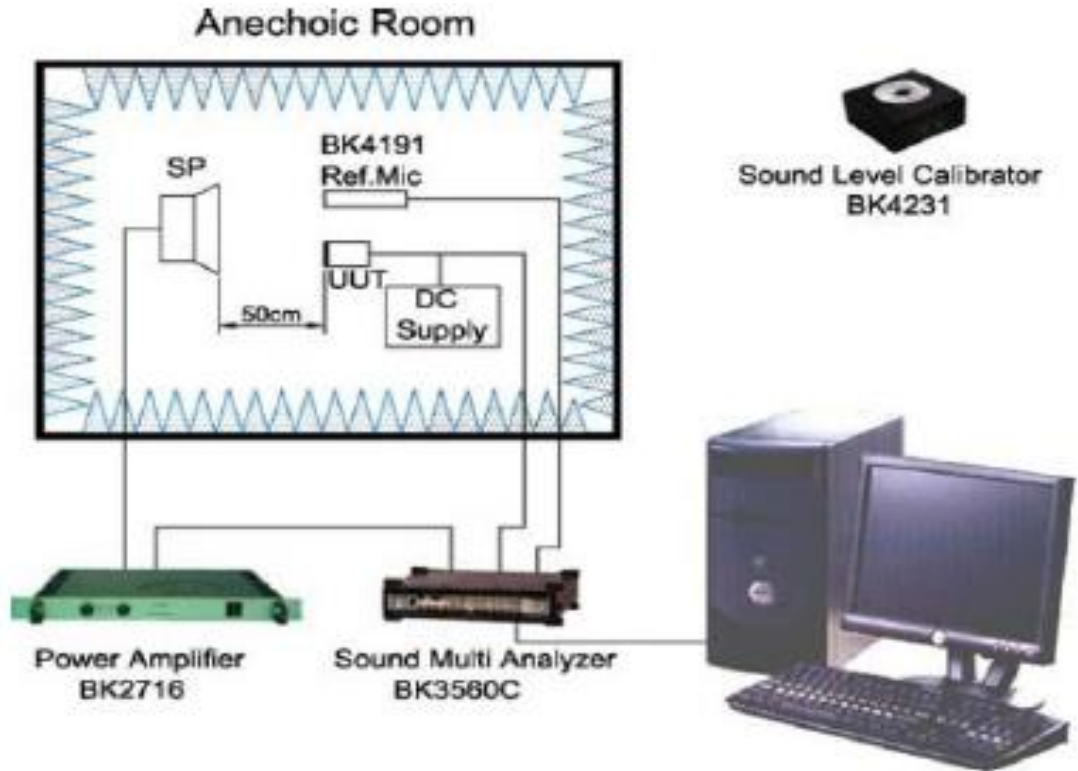
FREQUENCY CHARACTERISTICS



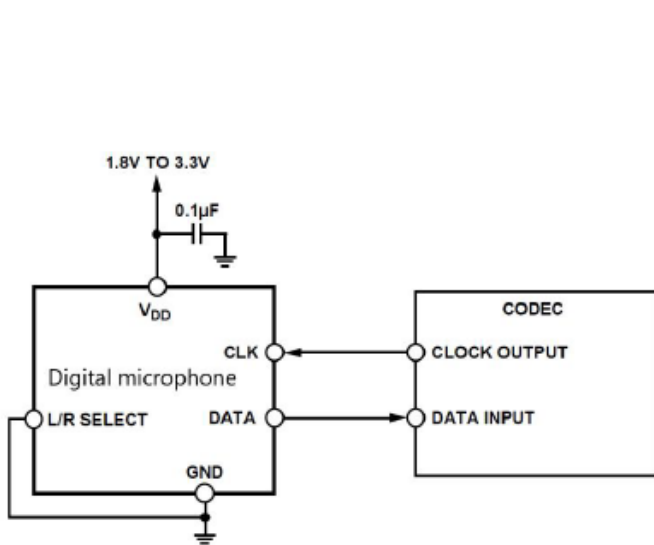
Frequency response curve normalized to 1kHz

Frequency (Hz)	LSL	USL	Unit
20	-1	1	dBFS
100	-1	1	dBFS
900	-1	1	dBFS
1000	0	0	dBFS
1100	-1	1	dBFS
8000	-1	4	dBFS
10000	0	9	dBFS

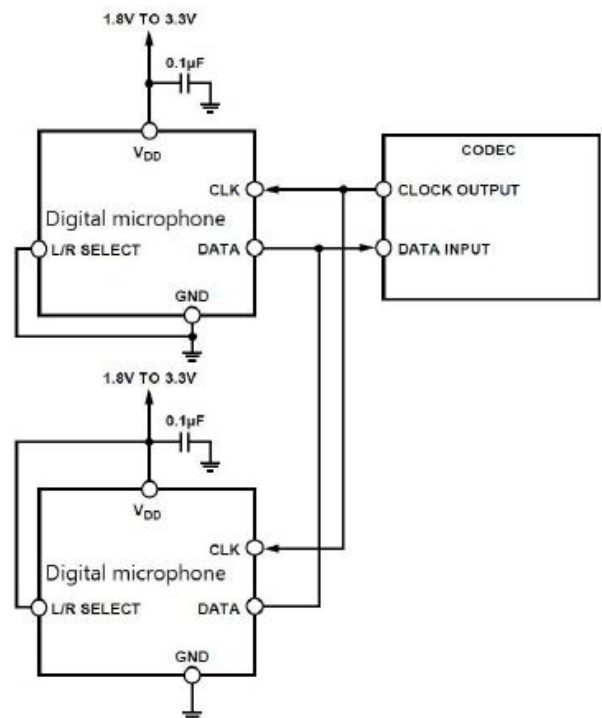
MEASUREMENT SYSTEM SETUP



TYPICAL APPLICATION CIRCUIT

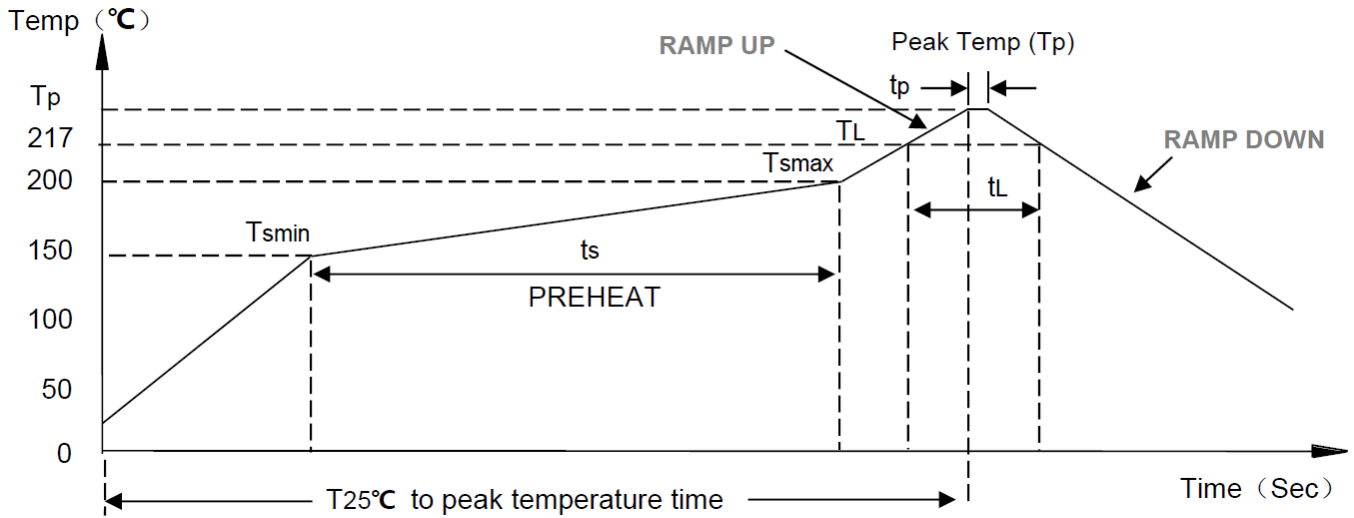


PDM input interface circuit(Single MIC)



PDM input interface circuit(Dual MIC)

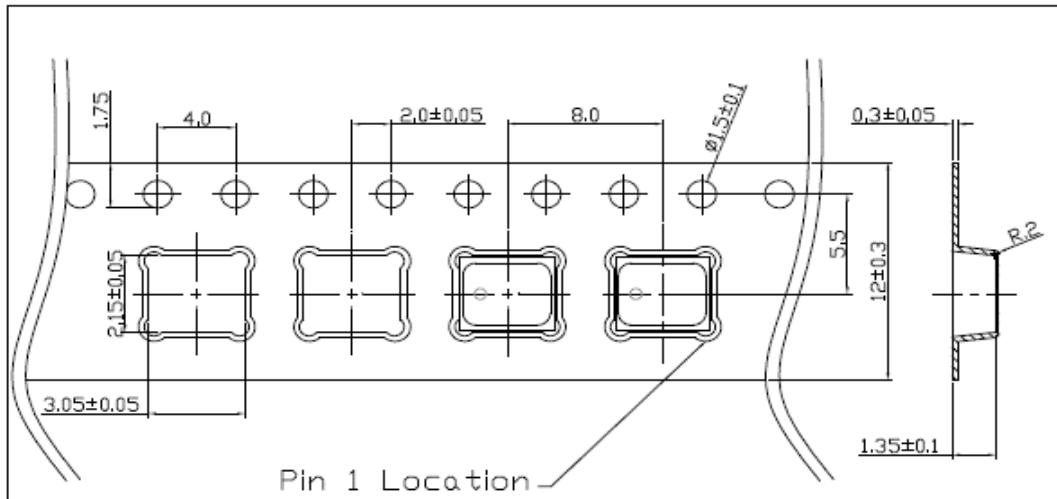
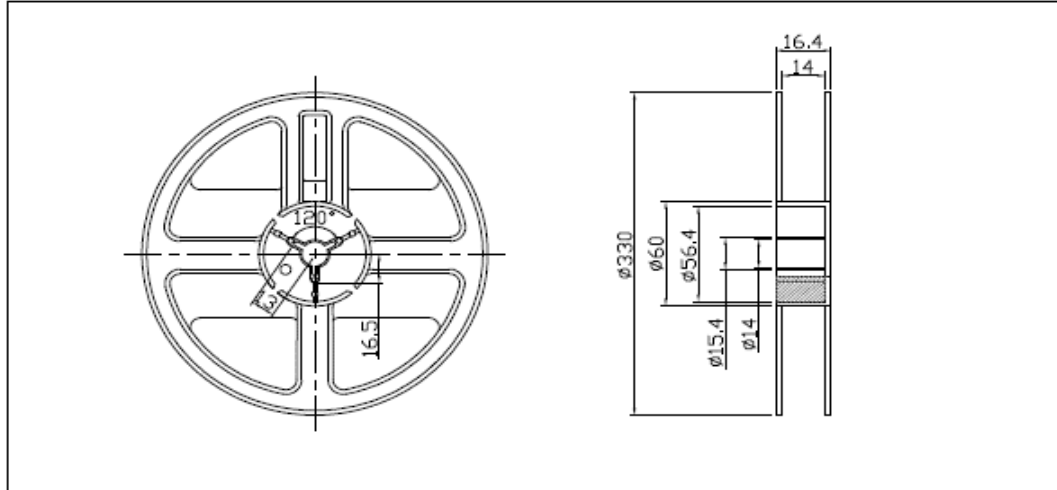
REFLOW PROFILE



Parameter		Specification
Average temperature change rate (T _S MAX to T _P)		3°C /second max.
Preheat	Temperature min.(T _S MIN)	150°C
	Temperature max.(T _S MAX)	200°C
	Time T _S MIN to T _S MAX	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 (t _{25°C}) to Peak Temperature		8 min max

PACKAGING

13" Reel drawing:



APPROVAL

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

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