Data Sheet	DMM-4026-B-I2S-R

Specifications

Parameters	Condition	Values	Units
Directivity	Omnidirectional		
Data Format (Single Channel)	I²S 24-bit data size with 18-bit precision, 32-bit word size		
Sensitivity	1 kHz @ 50cm with 94 dB source 0 dB=1V/Pa	-26±1	dB
Rated Voltage	-	1.8	VDC
Operating Voltage Range	-	1.5 to 3.6	VDC
Supply Current	Normal Mode	820 ~ 1000	µA
	Sleep Mode (clock off)	5	µA
Signal-to-Noise Ratio	1kHz, 94 dB input, A-weighted	64	dB
Frequency Range	20~20,000		Hz
Total Harmonic Distortion (typical)	110 dB @ 50cm, 1 kHz acoustic source	1%	-
Startup Time	Sensitivity reaching 90% of listed value from initial power-up	20	mS
	From Sleep Mode	20	mS
	From Normal Mode to Sleep Mode	20	mS
Input Clock Frequency	Normal Mode	2.048 ~ 4.096	MHz
	Sleep Mode	320	kHz
Clock Jitter	Long Term RMS	500	pS
Load Capacitance	-	140	pF
Pass Band	Fs=48 kHz	18	kHz
Pass Band Attenuation	-	0.5	dB
Acceptable Soldering Methods	Reflow Solder		See page 4 for soldering information
Environmental Compliances	RoHS/Halogen Free		
Power Supply Rejection	100 mVpp Square Wave @ 217 Hz, A-weighted	-86	dBFS
Weight	<0.3		Grams
Operating Temperature	-40 ~ +100		°C
Storage Temperature	-40 ~ +125		°C
MSL (Moisture Sensitivity Level)*	1		-

*MSL level dependent on product remaining in sealed packaging until use

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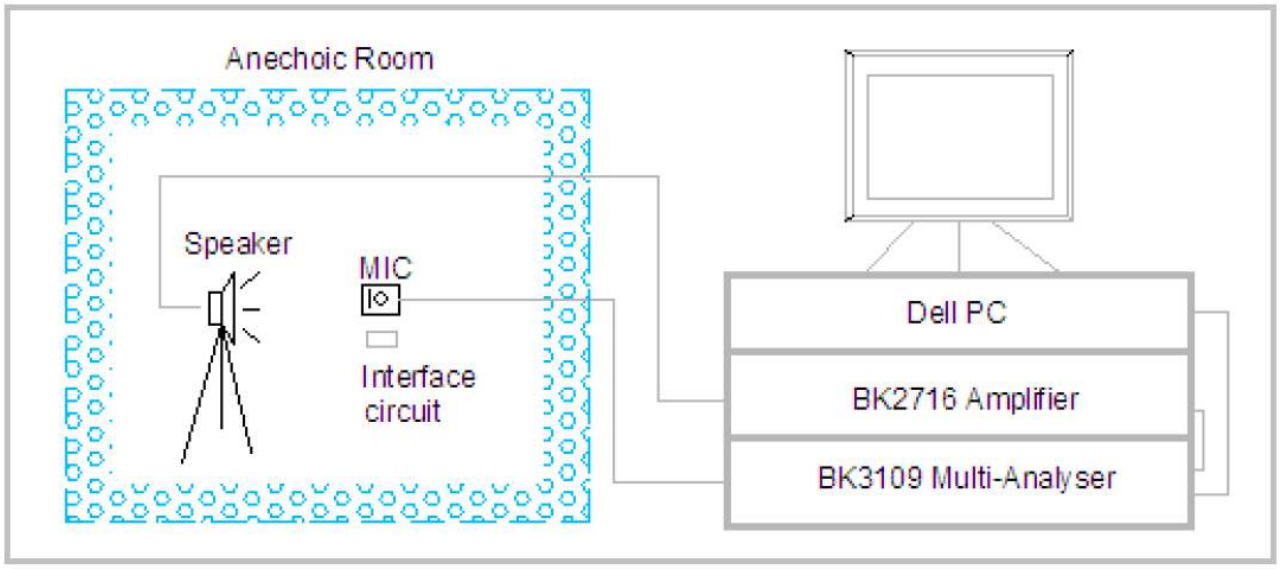
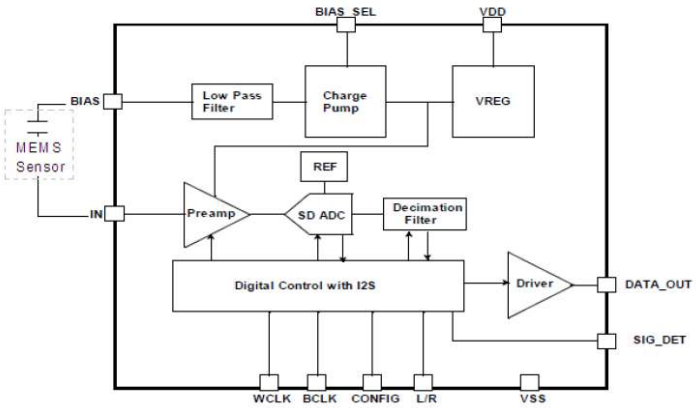
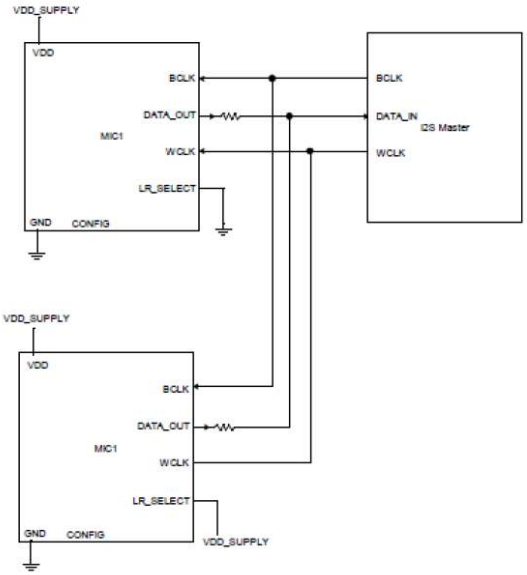
Measurement Method



Measurement Interface Circuit



Functional Block Diagram

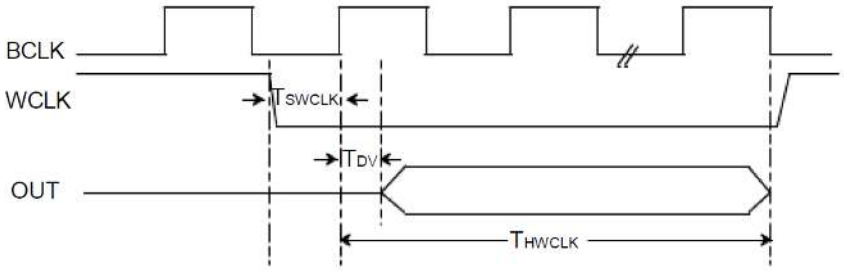


Interface diagram between I2S Master and 2 Microphones

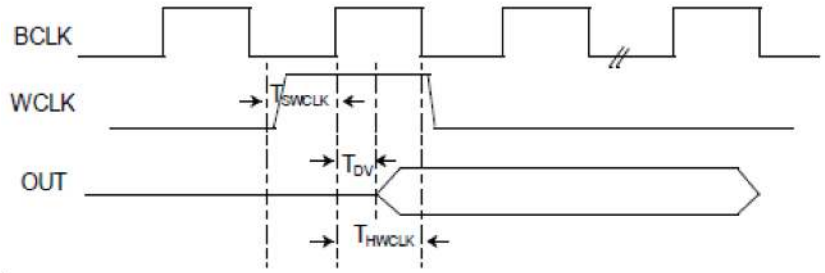
Digital Interface Specifications

In order to properly use this microphone, the I2S converter must support a 32-bit word size for mono operation and 64-bit word size for stereo operation with two microphones. Each microphone outputs 24-bit data with 18-bit precision. Six bits are null (0) value.

Parameters	Symbol	Condition	Value			Units
-			MIN	Typical	MAX	-
BCLK Frequency	BCLK	-	-	3.072	12.288	MHz
BCLK Duty Cycle	-	-	45	-	55	%
Data Valid	TDV	-	-	-	18	nS
WCLK Hold Time	THWCLK	Two mic mode	32 (1/BCLK)	-	-	nS
		Array mic mode	20	-	-	nS
WCLK Setup Time	TSWCLK	-	20	-	-	nS

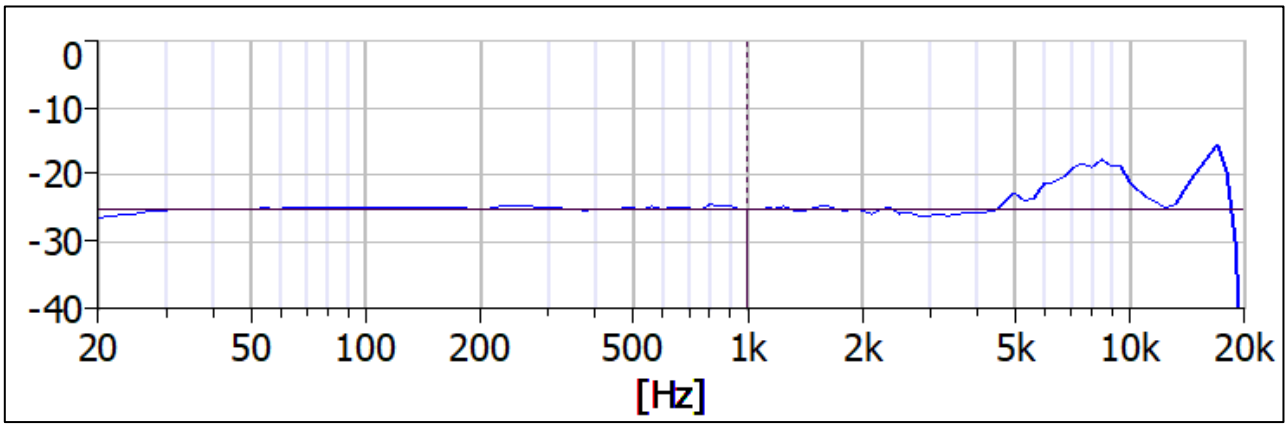


Interface timing diagram for two microphone Mode

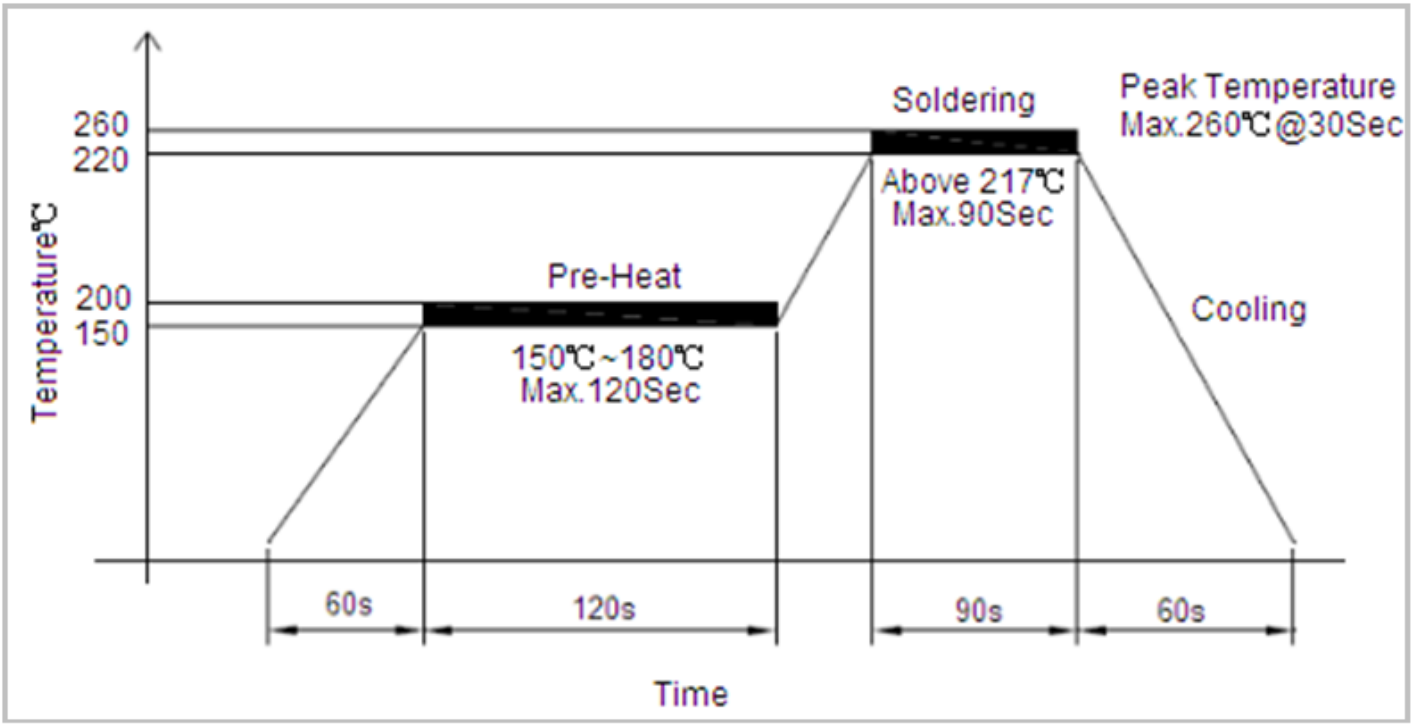


Interface timing diagram for Array microphone Mode

Typical Frequency Response (Microphone spaced 50cm from 94 dB acoustic source)



Recommended Soldering Procedure



Important Notes to minimize device damage:

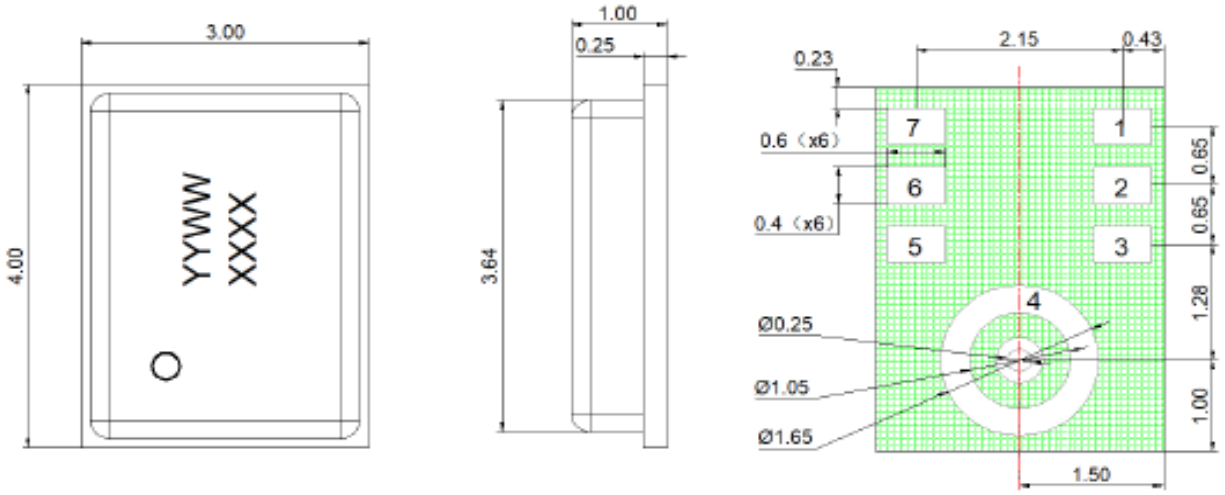
1. Do not boards wash or clean after the reflow process.
2. Do not apply over 0.3Mpa of air pressure into the port hole.
3. Do not expose to ultrasonic processing or cleaning.
4. Do not pull a vacuum over port hole of the microphone.

Reliability Testing

Type of Test	Test Specifications
Simulated Reflow (Without Solder)	Samples for qualification testing require 3 passes 260±5 °C reflow solder profiles. 2 hours of setting time is required between each reflow profile test.
Static Humidity	Precondition at +25°C for 1 hour. Expose to +85°C with 85% relative humidity for 1000 hours. Dry at room ambient for 3±1 hour before taking final measurement.
Temperature Shock	Each cycle shall consist of 30 minutes at -40°C, 30 minutes at +125°C with 5 minutes transition time. Test duration is for 30 cycles, starting from cold to hot temperature.
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.
Vibration Test	Vibrate randomly along three perpendicular directions for 30 minutes in each direction, 4 cycles from 20~2000 Hz with a peak acceleration of 20 Gs.
Shock Test	Subject samples to half-sine shock pulses (3000±15% Gs for 0.3ms) in each direction, for a total of 18 shocks.
Drop Test	Drop samples from 1.5m height onto a steel surface, total 18 times and inspected for mechanical damage.
Operation Life	Subject samples to +125°C for 168 hours under full maximum rated voltage.

Microphone frequency response and sensitivity shall not deviate more than ±3 dB.

Dimensions



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

Item	Dimension	Tolerance(+/-)	Units
Length(L)	4.00	0.10	mm
Width(W)	3.00	0.10	mm
Height(H)	1.00	0.10	mm
Acoustic Port(AP)	Ø0.25	0.05	mm

Pin #	Pin Name	Type	Description
1	LR	Input	Left/Right channel select. When set low, the microphone outputs its signal in the left channel of the I²S frame. When set high, the microphone outputs its signal in the right channel.
2	CONFIG	Input	Pull to ground. The state of this pin is used at power-up.
3	VDD	Power	Power, 1.62 to 3.63 V. This pin should be decoupled to GND with a 0.1µF capacitor.
4	GND	Ground	Ground. Connect to ground on the PCB.
5	WS	Input	Serial Data-Word Select for I²S Interface
6	SCK	Input	Serial Data Clock for I²S Interface
7	SD	Output	Serial Data Output for I²S Interface. This pin tri-states when not actively driving the appropriate output channel. The SD trace should have a 100 kΩ pull down resistor to discharge the line during the time that all microphones on the bus have tri-stated their outputs.

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

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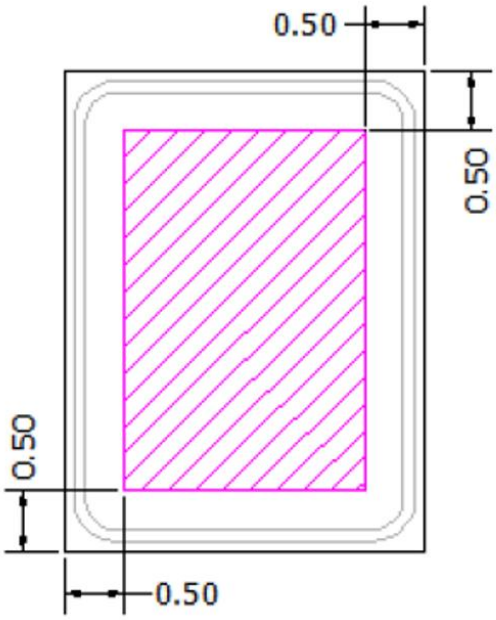
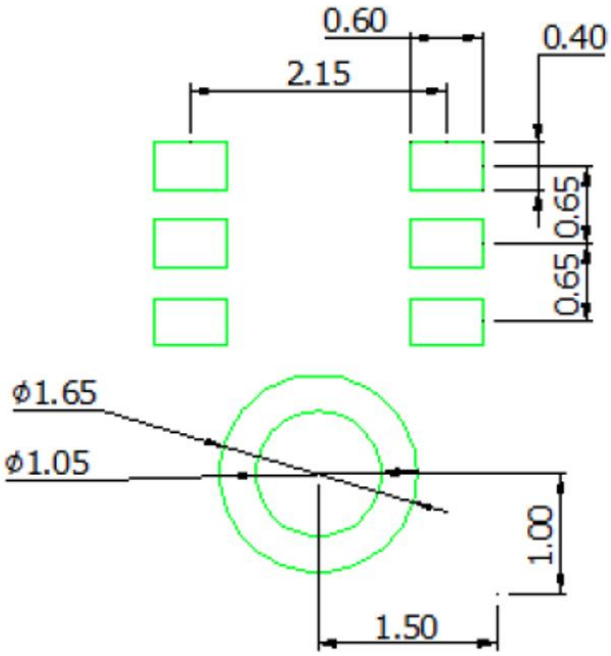
Suggested Pickup Tool Location and Land Pattern*



Recommended Pickup Location



Recommended Solder Pad Layout

*This land pattern is advisory only and its use or adaptation is entirely voluntary. PUI Audio disclaims all liability of any kind associated with the use, application, or adaptation of this land pattern.

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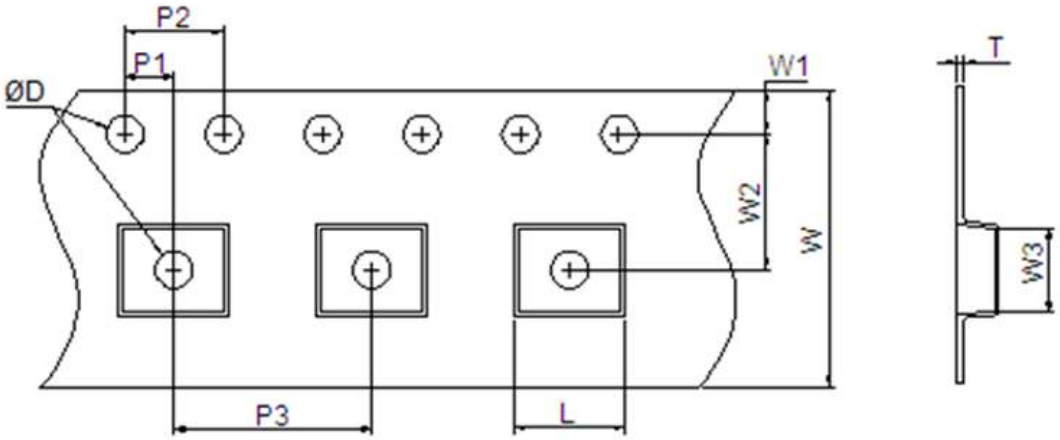
Packaging

Tape Specification

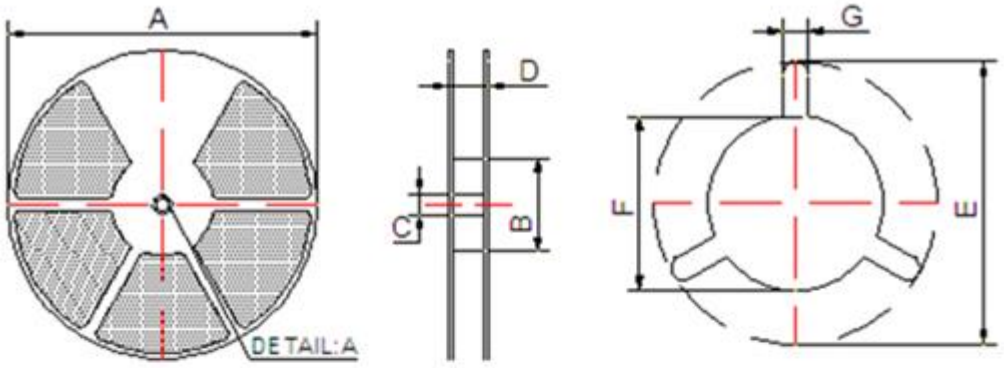


Symbol	Dimension		
	Minimum	Nominal	Maximum
øD	1.5	1.5	1.6
P1	1.9	2.0	2.1
P2	3.9	4.0	4.1
P3	7.9	8.0	8.1
L	4.0	4.1	4.2
W	11.7	12	12.3
W1	1.65	1.75	1.85
W2	5.4	5.5	5.6
W3	3.3	3.4	3.5
T	0.25	0.3	0.35

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

Packaging (continued)

Reel Specification



Top View Side View DETAIL:A

7" Reel

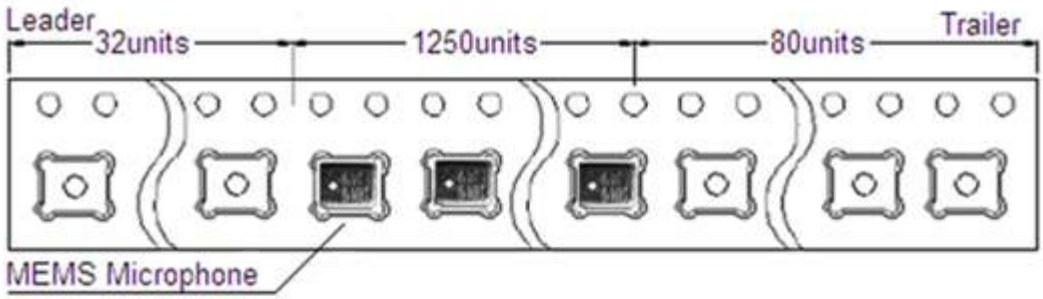
Description	Symbol	Dimension (mm)		
		Minimum	Nominal	Maximum
Reel Diameter	A	-	180	-
Hub Diameter	B	58	60	62
Hub Hole Diameter	C	12.8	13	13.5
Reel Width(Measured at hub)	D	-	16	16.4
Arbor Hole	E	20.2	-	-
Arbor Hw in mm Diameter	F	12.8	13.0	13.5
Arbor Slot Width	G	1.5	-	-

Notes
All dimensions are in millimeter (mm).

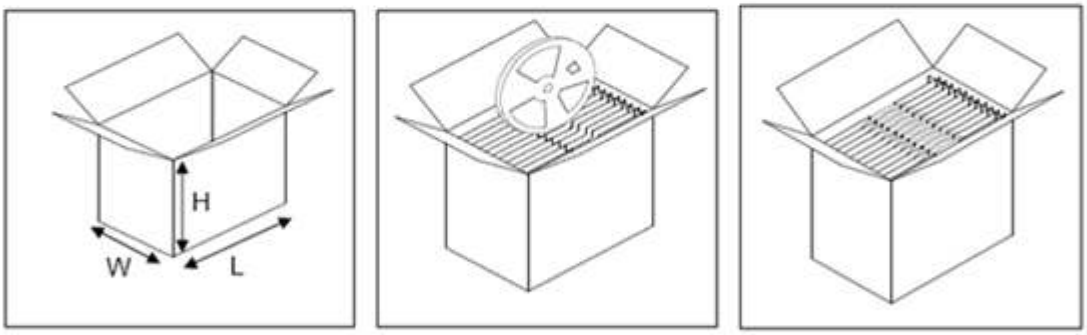
Packaging (continued)

Packing Quantity

7" Reel Packing



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 ℃

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Specifications Revisions

Revision	Description	Date
-	Released from Engineering	10/31/2019
A	Added I2S data information	5/26/2021

Note:
1. Unless otherwise specified:
   A. All dimensions are in millimeters.
   B. Default tolerances are ±0.5mm and angles are ±3°.
2. Specifications subject to change or withdrawal without notice.

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