

## MEMS microphone



## MMIC series



## FEATURES

- Surface Mounted Technology (SMT)
- Reflow soldering up to 260 °C
- RoHS compatible, Ni/Au-plated terminals suited for lead free soldering
- High long-term temperature stability

## APPLICATION

- Microphone designed for mobile phones, headsets, PDAs, notebooks and cameras
- Application guides: [Smart phones/tablets](#)

## PART NUMBER CONSTRUCTION

MMIC271609T4064C0300, MMIC332509T4081C0900

MMIC	271609	T4064	C0300
Series name	LxWxH dimensions (mm)		Package quantity (pieces)
271609	2.7×1.6×0.89		C0300 3,000
332509	3.35×2.5×0.98		C0900 9,000

MMICT4076-00-908, MMICT4078-00-908

MMIC	T4076	-00	-90	8		
Series name	Type name	Version	Number of reels		Width of reel tape	
	T4076		90	9,000	8	8mm
	T4078					

## PRODUCT LINEUP

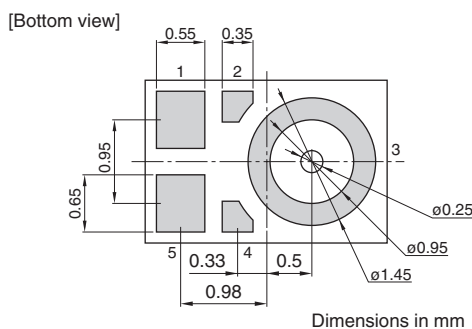
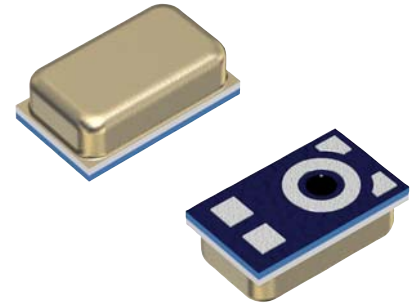
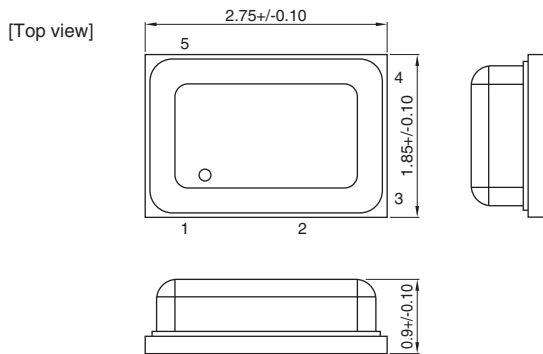
Part No.		LxWxH dimensions (mm)Nom.	Sensitivity/ (dBV/Pa)	S/N ratio (Nom.)/dB(A)	Sound pressure level/dB	Product type	Port location	Operating temperature range/°C	Individual weight/g
<a href="#">MMIC271609T4064C0300</a>		2.7×1.6×0.89	-38±3 at 1kHz	61.5	110 at THD 1% Max., 1kHz	Analog output (unbalanced)	Bottom	-40 to 85	0.016
<a href="#">MMIC332509T4081C0900</a>		3.35×2.5×0.95	-38±1 at 1kHz	66	136 at THD 10% Typ., 1kHz	Analog output (equilibrium)	Bottom	-40 to 85	0.019
<a href="#">MMICT4076-00-908</a>		2.75×1.85×0.9	-38+/-1 at 1kHz	63	127 at THD 10% Max., 1kHz	Analog output (unbalanced)	Bottom	0 to 85	0.02
<a href="#">MMICT4078-00-908</a>		3.35×2.5×0.98	-38±1 at 1kHz	66	135 at THD 10% Max., 1kHz	Analog output (equilibrium)	Bottom	-40 to +85	0.019

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. (1/7)  
Please note that the contents may change without any prior notice due to reasons such as upgrading.

20191001

# MMIC271609T4064C0300 (Analog output (unbalanced))

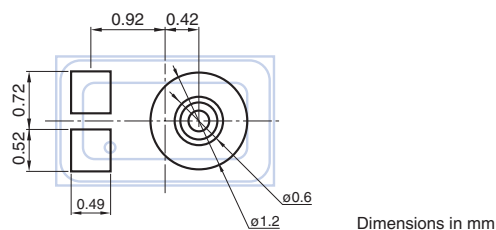
## SHAPE & DIMENSIONS



### Terminal functions

1	OUT	Output
2	KOA	keep out area, no structure on PCB recommended
3	GND	Ground
4	KOA	keep out area, no structure on PCB recommended
5	VDD	Supply Voltage

## RECOMMENDED LAND PATTERN



## PORT LOCATION: Bottom

## ELECTRICAL CHARACTERISTICS

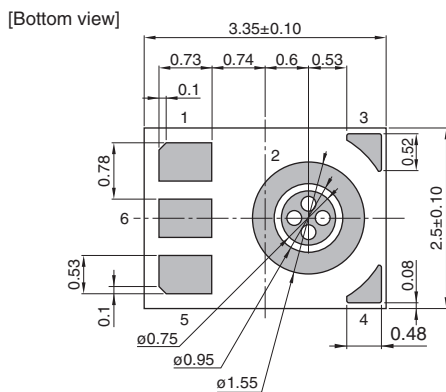
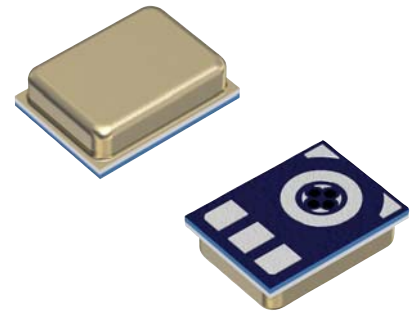
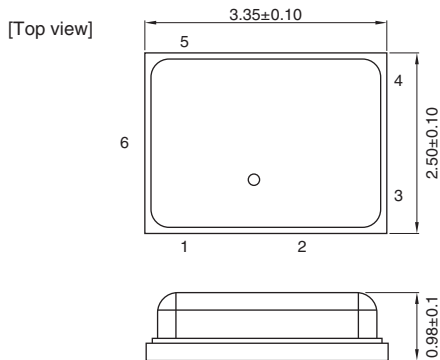
Sensitivity	-38dBV/Pa $\pm$ 3dBV/Pa at 1kHz
Signal to noise ratio (SNR) (Typ.)	61.5 dB(A)
Total harmonic distortion (THD) (Max.)	1% at 110 dB SPL, 1kHz
Power supply rejection ratio (PSRR) (Typ.)	75dB at 1kHz sine wave, 100mVp-p
Current consumption (Icc) (Typ.)	90 $\mu$ A
Output impedance (Max.)	400 $\Omega$

## OTHERS

Operating temperature range	-40 to 85°C
Packaging style	Emboss taping (180mm reel, tape width 8mm)
Package quantity	3000pcs
Product weight	0.016g

# MMIC332509T4081C0900 (Analog output (equilibrium))

## SHAPE & DIMENSIONS

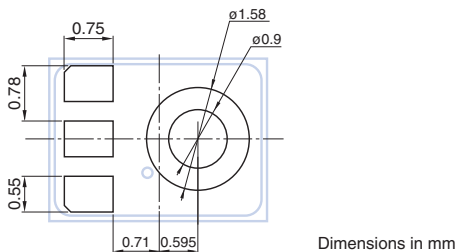


### Terminal functions

1	OUTP	(balanced output +)
2	GND	(ground)
3	KOA	(keep out area, no structure on PCB recommended)
4	KOA	(keep out area, no structure on PCB recommended)
5	V <sub>DD</sub>	(power)
6	OUTN	(balanced output -)

Dimensions in mm

## RECOMMENDED LAND PATTERN



## PORT LOCATION: Bottom

## ELECTRICAL CHARACTERISTICS

Sensitivity	-38dBV/Pa ±1dBV/Pa at 1kHz
Signal to noise ratio (SNR) (Typ.)	66dB(A)
Total harmonic distortion (THD) (Typ.)	10% at 136 dB SPL, 1kHz
Power supply rejection ratio (PSRR) (Typ.)	70 dB at 1kHz sine wave, 200mVp-p
Current consumption (I <sub>cc</sub> ) (Typ.)	135μA
Output impedance (OUTP to OUTN) (Typ.)	450Ω
Output impedance (OUTP as coupled to GND) (Typ.)	225Ω
Output impedance (OUTN as coupled to GND) (Typ.)	225Ω

## OTHERS

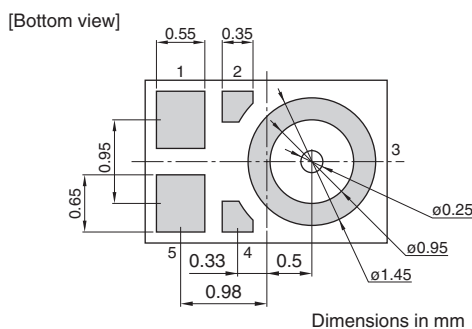
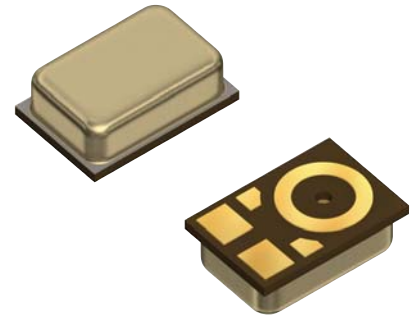
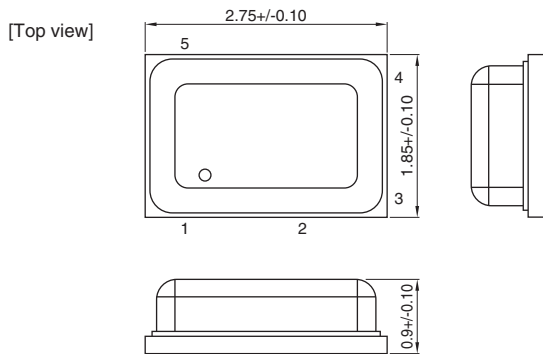
Operating temperature range	-40 to 85°C
Packaging style	Emboss taping (330mm reel, tape width 8mm)
Package quantity	9,000pcs
Product weight	0.019g

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. (3/7)  
Please note that the contents may change without any prior notice due to reasons such as upgrading.

20191001

# MMICT4076-00-908 (Analog output (equilibrium))

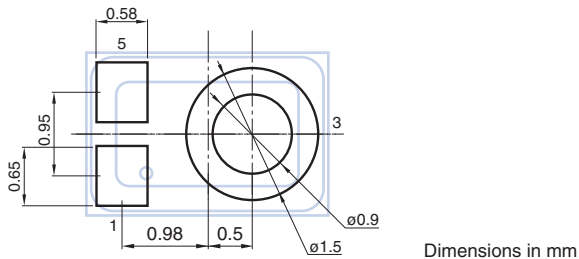
## SHAPE & DIMENSIONS



### Terminal functions

Terminal	Function
1	OUT Output
2	KOA keep out area, no structure on PCB recommended
3	GND Ground
4	KOA keep out area, no structure on PCB recommended
5	VDD Supply Voltage

## RECOMMENDED LAND PATTERN



## PORT LOCATION: Bottom

## ELECTRICAL CHARACTERISTICS

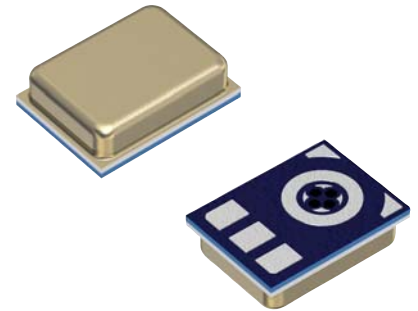
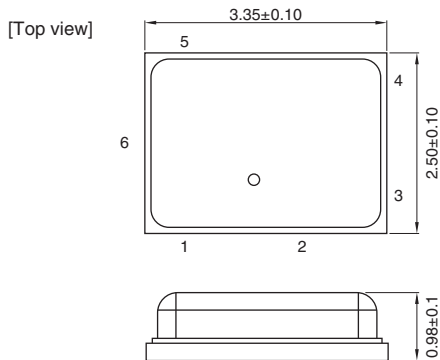
Sensitivity	-38dBV/Pa +/-1dBV/Pa, at 1kHz
SN	63dB(A)
THD (Typ.)	10% at 127dB SPL, 1kHz
PSRR (Typ.)	75dB at 1kHz, 200mVp-p
Current consumption (Typ.)	135μA
Output Z (Typ.)	250Ω

## OTHERS

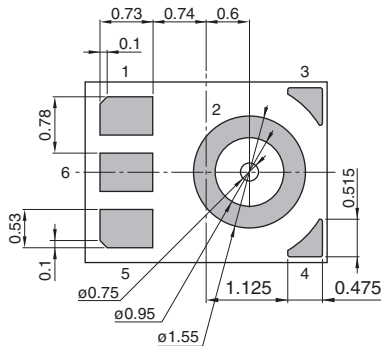
Operating temperature range	0 to 85°C
Packaging style	Emboss taping (330mm reel, tape width 8mm)
Package quantity	9,000 pieces
Product weight	0.02g

# MMICT4078-00-908 (Analog output (equilibrium))

## SHAPE & DIMENSIONS



[Bottom view]

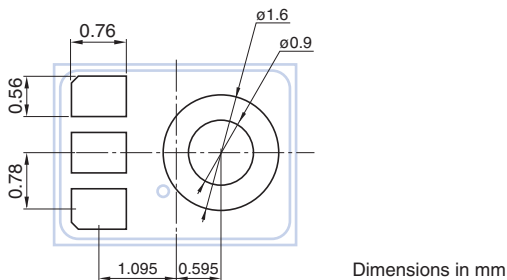


### Terminal functions

1	OUTP	balanced output +
2	GND	ground
3	KOA	keep out area, no structure on PCB recommended
4	KOA	keep out area, no structure on PCB recommended
5	V <sub>DD</sub>	power
6	OUTN	balanced output -

Dimensions in mm

## RECOMMENDED LAND PATTERN



## PORT LOCATION: Bottom

## ELECTRICAL CHARACTERISTICS

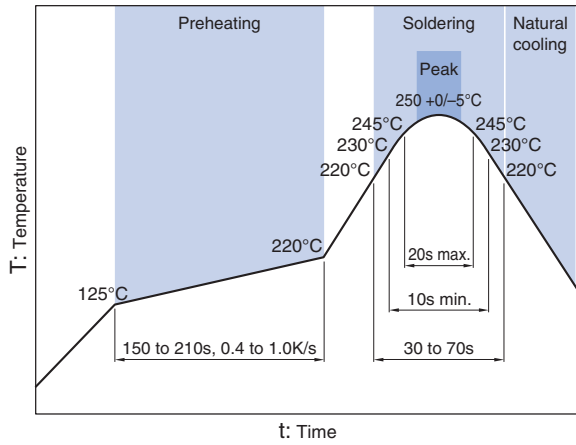
Sensitivity	-38dBV/Pa ±1dBV/Pa at 1kHz
SN	66dB(A)
THD (Typ.)	10% at 135dB SPL, 1kHz
PSRR (Typ.)	90dB at 1kHz sine wave, 200mVp-p
Current consumption (Typ.)	250μA
Output Z (Typ.)	250Ω

## OTHERS

Operating temperature range	-40 to 85°C
Packaging style	Emboss taping (330mm reel, tape width 8mm)
Package quantity	9,000 pieces
Product weight	0.019g

# MMIC series

## RECOMMENDED REFLOW PROFILE

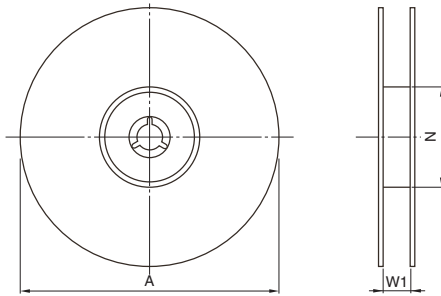


Wetting temperature	Ramp rate	Cooling Rate
<b>T<sub>min</sub></b>		
230°C +5/-0°C for 10±1s	3K/s max.	3K/s max.

Note : Specified at solder pads

## PACKAGING STYLE

### REEL DIMENSIONS, PACKAGE QUANTITY



Part No.	A	W1	N	Package quantity (pcs/reel)
<b>MMIC271609T4064C0300</b>	180	8.4	60	3000
<b>MMIC332509T4081C0900</b>	330	8.4	100	9000
<b>MMICT4076-00-908</b>	330	8.4	100	9000
<b>MMICT4078-00-908</b>	330	8.4	100	9000

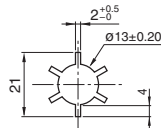
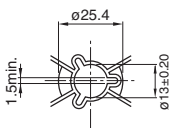
· These values are typical values.

180mm Reel

330mm Reel

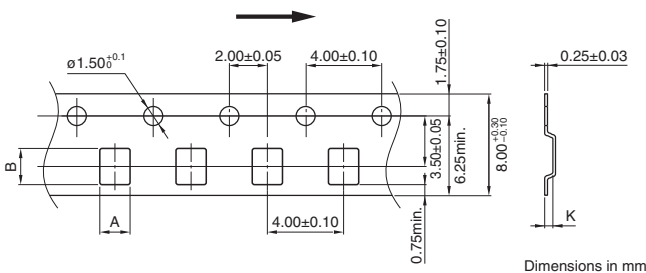
DETAIL A

DETAIL A



Dimensions in mm

### TAPE DIMENSIONS



Dimensions in mm

	Dimensions in mm		
	A	B	K
<b>MMIC271609T4064C0300</b>	2.05±0.05	3.00±0.05	1.15±0.05
<b>MMIC332509T4081C0900</b>	2.70±0.05	3.55±0.05	1.2±0.1
<b>MMICT4076-00-908</b>	2.70±0.05	3.55±0.05	1.2±0.1
<b>MMICT4078-00-908</b>	2.70±0.05	3.55±0.05	1.2±0.1

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. (6/7)  
Please note that the contents may change without any prior notice due to reasons such as upgrading.

20191001

## REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

### SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using this products.

#### REMINDERS

#### ■ LEGAL DISCLAIMER

The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.

The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.

Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below or for any other use exceeding the range or conditions set forth in this specification sheet.

Aerospace/aviation equipment  
Transportation equipment (cars, electric trains, ships, etc.)  
Medical equipment  
Power-generation control equipment  
Atomic energy-related equipment  
Seabed equipment  
Transportation control equipment  
Public information-processing equipment  
Military equipment  
Electric heating apparatus, burning equipment  
Disaster prevention/crime prevention equipment  
Safety equipment  
Other applications that are not considered general-purpose applications

When using this product in general-purpose applications, you are kindly requested to take into consideration securing protection circuit/equipment or providing backup circuits, etc., to ensure higher safety.