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

<table>
<thead>
<tr>
<th>MMIC</th>
<th>271609</th>
<th>T4064</th>
<th>C0300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series name</td>
<td></td>
<td>Type name</td>
<td>Package quantity</td>
</tr>
<tr>
<td>L×W×H dimensions (mm)</td>
<td></td>
<td>Package quantity (pieces)</td>
<td></td>
</tr>
<tr>
<td>271609</td>
<td>2.7×1.6×0.89</td>
<td>C0300</td>
<td>3,000</td>
</tr>
<tr>
<td>332509</td>
<td>3.35×2.5×0.98</td>
<td>C0900</td>
<td>9,000</td>
</tr>
</tbody>
</table>

MMICT4076-00-908, MMICT4078-00-908

<table>
<thead>
<tr>
<th>MMIC</th>
<th>T4076</th>
<th>-00</th>
<th>-90</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series name</td>
<td>Type name</td>
<td>Version</td>
<td>Number of reels</td>
<td>Width of reel tape</td>
</tr>
<tr>
<td>T4076</td>
<td></td>
<td></td>
<td>90</td>
<td>8</td>
</tr>
<tr>
<td>T4078</td>
<td></td>
<td></td>
<td>9,000</td>
<td>8</td>
</tr>
</tbody>
</table>

PRODUCT LINEUP

<table>
<thead>
<tr>
<th>Part No.</th>
<th>L×W×H dimensions (mm)Nom.</th>
<th>Sensitivity/ (dBV/Pa)</th>
<th>S/N ratio (Nom.)dB(A)</th>
<th>Sound pressure level/dB</th>
<th>Product type</th>
<th>Port location</th>
<th>Operating temperature range/°C</th>
<th>Individual weight/g</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMIC271609 T4064C0300</td>
<td>2.7×1.6×0.89</td>
<td>–38±3 at 1kHz</td>
<td>61.5</td>
<td>Analog output (unbalanced)</td>
<td>Bottom</td>
<td>–40 to 85</td>
<td>0.016</td>
<td></td>
</tr>
<tr>
<td>MMIC332509 T4081C0900</td>
<td>3.35×2.5×0.95</td>
<td>–38±1 at 1kHz</td>
<td>66</td>
<td>Analog output (equilibrium)</td>
<td>Bottom</td>
<td>–40 to 85</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td>MMICT4076-00-908</td>
<td>2.75×1.85×0.9</td>
<td>–38+/-1 at 1kHz</td>
<td>63</td>
<td>Analog output (unbalanced)</td>
<td>Bottom</td>
<td>0 to 85</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>MMICT4078-00-908</td>
<td>3.35×2.5×0.98</td>
<td>–38±1 at 1kHz</td>
<td>66</td>
<td>Analog output (equilibrium)</td>
<td>Bottom</td>
<td>–40 to +85</td>
<td>0.019</td>
<td></td>
</tr>
</tbody>
</table>

REACH
- SVHC-Free
- Lead Free
- RoHS
- Halogen Free
- BrCl Free

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

20201115

mems_microphone_commercial_mmic_en
**MMIC271609T4064C0300 (Analog output (unbalanced))**

**SHAPE & DIMENSIONS**

[Top view]

[Bottom view]

**RECOMMENDED LAND PATTERN**

**PORT LOCATION:** Bottom

**ELECTRICAL CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>-38dBV/Pa ±3dBV/Pa at 1kHz</td>
</tr>
<tr>
<td>Signal to noise ratio (SNR) (Typ.)</td>
<td>61.5 dB(A)</td>
</tr>
<tr>
<td>Total harmonic distortion (THD) (Max.)</td>
<td>1% at 110 dB SPL, 1kHz</td>
</tr>
<tr>
<td>Power supply rejection ratio (PSPR) (Typ.)</td>
<td>75dB at 1kHz sine wave, 100mVp-p</td>
</tr>
<tr>
<td>Current consumption (Icc) (Typ.)</td>
<td>90μA</td>
</tr>
<tr>
<td>Output impedance (Max.)</td>
<td>400Ω</td>
</tr>
</tbody>
</table>

**OTHERS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature range</td>
<td>-40 to 85°C</td>
</tr>
<tr>
<td>Packaging style</td>
<td>Emboss taping (180mm reel, tape width 8mm)</td>
</tr>
<tr>
<td>Package quantity</td>
<td>3000pcs</td>
</tr>
<tr>
<td>Product weight</td>
<td>0.016g</td>
</tr>
</tbody>
</table>
MMIC332509T4081C0900 (Analog output (equilibrium))

**SHAPE & DIMENSIONS**

[Top view]

[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. VCC (power)
6. OUTN (balanced output -)

Dimensions in mm

**RECOMMENDED LAND PATTERN**

Dimensions in mm

**PORT LOCATION:** Bottom

**ELECTRICAL CHARACTERISTICS**

- **Sensitivity**
  
  \[-38\text{dBV/Pa} \pm 1\text{dBV/Pa at 1kHz}\]

- **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 (Icc) (Typ.)**
  
  135\mu A

- **Output impedance (OUTP to OUTN) (Typ.)**
  
  450\Omega

- **Output impedance (OUTP as coupled to GND) (Typ.)**
  
  225\Omega

- **Output impedance (OUTN as coupled to GND) (Typ.)**
  
  225\Omega

**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

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MEMS Microphone

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

■ SHAPE & DIMENSIONS

[Top view]

[Bottom view]

Dimensions in mm

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

Dimensions in mm

■ PORT LOCATION: Bottom

■ ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>-38dBV/Pa +/-1dBV/Pa, at 1kHz</td>
</tr>
<tr>
<td>SN</td>
<td>63dB[A]</td>
</tr>
<tr>
<td>THD (Typ.)</td>
<td>10% at 127dB SPL, 1kHz</td>
</tr>
<tr>
<td>PSRR (Typ.)</td>
<td>75dB at 1kHz, 200mVp-p</td>
</tr>
<tr>
<td>Current consumption (Typ.)</td>
<td>135µA</td>
</tr>
<tr>
<td>Output Z (Typ.)</td>
<td>250Ω</td>
</tr>
</tbody>
</table>

■ OTHERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature range</td>
<td>0 to 85°C</td>
</tr>
<tr>
<td>Packaging style</td>
<td>Emboss taping (330mm reel, tape width 8mm)</td>
</tr>
<tr>
<td>Package quantity</td>
<td>9,000 pieces</td>
</tr>
<tr>
<td>Product weight</td>
<td>0.02g</td>
</tr>
</tbody>
</table>

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

**SHAPE & DIMENSIONS**

[Top view]

[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. VDD power
6. OUTN balanced output –

Dimensions in mm

**RECOMMENDED LAND PATTERN**

Dimensions in mm

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

**RECOMMENDED REFLOW PROFILE**

<table>
<thead>
<tr>
<th>Wetting temperature</th>
<th>Ramp rate</th>
<th>Cooling Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>230°C ±5–0°C for 10±1s</td>
<td>3K/s max.</td>
<td>3K/s max.</td>
</tr>
</tbody>
</table>

Note: Specified at solder pads

**PACKAGING STYLE**

- **REEL DIMENSIONS, PACKAGE QUANTITY**

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

These values are typical values.

- **TAPE DIMENSIONS**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>A</th>
<th>B</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMIC271609T4064C0300</td>
<td>2.00±0.05</td>
<td>3.00±0.05</td>
<td>1.15±0.05</td>
</tr>
<tr>
<td>MMIC332509T4081C0900</td>
<td>2.70±0.05</td>
<td>3.55±0.05</td>
<td>1.2±0.1</td>
</tr>
<tr>
<td>MMICT4076-00-908</td>
<td>2.70±0.05</td>
<td>3.55±0.05</td>
<td>1.2±0.1</td>
</tr>
<tr>
<td>MMICT4078-00-908</td>
<td>2.70±0.05</td>
<td>3.55±0.05</td>
<td>1.2±0.1</td>
</tr>
</tbody>
</table>

Dimensions in mm
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.

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.
Mouser Electronics

Authorized Distributor

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**TDK:**

MMICT4078-00-908  MIMICT4076-00-908