1. General descriptions
Murata MAGICSTRAP® is an innovative RFID module designed to operate in electronic products/applications. It incorporates an industry standard IC.

[Features]
- EPC global Class1 Gen2 Compliant
- Reflow SMT compatible
- Ultra small package (2.0 x 1.2 x 0.5 typ.)
- RoHS compliant

2. Part number / IC / Memory

<table>
<thead>
<tr>
<th>P/N</th>
<th>IC</th>
<th>TID</th>
</tr>
</thead>
<tbody>
<tr>
<td>LXMS21ACNE-132</td>
<td>NXP G2iL</td>
<td>64bits</td>
</tr>
</tbody>
</table>

3. Block diagram
Fig. 1 shows MAGICSTRAP® block diagram.

![Fig. 1 MAGICSTRAP® Block Diagram]
4. Mechanical information
4-1. Dimensions

![Diagram of package dimensions](image)

<table>
<thead>
<tr>
<th>Mark</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>2.00±0.20</td>
</tr>
<tr>
<td>W</td>
<td>1.20±0.20</td>
</tr>
<tr>
<td>T</td>
<td>0.55max</td>
</tr>
<tr>
<td>a</td>
<td>0.85±0.10</td>
</tr>
<tr>
<td>b</td>
<td>0.6±0.1</td>
</tr>
<tr>
<td>c1</td>
<td>0.2±0.2</td>
</tr>
<tr>
<td>c2</td>
<td>0.2±0.2</td>
</tr>
<tr>
<td>d</td>
<td>0.4±0.1</td>
</tr>
</tbody>
</table>

4-2. Recommended land pattern

![Land pattern diagram](image)

<table>
<thead>
<tr>
<th>Mark</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>0.90</td>
</tr>
<tr>
<td>g</td>
<td>1.00</td>
</tr>
<tr>
<td>h</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Fig. 2 MAGICSTRAP® Package Dimension

Fig. 3 Land Pattern
5. Electrical performance

5-1. Frequency range
   865 – 928MHz

5-2. Minimum operating power
   -10dBm

5-3. Impedance value at minimum operating power (Ta=25°C, Unit: Ohm)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>P/N</th>
<th>LXMS21ACNE-132</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impedance value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>@866.5MHz</td>
<td>R</td>
<td>4.05</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>-47.05</td>
</tr>
<tr>
<td>@915.0MHz</td>
<td>R</td>
<td>3.65</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>-44.75</td>
</tr>
</tbody>
</table>
6. Absolute rating
Storage Temperature: -40°C ~ +85°C
Operating Temperature: -40°C ~ +85°C
MSL Rating: MSL1
ESD: 2kV (Human Body Model, JESD22-A114-B)

7. RoHS compliance
MAGICSTRAP® is compliant with RoHS directive.

8. Reference antenna design on PCB

8-1. Top layer
8-2. How to design layers below the mounting pattern

Please remove all the copper pattern area from all layers of the PCB, if it is located under mounting pattern on surface layer.

- Surface Layer
- Other Layers
  - Acceptable
  - Not Acceptable

8-3. Read range

Max. 1.5 meter (at 4wEIRP, with 10cm length of PCB)
9. Tape and Reel Packing

9-1. Dimensions of Tape (Plastic tape)

9-2. Dimensions of Reel
9-3. Leader and Tail tape

<table>
<thead>
<tr>
<th>Tail tape Part</th>
<th>A</th>
<th>No components</th>
<th>160 ~ 190</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leader tape part</td>
<td>B</td>
<td>No components (adhered cover tape)</td>
<td>150 ~ 200</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Cover tape part (including D)</td>
<td>250 ~ 300</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Not adhered cover tape</td>
<td>20 ~ 40</td>
</tr>
</tbody>
</table>
9-4. Taping direction
   The tape for chips are wound clockwise, the feeding holes to the right side as the tape is pulled toward the user.

9-5. Quantity per reel
   Packaging unit: 5,000 pcs / reel

9-6. Material
   Base tape......Plastic
   Reel......Plastic
   Cover tape and cavity tape are made with anti-static processing.

9-7. Strength/Peeling force
   Tear off strength against pulling of cover tape: 5N min.
   Peel off force: 0.7N max., in the direction as shown below.

9-8. Other packaging options
   Other packaging options, such as FFC (Free Film Carrier) will be considered based upon customers’ request.

10. Contact window / the latest data about MAGICSTRAP®

   Email : magicstrap@ml.murata.co.jp

<Note>
This document is tentative version. The content is under development for improvement and may subject to change without notice. When we submit specification and/or approval sheet, these document should replace this technical data.

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Murata:
LXMS21ACNE-132