Tentative Specification (Under development)

**Application : 20dB Directional Coupler 3200-4000MHz**

1. **Type No.**
   HMD1713A-20M3500

2. **Dimension (Unit : mm)**
   - (Top view): 5.08 +/- 0.25
   - (Side view): 3.18 +/- 0.25
   - (Bottom view): 0.05 +/- 0.15

3. **Electrical characteristics**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Band1</th>
<th>Band2</th>
<th>Band3</th>
<th>Band4</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass band frequency</td>
<td>Specification</td>
<td>3200-4000</td>
<td>3400-3600</td>
<td>3550-3700</td>
<td>MHz</td>
</tr>
<tr>
<td>Nominal impedance</td>
<td>Specification</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Mean Coupling</td>
<td>Specification</td>
<td>20.0 +/- 1.0</td>
<td>20.0 +/- 1.0</td>
<td>20.0 +/- 1.0</td>
<td>dB</td>
</tr>
<tr>
<td>Insertion Loss (at 25deg.C)</td>
<td>Specification</td>
<td>0.075 Max.</td>
<td>0.075 Max.</td>
<td>0.075 Max.</td>
<td>dB</td>
</tr>
<tr>
<td>Input port V.S.W.R.</td>
<td>Specification</td>
<td>1.22 Max.</td>
<td>1.15 Max.</td>
<td>1.15 Max.</td>
<td>dB</td>
</tr>
<tr>
<td>Directivity</td>
<td>Specification</td>
<td>15 Min.</td>
<td>20 Min.</td>
<td>20 Min.</td>
<td>dB</td>
</tr>
<tr>
<td>Frequency Sensitivity</td>
<td>Specification</td>
<td>0.50 Max.</td>
<td>0.30 Max.</td>
<td>0.30 Max.</td>
<td>dB</td>
</tr>
<tr>
<td>Group Delay Terminal 1-2</td>
<td>Specification</td>
<td>0.045 +/- 0.030</td>
<td>0.045 +/- 0.030</td>
<td>0.045 +/- 0.030</td>
<td>nsec</td>
</tr>
<tr>
<td>Group Delay Terminal 1-4</td>
<td>Specification</td>
<td>0.075 +/- 0.030</td>
<td>0.075 +/- 0.030</td>
<td>0.075 +/- 0.030</td>
<td>nsec</td>
</tr>
<tr>
<td>Control No. : ARP-4171300-D 1</td>
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<tr>
<td>Issued on September 3, 2018</td>
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</tr>
</tbody>
</table>

4. **Note**
   - 4.1 Operating Temperature Range: -55 to +105 deg.C
   - 4.2 Storage Temperature Range: -20 to +35 deg.C (In a Taping Package)
   - 4.3 Power Capacity: 100W max.
   - 4.4 Standard Reel Quantity: 1,000 pcs (per reel, per bag)

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Control No. : ARP-4171300-D 1
Issued on September 3, 2018

SOSHIN ELECTRIC CO., LTD
Approved by Y. Mizutani
Confirmed by H. Makino
Raised by M. Aiba
5. Representative characteristics

- **Frequency vs. Insertion Loss**
  - Frequency (MHz) vs. Insertion Loss (dB)
  - Data range from -0.25 to 0 dB

- **Frequency vs. Coupling**
  - Frequency (MHz) vs. Coupling (dB)
  - Data range from -14 to -26 dB

- **Frequency vs. Directivity**
  - Frequency (MHz) vs. Directivity (dB)
  - Data range from -50 to 0 dB

- **Frequency vs. Return Loss**
  - Frequency (MHz) vs. Return Loss (dB)
  - Data range from -50 to -0 dB

- **Frequency vs. Group Delay (Direct)**
  - Frequency (MHz) vs. Group Delay (nsec)
  - Data range from 0.00 to 0.12 nsec

- **Frequency vs. Group Delay (Coupled)**
  - Frequency (MHz) vs. Group Delay (nsec)
  - Data range from 0.00 to 0.12 nsec

*Measured data*
6. Recommended Land Pattern (Unit: mm)

*Land Pattern*

*Resist Pattern*

1. 50 ohm impedance Line
2. Ground Plane