REPLACEMENT PART REFERENCE GUIDE, MNA-5+  

ORIGINAL PART: MNA-5+  
REPLACEMENT PART: MNA-5A+  

Replacement Part has been judged by Mini-Circuits Engineering as a suitable replacement to Original Part.

MECHANICAL DIMENSIONS & PCB LAND PATTERN

<table>
<thead>
<tr>
<th>ORIGINAL PART: MNA-5+</th>
<th>REPLACEMENT PART: MNA-5A+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case Style DQ849</strong> (No Change)</td>
<td></td>
</tr>
</tbody>
</table>

**PCB Land Pattern**

Suggested Layout, Tolerance to be within ±0.002

**Marking**

<table>
<thead>
<tr>
<th>Marking</th>
<th>Marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNA5</td>
<td>MN5A</td>
</tr>
</tbody>
</table>
CONCLUSION:

1) **FORM-FIT-FUNCTIONAL COMPATIBLE**:  
   Replacement part is Form, Fit compatible. Following is a summary of changes/improvements:

   Typical performance: See paragraphs 2 and 3

   Min/Max Specifications, Thermal Resistance and Max Tj- see below:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Original Part (MNA-5+)</th>
<th>Replacement Part (MNA-5A+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain at 2 GHz</td>
<td>17 dB min</td>
<td>19.1 dB min</td>
</tr>
<tr>
<td>DC Current at Vs=5V (max)</td>
<td>40 mA max.</td>
<td>43 mA max</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>78°C/W</td>
<td>64.1°C/W</td>
</tr>
<tr>
<td>DC Voltage on pins 2 &amp; 5</td>
<td>10V max</td>
<td>1V max</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>500 mW max</td>
<td>700 mW max</td>
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2) **PERFORMANCE COMPARISON, (TYPICAL), DC Voltage=5V:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Freq. (MHz)</th>
<th>MNA-5+ (Original Part) Qty-1</th>
<th>MNA-5A+ (Replacement Part) 10 units on TB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
<td>Avg.</td>
<td>Max</td>
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<td>Gain (dB)</td>
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<td>500</td>
<td>17.6</td>
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<td>Input R.Loss (dB)</td>
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<td>P1dB (dBm)</td>
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<td>Output IP3, Min of USB &amp; LSB (dBm)</td>
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<td>DC Current (mA)</td>
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### PERFORMANCE COMPARISON (TYPICAL), DC Voltage=2.8V:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Freq. (MHz)</th>
<th>MNA-5+ (Original Part)</th>
<th>MNA-5A+ (Replacement Part)</th>
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<tbody>
<tr>
<td></td>
<td>Min</td>
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<td>Directivity (dB)</td>
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<tr>
<td>DC Current (mA)</td>
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</table>
4) **PERFORMANCE COMPARISON CURVES (TYPICAL), DC Supply=5V:**

- **Data of Replacement Part**
- **Data of Original Part**

![Graphs showing performance comparison curves](image)
Supply=2.8V:  

5) PERFORMANCE COMPARISON CURVES, (TYPICAL), DC

Data of Replacement Part  
Data of Original Part
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