Design Overview:

The “MINI BRICK” series DBS (17.3 - 18.1 GHz & 18.1 to 18.4 GHz) DBS-Band BUCs are the next generation of the World’s Smallest feed-horn & boom-arm mountable BUCs in the industry, weighing-in only at 3.1lbs (1.4kg) and handling output power of 20W PSAT (min). We’ve picked the best of both worlds as we implemented the most mature, proven efficient and reliable GaAs + GaN High Power Amplifiers with internal overdrive protection. We’ve chosen an absolute and “No Corner Cutting” concept in our design. Its weatherproof and robust Hyper-Light package is constructed with the most advanced mechanical precision engineering in mind. Each unit is rigorously tested at our California facility according to our ATP (acceptance testing procedure).

Features:

- Hyper-Light Package Design Only 3.1lbs (1.4kg)
- Extreme Stability, Reliability and Performance
- Built-in HPA Overdrive Circuit Protection
- High Temperature Mode - up to + 70°C
- Built-in Optimized Linearization
- Built-in Ultra Receive Band Reject Filter
- Built-in Anti Vibration Technology
- Built-in DC Input Noise Suppression Filter
- Extreme GaN Linearity and Efficiency
- Exceeds ALL IESS-308/309 Phase Noise Standards
- Triple protection sealed waveguide output
- Field Replaceable IP69K Rated Fans
- Assembled and Rigorously Tested in the USA
- 3 Year Warranty
### Preliminary SPECIFICATION 20W DBS-Band BUC

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating RF Frequency</strong></td>
<td>17.3 - 18.1 GHz &amp; 18.1 to 18.4 GHz</td>
</tr>
<tr>
<td><strong>Operating IF frequency</strong></td>
<td>950 to 1750 MHz, 1400MHz - 1700MHz</td>
</tr>
<tr>
<td><strong>Local Oscillator (switchable)</strong></td>
<td>16.35GHz, 16.70GHz</td>
</tr>
<tr>
<td><strong>PSAT Rated Power</strong></td>
<td>20W (43.0dBm min)</td>
</tr>
<tr>
<td><strong>PLinear Power</strong></td>
<td>16W (42.0dBm min)</td>
</tr>
<tr>
<td><strong>IF Connector Input</strong></td>
<td>N-TYPE</td>
</tr>
<tr>
<td><strong>Prime Power Consumption</strong></td>
<td>18-55VDC 115W at PSAT</td>
</tr>
<tr>
<td><strong>10MHz External Ref.</strong></td>
<td>10MHz Reference Level: 0dBm +/- 5dBm</td>
</tr>
<tr>
<td><strong>Output Interface</strong></td>
<td>WR62</td>
</tr>
<tr>
<td><strong>Gain (Temperature Compensated)</strong></td>
<td>69 dB (typical)</td>
</tr>
<tr>
<td><strong>TX Gain variation 50MHz</strong></td>
<td>± 0.5 dB</td>
</tr>
<tr>
<td><strong>TX Gain variation 1000MHz</strong></td>
<td>± 1.5 dB</td>
</tr>
<tr>
<td><strong>TX Gain Flatness</strong></td>
<td>± 0.50 dB max. over 40 MHz</td>
</tr>
<tr>
<td><strong>IMD3 (two tones) 3dB off</strong></td>
<td>-25 dBc max. 2 signal 5MHz apart at P-LINEAR</td>
</tr>
<tr>
<td><strong>In-Band/Out-band Spurious</strong></td>
<td>-60dBc max.</td>
</tr>
<tr>
<td><strong>Input VSWR</strong></td>
<td>1.5:1</td>
</tr>
<tr>
<td><strong>Output VSWR</strong></td>
<td>1.5:1</td>
</tr>
<tr>
<td><strong>Spectral Regrowth Linearized at P_LINEAR</strong></td>
<td>-30 dBc</td>
</tr>
<tr>
<td>**Phase Noise (Up Converter)</td>
<td>(Ext. Ref.)**</td>
</tr>
<tr>
<td></td>
<td>-75 dBc/Hz @ 1 kHz</td>
</tr>
<tr>
<td></td>
<td>-85 dBc/Hz @ 10 kHz</td>
</tr>
<tr>
<td></td>
<td>-95 dBc/Hz @ 100 kHz</td>
</tr>
<tr>
<td><strong>Environmental MIL-STD</strong></td>
<td>Compliant with MIL-STD810E</td>
</tr>
<tr>
<td><strong>Vibration MIL-STD</strong></td>
<td>MIL-STD810F, Method 514.5 C-2 Transport</td>
</tr>
<tr>
<td><strong>Operating Temperature Range</strong></td>
<td>- 40°C to + 70°C</td>
</tr>
<tr>
<td><strong>Storage Temperature Range</strong></td>
<td>- 60°C to + 85°C</td>
</tr>
<tr>
<td><strong>Fan Rating / Field Replaceable</strong></td>
<td>IP 69K</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>100% Condensing, IP67 Rated</td>
</tr>
<tr>
<td><strong>Shock</strong></td>
<td>20 g peak, 11 msec, 1/2 sine</td>
</tr>
<tr>
<td><strong>Altitude</strong></td>
<td>21,500ft, 6,500m</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>6” x 3.7” x 2.91” (152x94x74 mm) Without Connectors</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>3.1lbs (1.4kg)</td>
</tr>
</tbody>
</table>
PART NUMBERING SYSTEM

**Example: AMDB20NDMR**

- **AM** - “MINI BRICK” MODEL SERIES
- **DB** - DBS-Band 17.30 - 18.40 GHz
- **10 | 20** - Rated PSAT Power in Watts
- **N** - 50 Ohm IF Input Connector Type | **F** - 75 Ohm IF Input Connector Type
- **D** - Universal power through IF or MS Connector
- **M** - M&C Option - RS232/485 + Ethernet
- **R** - 10 MHz Internal Ref. Auto Sense | Shut-off Feature
- **C** - Custom option availability