# AMKU(S,D)-20W

THE WORLD'S SMALLEST OUTDOOR 20W Ku-Band BUCs

## FEATURES:

- Hyper-Light Package Design Only 3.1 lbs (1.4 kg)
- Extreme Stability, Reliability and Performance
- Built-in HPA Overdrive Circuit Protection
- 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 IP68 Rated Fans
- Fully Assembled, and Rigorously Tested in the USA
- 3-Year Warranty

## DESIGN OVERVIEW:

The "MINI BRICK" series Extended (13.75 - 14.5GHz), Standard (14.0 - 14.5GHz) and Dual (13.75 - 14.5GHz | 14.0 - 14.5GHz) Frequency 20W Ku-Band BUCs are the next generation of the World's Smallest feed-horn & boom-arm mountable BUCs in the industry, weighing-in only at 3.1 lbs (1.4 kg) and working at high temp up to 70°C.

## PERFORMANCE SPECIFICATIONS

| | |
|---|---|
| **Operating RF Frequency** | AMKS 14.0 - 14.5 GHz<br>AMKU 13.75 -14.5 GHz<br>AMKD 13.75 -14.5 \| 14.0 - 14.5 GHz |
| **Operating IF frequency** | 950 - 1450 MHz \| 950 - 1700 MHz |
| **Local Oscillator** | 13.05 GHz \| 12.80 GHz |
| **Rated Output Power PSAT**<br>**Linear Power SR @ -26dBc PLIN** | 20W 43.0 dBm<br>16W 42.0 dBm |
| **IMD3 (two tones) 3 dB Back Off** | -25 dBc max.<br>2 signal 5 MHz apart at P-LINEAR |
| **Spectral Regrowth at P-LINEAR (QPSK at 1.5x and OQPSK at 1.0x symbol rate offset with 2 dB back-off from rated power)** | -30 dBc |
| **10 MHz External Ref. (Internal High Stability Optional)** | 10 MHz Ref. Level: 0 dBm +/- 5 dBm<br>Internal Ref. Stability +/- 0.1 ppm |

## COMPLIANCE INFORMATION

| | | |
|---|---|---|
| MIL-STD-188/164C<br>MIL-STD-461E | DO-160G | ROHS, REACH, WEEE |

## SPURIOUS & PHASE NOISE

| | |
|---|---|
| **In-Band/Out-band Spurious** | -60 dBc max. |
| **Group Delay** | Ripple 1 nsec point to point max. |
| **AM/PM Conversion** | 1.0°/dB max. at 3 dB output backoff |
| **Noise Power Density (TX)** | -85 dBm/Hz |
| **Noise Power Density (RX)** | -155 dBm/Hz (10.95 - 12.75 GHz) |
| **Phase Noise (Up Converter)\|(Ext. Ref.)** | -55 dBc/Hz @ 10 Hz -115 dBc/Hz<br>-65 dBc/Hz @ 100 Hz -135 dBc/Hz<br>-75 dBc/Hz @ 1 kHz -150 dBc/Hz<br>-85 dBc/Hz @ 10 kHz -155 dBc/Hz<br>-95 dBc/Hz @ 100 kHz -160 dBc/Hz |

## POWER CONSUMPTION

| | |
|---|---|
| **20W 43.0 dBm PSAT** | 115W |
| **16W 42.0 dBm PLIN** | 95W |

## PROTECTION

| | | |
|---|---|---|
| VOLTAGE | OVERTEMP | VSWR |
| SMART ALARMS IN THE M&C | MICROPHONIC | CURRENT |

## ENVIROMENT SPECIFICATIONS

| | |
|---|---|
| **Environmental MIL-STD**<br>**Vibration MIL-STD** | Compliant with MIL-STD810E<br>MIL-STD810F, Method 514.5 |
| **Operating Temperature Range** | - 40° C to + 70° C |
| **Storage Temperature Range** | - 60° C to + 85° C |
| **Fan Rating / Field Replaceable** | IP68, Long Life |
| **Humidity** | 100% Condensing, IP67 Rated |
| **Shock** | 20 g peak, 11 msec, 1/2 sine |
| **Altitude** | 50,000 ft, 15,240 m |
| **Built-in Receive Reject Filter** | Suppression by +60 dB (min) |

## GAIN

| | |
|---|---|
| **Gain (Temperature Compensated)** | 64 dB (min) 68 dB (typ.) |
| **TX Gain Flatness** | ± 0.75 dB max. over 40 MHz |
| **TX Gain variation 50 MHz** | ± 0.5 dB |
| **TX Gain variation 500 MHz** | ± 1.5 dB |

## PART NUMBERING SYSTEM

AM - "MINI BRICK" MODEL SERIES
KU - Universal Ku-Band 13.75 - 14.50 GHz
KS - Standard Ku-Band 14.0 - 14.50 GHz
KL - Low Ku-Band 12.75 - 13.25 GHz
KD - Dual Ku-Band 13.75 - 14.50 GHz | 14.0 - 14.50 GHz
16 | 20 | 25 | 30 | 40 | 50 - Rated Power in Watts
N | F - 50 Ohm or 75 Ohm IF Input Connector Type
M - Full M&C Option RS232/485, SNMP, Ethernet
A - AC Power 85-260VAC (increases size and weight)
R - 10 MHz Ref. Auto Sense | Internal Reference
K - FSK Option
U - Universal Mounting Bracket
J - Weatherproof DC/RJ45 Cable Dongle
C xxxx - Custom RAL Color Code
L - Custom Language
P - Custom Part number
B - Custom Label
G - Custom Logo
T - Redundancy Ready
H - High Gain (+79 dB - 82 dB)
W - Weatherproof Pelican Style Case
O - Other Custom Option
X - Custom Cable

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**Amkom Design Group Inc.**

## INPUT|OUTPUT INTERFACE

| | |
|---|---|
| **IF Connector** | N-type (50 Ohm) \| F-type (75 Ohm) |
| **Universal Prime Power via IF or MS/M&C Connector (7.0 A Current Limit Protection Through Coax)** | + 18 - 55 VDC |
| **Output VSWR** | 1.3:1 |
| **Output Interface** | WR75 Grooved |
| **Input VSWR** | 1.5:1 |

## M&C INTERFACE

| | |
|---|---|
| **Advanced Monitor & Control** | Ethernet Web Page Based, SNMP, RS232/485, FSK (opt.) |
| **ALARMS** | PLL LOCK, HPA, VSWR, MUTE, TX |
| **Stealth PLIN Operation Mode** | LED Shut-Off \| Silenced fans |

## MECHANICAL SPECIFICATIONS

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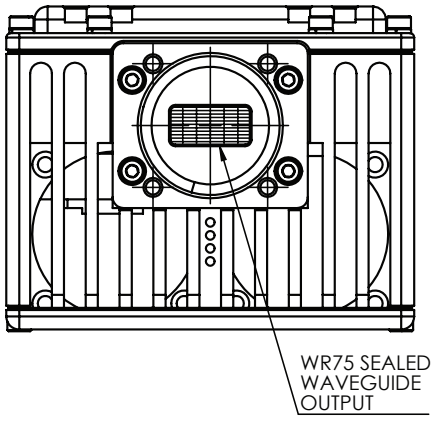
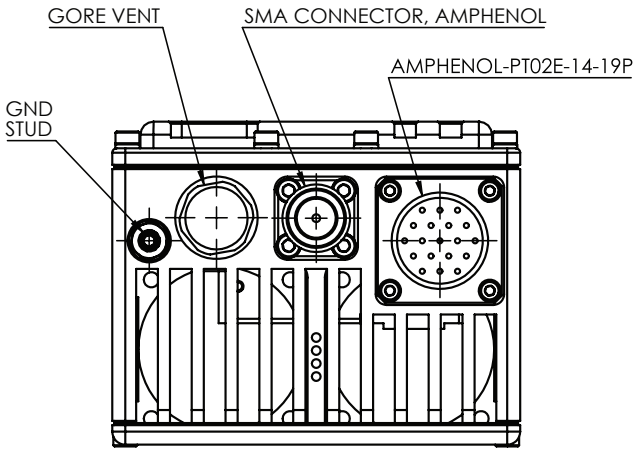
|---|---|
| **Dimensions (DC Powered)** | 6" x 3.7" x 2.91" (152 × 94 × 74 mm)<br>Without Connectors |
| **Weight (DC Powered)** | 3.1 lbs (1.4 kg) |

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