

AFKL-20W

THE WORLD'S SMALLEST Fan-less 20W low Ku-Band BUC



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 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
- Fan-less Design
- Fully Assembled and Rigorously Tested in the USA
- 3-Year Warranty



DESIGN OVERVIEW:

The "FANLESS BRICK" series Low (12.75 - 13.25 GHz) Frequency 16W 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 60°C.

PERFORMANCE SPECIFICATIONS

Operating RF Frequency	AFKL 12.75 - 13.25 GHz
Operating IF frequency	950 - 1450 MHz
Local Oscillator	11.80 GHz
Rated Output Power PSAT	20W 43.0 dBm PSAT
Linear Power SR @-26 dBc PLIN	16W 42.0 dBm PLIN
IMD3 (two tones) 3 dB Back Off	-25 dBc max. 2 signal 5MHz 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 Internal Ref. Stability +/- 0.1 ppm

PROTECTION

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

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
	-65 dBc/Hz @ 100 Hz	-135 dBc/Hz
	-75 dBc/Hz @ 1 kHz	-150 dBc/Hz
	-85 dBc/Hz @ 10 kHz	-155 dBc/Hz
	-95 dBc/Hz @ 100 kHz	-160 dBc/Hz

POWER CONSUMPTION

20W 43.0 dBm PSAT	95W
16W 42.0 dBm PLIN	75W

COMPLIANCE INFORMATION

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

ENVIROMENT SPECIFICATIONS

Environmental MIL-STD	Compliant with MIL-STD810E
Vibration MIL-STD	MIL-STD810F, Method 514.5 C-2 Transport
Operating Temperature Range	- 40° C to + 60°C
Storage Temperature Range	- 60° C to + 85° C
Humidity	100% Condensing, IP67 Rated
Shock	20 g peak, 11 msec, 1/2 sine
Altitude	50,000 ft, 15,240 m

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

Dimensions	6.54" x 4.72" x 3.10" (166 x 120 x 79 mm) Without Connectors
Weight	3.1 lbs (1.4 kg)

PART NUMBERING SYSTEM

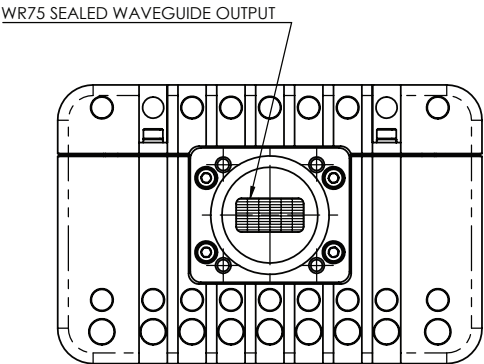
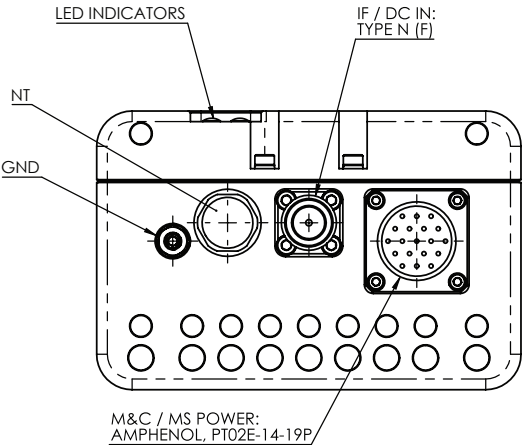
- AF - "FAN-LESS BRICK" MODEL SERIES
KU - Universal Ku-Band 13.75 - 14.50 GHz
KS - Standard Ku-Band 14.0 - 14.50 GHz
KL - Low Ku-Band 12.75 - 13.25 GHz
KD - Dual Ku-Band 13.75 - 14.50 GHz | 14.0 - 14.50 GHz
16 | 20 Rated Power in Watts
N | F - 50 Ohm or 75 Ohm IF Input Connector Type
R - 10 MHz Ref. 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

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)	+ 16 - 55 VDC
Output VSWR	1.3:1
Output Interface	WR75 Sealed & Grooved
Input VSWR	1.5:1
10 MHz External Ref. (Internal High Stability +/- 0.1 ppm Option Available)	10 MHz Ref. Level: 0 dBm +/- 5 dBm Internal Ref. Stability +/- 0.1 ppm

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
Built-in Receive Reject Filter	Suppression by +50 dB (min)



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