

AFKL-16W

GaAs + GaN Technology

THE WORLD'S SMALLEST Fan-less 16W Low Ku-Band BUC



FEATURES:

- Hyper-Light Package Design Only 4.2lbs (1.9kg)
- 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 - 13.25GHz) 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 4.2lbs (1.9kg) and working at high temp up to 60°C.

PERFORMANCE SPECIFICATIONS

Operating RF Frequency	AFKL 12.75 - 13.25 GHz
Operating IF frequency	950 to 1450 MHz
Local Oscillator	11.80 GHz
Rated Output Power PSAT	16W 42.0 dBm PSAT
Linear Power SR @ -26dBc PLIN	13W 41.0 dBm PLIN
IMD3 (two tones) 3dB Back Off	-25 dBc max. 2 signal 5MHz apart at P-LINEAR
Spectral Regrowth at PLINEAR (QPSK at 1.5x and OQPSK at 1.0x symbol rate offset with 2dB back-off from rated power)	-30 dBc
10MHz External Ref. (Internal High Stability Optional)	10MHz Ref. Level: 0dBm +/- 5dBm 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	-60dBc 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)	-85dBm/Hz	
Noise Power Density (RX)	-155dBm/Hz (10.7 - 11.7 GHz)	
Phase Noise (Up Converter) (Ext. Ref.)	-55 dBc/Hz @ 10 Hz	-115dBc/Hz
	-65 dBc/Hz @ 100 Hz	-135dBc/Hz
	-75 dBc/Hz @ 1 kHz	-150dBc/Hz
	-85 dBc/Hz @ 10 kHz	-155dBc/Hz
	-95 dBc/Hz @ 100 kHz	-160dBc/Hz

POWER CONSUMPTION

16W 42.0 dBm PSAT	85W
13W 41.0 dBm PLIN	65W

COMPLIANCE INFORMATION

MIL - STD - 188/164C	MIL - STD - 461	ROHS, REACH, WEEE
MIL - STD - 810E	DO - 160 G	

ENVIRONMENT 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	21,500ft, 6,500m

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 (DC Powered)	6.54" x 4.72" x 3.10" (166x120x79 mm) Without Connectors
Weight (DC Powered)	4.2lbs (1.9kg)

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
 M - Full M&C Option RS232/485, SNMP, Ethernet
 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 (+79dB - 82dB)
 W - Weatherproof Pelican Style Case
 O - Other Custom Option
 X- Custom Cable



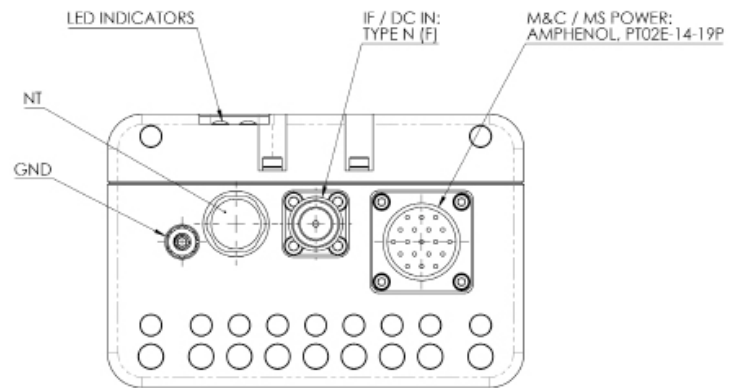
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INPUT|OUTPUT INTERFACE

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

GAIN

Gain (Temperature Compensated)	64dB(min) 68 dB(typ.)
TX Gain Flatness	± 0.75 dB max. over 40 MHz
TX Gain variation 50MHz	± 0.5 dB
TX Gain variation 500MHz	± 1.5 dB
Built-in Receive Reject Filter	Suppression by +50dB (min)



WR75 SEALED WAVEGUIDE OUTPUT

