

APKU(S)-125W

GaAs + GaN Technology

THE SMALLEST OUTDOOR 125W Ku-Band BUC High Temp +70C



FEATURES:

- Robust, Light Package Design Only 9.2lbs (4.2kg)
- Extreme Stability, Reliability and Performance
- Built-in HPA Overdrive Circuit Protection
- High Temperature Mode - up to +70°C
- Built-in Optimized Linearization
- Built-in Receive Band Reject Filter
- Built-in Anti Vibration Technology
- Extreme GaN Linearity and Efficiency
- Exceeds ALL IESS-308/309 Phase Noise Standards
- Triple protection sealed waveguide output
- Field Replaceable IP68 150,000 hr Rated Fans
- Assembled and Rigorously Tested in California
- 3 Year Warranty



DESIGN OVERVIEW:

The "PHANTOM" series Extended (13.75 - 14.5GHz) and Standard (14.0 - 14.5GHz) Ku-Band BUCs are the next generation of the World's Most efficient and compact size BUCs in the industry, weighing only 9.2lbs (4.2kg) and handling output power of 125W (min) at the Extended Ku-Band frequencies.

PERFORMANCE SPECIFICATIONS

| | |
|---|--|
| Operating RF Frequency | APKS 14.0-14.5 GHz APKU 13.75-14.5 GHz |
| Operating IF frequency | 950-1450 MHz 950-1700 MHz |
| Local Oscillator | 13.05 GHz 12.8 GHz |
| Rated Output Power PSAT | 125W 51 dBm |
| Linear Power SR @ -26dBc PLIN | 90W 49.5 dBm |
| 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 |

POWER CONSUMPTION

| | |
|--------------------------|------|
| 125W 51 dBm PSAT | 590W |
| 90W 49.5 dBm PLIN | 440W |

COMPLIANCE INFORMATION

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

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 (10.95 - 12.75 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 |

GAIN

| | |
|---------------------------------------|------------------------------|
| Gain (Temperature Compensated) | 75dB(min) 80 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 +20 dB (min.) |

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 + 70°C |
| Storage Temperature Range | - 60°C to + 85°C |
| Fan Rating / Field Replaceable | IP 68, Field Interchangeable |
| 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 | 8.5" x 5.2" x 4.54" (215x132x114 mm) Without Connectors |
| Weight | 9.2lbs (4.2kg) |

PART NUMBERING SYSTEM

AP - "PHANTOM" MODEL SERIES
 KU - Universal Ku-Band 13.75 - 14.50 GHz
 KS - Standard Ku-Band 14.0 - 14.50 GHz
 80 | 100 | 125 | 150 - Rated Power in Watts
 N | F - 50 Ohm or 75 Ohm IF Input Connector Type
 A - AC Power 85-260VAC
 D - DC Power 36-76VDC
 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) |
| AC | Universal Prime Power via 3pin Power Connector Aphenol PT02E-12-3P, + 85-260 VAC Current protection (depending on the option) |
| DC | Universal Prime Power via 3pin Power Connector Aphenol PT02E-12-4P, + 36-76 VDC Current protection (depending on the option) |
| Output VSWR | 1.5:1 |
| 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 |

PROTECTION

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

