

ALKA-XXXX

GaAs + GaN Technology

20, 25, 30, and 40W FULL KA-BAND BUC 27.5 -31.0 GHz



FEATURES:

- Hyper-Light yet Robust Package: 3.5lbs (1.6kg)
- Superior Quality, Efficiency, Reliability and Performance
- Built-in HPA Overdrive Circuit Protection
- High Temperature Mode - up to + 70°C
- OPEN-BMIP Ready to Work with iDirect X7 and 950MP
- Complies with MIL-STD-188-164C, RTCA DO-160G, WGS
- Industry Leading Over Temperature Performance
- Field Replaceable IP68 Long Life Rated Fans
- Assembled and Rigorously Tested in the USA
- 3 Year Warranty



DESIGN OVERVIEW:

The "MINI BRICK" series 27.5-31.0 GHz Frequency 20, 25, 30, 40W Full Ka-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 working at high temp up to 70°C.

PERFORMANCE SPECIFICATIONS

| | |
|---|---|
| Operating RF Frequency | ALKA 27.5 - 31.0 GHz |
| Operating IF frequency | 950 to 1950 MHz 1000 - 2000 MHz |
| Local Oscillator | Selectable |
| Rated Output Power PSAT Linear Power SR @ -26dBc PLIN | ALKA-20 20W 43 dBm |
| | ALKA-20 13W 41.0 dBm |
| | ALKA-25 25W 44 dBm |
| | ALKA-25 16W 42.0 dBm |
| | ALKA-30 30W 44.8 dBm |
| | ALKA-30 20W 43.0 dBm |
| | ALKA-40 40W 46 dBm |
| | ALKA-40 25W 44.0 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 or 50 MHz External Ref. 0dBm +/- 5dBm | 10MHz or 50MHz |

SPURIOUS & PHASE NOISE

| | | |
|---|-------------------------------------|------------|
| In-Band/Out-band Spurious | -60dBc max. | |
| Group Delay | Ripple 1 nsec point to point max. | |
| AM/PM Conversion | 2.0°/dB max. at 3 dB output backoff | |
| Noise Power Density (TX) | -80dBm/Hz | |
| Noise Power Density (RX) | -150dBm/Hz | |
| Phase Noise (Up Converter) (Ext. Ref.) | -33 dBc/Hz @ 10 Hz | -115dBc/Hz |
| | -63 dBc/Hz @ 100 Hz | -135dBc/Hz |
| | -73 dBc/Hz @ 1 kHz | -150dBc/Hz |
| | -83 dBc/Hz @ 10 kHz | -155dBc/Hz |
| | -93 dBc/Hz @ 100 kHz | -160dBc/Hz |

POWER CONSUMPTION

| | |
|----------------------------------|------|
| ALKA-20 20W 43 dBm PSAT | 120W |
| ALKA-20 16W 42.0 dBm PLIN | 100W |
| ALKA-25 25W 44 dBm | 140W |
| ALKA-25 16W 42.0 dBm | 120W |
| ALKA-30 30W 44.8 dBm | 170W |
| ALKA-30 20W 43.0 dBm | 130W |
| ALKA-40 40W 46 dBm | 250W |
| ALKA-40 25W 44.0 dBm | 175W |

COMPLIANCE INFORMATION

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

PROTECTION

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

ENVIRONMENT SPECIFICATIONS

| | |
|---------------------------------------|------------------------------|
| Environmental MIL-STD | Compliant with MIL-STD810E |
| Vibration MIL-STD | 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 | IP 68, Long Life |
| Humidity | 100% Condensing, IP67 Rated |
| Shock | 20 g peak, 11 msec, 1/2 sine |
| Altitude | 21,500ft, 6,500m |
| Built-in Receive Reject Filter | Suppression by +60dB (min) |

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 |

PART NUMBERING SYSTEM

AL - "LIGHT BRICK" MODEL SERIES
 AS - "SLIM" MODEL SERIES (cold plate mounted)
 KAF - Full Ka-Band 27.5 - 31.0 GHz
 KAC - Commercial Ka-Band 29.0 - 30.0 GHz
 KAM - Military and Commercial Band 29 - 31.0 GHz
 KAO - O3B Bands 27.652 - 28.388 GHz, 28.172 - 29.071 GHz
 20 | 25 | 30 | 40 - Rated PSAT Power in Watts
 N - 50 Ohm IF Input Connector (other interface options available)
 I - Isolator for VSWR Improvement to 1.35:1
 M - M&C Option - RS232/485 + Ethernet + SNMP
 O - OPENBMIP Protocol Ready
 R - Auto Sense Ref Detector | Internal +/- 0.05ppm Stability
 C - Custom color, housing or other options available

INPUT|OUTPUT INTERFACE

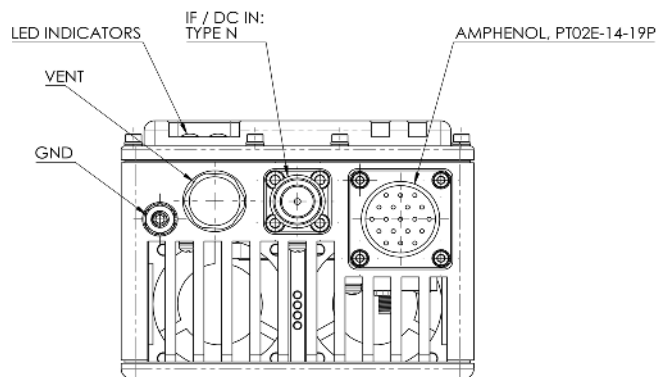
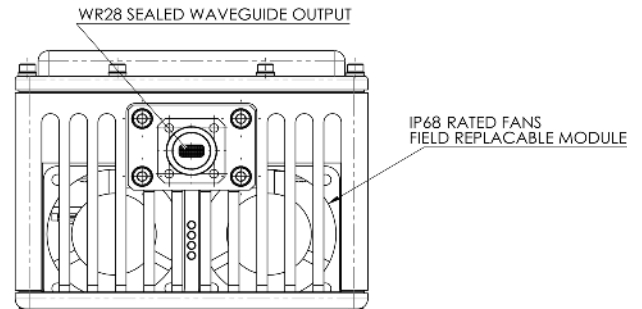
| | |
|---|---------------------------------------|
| IF Connector | N-type (50 Ohm) |
| Universal Prime Power via IF or MS/M&C Connector (7.0 A Current Limit Protection Through Coax) | + 22 - 55 VDC |
| Output VSWR | 1.5:1 (1.35:1 with optional Isolator) |
| Output Interface | WR28 Grooved |
| Input 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

| | |
|--------------------------------|---|
| Dimensions (DC Powered) | 6.5" x 3.93" x 3" (165x100x76 mm) Without Connectors |
| Weight (DC Powered) | 3.1lbs (1.4kg) |



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