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SBB0050X 50W X-Band Outdoor MIL-STD188-164C Gen III GaN BUC

This compact and robust 50W Outdoor BUC, powered by cutting-edge third-generation GaN technology, offers industry-leading performance with its lightweight design, low power consumption, and superior linearity. Engineered for optimal efficiency and reliability, it is perfectly suited for SCOTP and SCOTM applications, including mobile and marine environments

Key Features

- MIL-STD-188-164C compliant
- Built-in 1:1 Redundancy, no External Redundancy Controller required
- High Linearity, efficiency and MTBF
- Built-in High Precision true RMS Output Power Meter
- Built-in 110/220VAC power supply
- Web Interface, SNMP support
- Output Overdrive Protection
- Output VSWR Protection
- Thermal shutdown



Options

- Internal High-stability 10 MHz Reference
- White or FS34083 Aerospace flat green
- 48 VDC power feed

In addition to its industry-leading performance and reliability, this device boasts a comprehensive suite of monitoring and control capabilities, easily accessible via Ethernet, serial RS232, RS485 interfaces, or dry contacts. It is the premier choice for demanding mobile and fixed applications, specifically designed for outdoor installations, and offers the advanced capability to utilize high MODCOD on small antennas for high data rate transmission. With an IP67 ingress protection rating, the device can be installed outdoor under the direct sun rays, at a short distance from the antenna feed, usually on the antenna boom, which contributes to significantly improve link budget and reduce ongoing operating (OPEX) and maintenance costs.

All designs, specifications and availabilities of products and services presented in this bulletin are typical and subject to change without notice.

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Technical Specifications

MODEL	
RF CHARACTERISTICS	**SBB0050X**
RF Frequency range	7.9 – 8.4 GHz
IF Frequency range	950 - 1450 MHz
LO Frequency	6.950 GHz

RF CHARACTERISTICS		
P_{Sat}, Rated Saturation Output Power	47 dBm / 50 W	
P_{Lin1C}, Linear Power as defined by MIL-STD-188-164C, 1 carrier	45 dBm / 32 W	
P_{Lin2C}, Linear Power as defined by MIL-STD-188-164C, 2 carriers	44 dBm / 25 W	
Small Signal Gain	70 dB typ	
Input Level without damage	0 dBm max	
Gain Flatness over full frequency range	± 1.5 dB max	
Gain Flatness over any 40 MHz	± 0.4 dB max	
Gain Control	20 dB min dynamic range, 0.1 dB steps	
Gain Stability over full Temperature and Frequency ranges	± 1.5 dB max	
Gain stability over 24h at constant drive and temperature	±0.5 dB max	
Power Measurement Stability for built-in True RMS Power Meter	0.5 dBpp	
Linearity: IMD3, measured with 2 equal CW carriers 5 MHz apart	-25 dBc max at total power = P_{Lin2C}	
External Reference Frequency	10 MHz, sinusoidal, multiplexed with L-band (IF In)	
External Reference Level	0 dBm, ±5 dB	
External Reference SSB Phase Noise, max	-110 dBc/Hz @ 10 Hz; -140 dBc/Hz @ 1 kHz; -165 dBc/Hz @ 100 kHz;	-125 dBc/Hz @ 100 Hz; -155 dBc/Hz @ 10 kHz; -165 dBc/Hz @ 1 MHz;
Up-Converter SSB Phase Noise, max	-54 dBc/Hz @ 10 Hz; -72 dBc/Hz @ 100 Hz; -80 dBc/Hz @ 1 kHz; -90 dBc/Hz @ 10 kHz; -100 dBc/Hz @ 100 kHz; -115 dBc/Hz @ 1 MHz	
Integrated SSB Phase Noise	1° RMS max	
Output Spurious: In-band Out-of-band	< -13 dBm Complies with ETSI EN 301 428/430 and MIL-STD-188-164C	
Harmonics at P_{Lin2C}	< -60 dBc	
AM/PM Conversion	2.0 °/dB max at P_{Lin1C}	
Noise Power Density	Tx < - 80 dBm/Hz Rx < - 145 dBm/Hz (with external TRF and RRF)	
Output RF Power Monitor	-40 dB, 1dB peak-to-peak flatness over frequency range, calibration chart provided	

INTERFACES	
IF Input connector	50 Ohms N-type (F)
Input VSWR	1.5:1 max
RF Output Connector	CPR112, grooved
Output VSWR	1.3:1 max
RF Sample	50 Ohms N-type (F)
AC Power In/DC Power In*	MS3102R14S-7P/MS3102R14S-9P
M&C Connector	MS3112E14-19P
Redundancy	MS3112E14-19S
M&C	RS-232, RS-485, Ethernet (Web, SNMP)

ENVIRONMENTAL	
Cooling system	Forced Air
Temperature	
Operating	-40°C to +55°C
Storage	-55°C to +85°C
Relative Humidity	100%, up to 4" of rain precipitation/hour
Altitude	10,000 ft (3,000 m) AMSL
Adiabatic Derating (Altitude Temperature Derating Factor)	5°C/1000 m
Ingress Protection	IP67

POWER	
AC Voltage Range	90 - 265 VAC
Frequency Range	47 - 63 Hz
DC Voltage Range*	36 – 72 VDC
Power Consumption at P_{Sat}	350 W
Power Consumption at P_{Lin2C}	300 W

MECHANICAL	
Dimensions (LxWxH)	9" x 5" x 6.5" 229 x 127 x 165 mm
Weight	10 lb (4.5 kg)

* When DC power option is ordered, AC power is not available

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