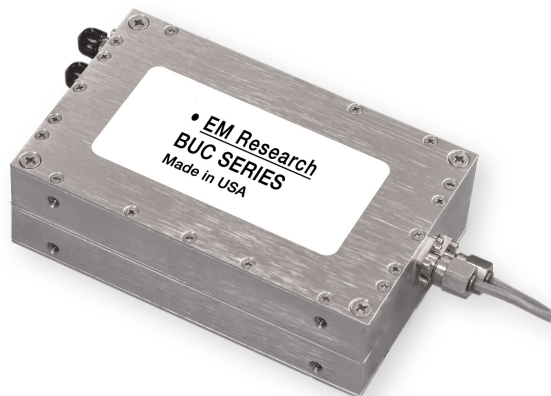


GENERAL DESCRIPTION

The BUC-28500-06 is an L-Band to Ka-Band frequency block up-converter, that is part of EM Research's wider Signal Conversion family. It accepts input frequencies from 950 to 1950 MHz and provides output frequencies from 27.50 to 28.50 GHz.



BUC-28500-06 FEATURES

- Integrated filter
- Gain control
- Low power consumption
- Low phase noise
- Low spurs

INDUSTRIES



SATCOM



Laboratory

BUC SERIES OPTIONS

- Wide choice of frequency ranges
- CAN, RS-232, I2C, or SPI Control
- Internal / External references

BUC SERIES TYPICAL APPLICATIONS

- Satellite communication
- Laboratory testing and conversion

All specifications are typical unless otherwise specified and subject to change without notice.



HIGHEST QUALITY • COMPREHENSIVE SERVICE • BEST PERFORMANCE



RF OUTPUT ELECTRICAL SPECIFICATIONS

Frequency	27.50 - 28.50 GHz
Output Power, P1dB	0 dBm Min
Output Impedance	50 Ω
Output VSWR	1.5:1 Max
Spurious (In-Band)	< -60 dBc Max (signal at -20 dBm out)
Two Tone IMD	-60 dBc (-20 dBm / Tone, 20 MHz apart, 0 dB gain)
LO Frequency	26.55 GHz
LO Leakage	-85 dBm Max
Image Level [LO-IF]	-70 dBc Max
Second Harmonic [LO+2IF]	-20 dBc input, 0 dB gain

LO Phase Noise		
Offset	TYP (dBc/Hz)	MAX (dBc/Hz)
10 Hz	-35	-33
100 Hz	-68	-65
1 KHz	-95	-88
10 KHz	-108	-104
100 KHz	-108	-104
1 MHz	-125	-118
≥ 10 MHz	-135	-130
Output Noise Power Density	-145 dBm/Hz Max	

REFERENCE ELECTRICAL SPECIFICATIONS

External Reference		
Frequency	10 MHz	
Input	Muxed with L-Band, or separate input	
Input Level	-5 to +5 dBm	
Input Impedance	50 Ω	
Input VSWR	1.4:1	
Phase Noise	10 Hz	< -108 dBc/Hz Max
	100 Hz	< -138 dBc/Hz Max
	1 KHz	< -159 dBc/Hz Max
	10 KHz	< -160 dBc/Hz Max
	100 KHz	< -160 dBc/Hz Max
Insertion Loss	J1 - J2, 1.5 dB (External Ref Option)	

GAIN SPECIFICATIONS

Conversion Gain	+0 dB $\pm$ 2 dB	
Gain Adjust Range	+25 dB Min, 0.1 dB Steps	
Gain Flatness	per 200 MHz	$\pm$ 1 dB Max (-15 dBm Output, 0 dB Gain)
	per 40 MHz	$\pm$ 0.25 dB Max (-15 dBm Output, 0 dB Gain)
	Full Band	$\pm$ 1.5 dB Max (-15 dBm Output, 0 dB Gain)
Gain Variation vs. Temp	$\pm$ 1.5 dB (-20°C to +70°C)	
Gain Var, Const Temp	$\pm$ 0.25 dB / 24 Hours	

All specifications are typical unless otherwise specified and subject to change without notice.

IF INPUT ELECTRICAL SPECIFICATIONS

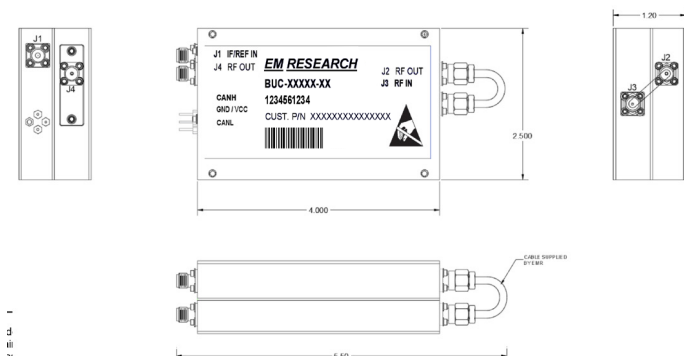
Frequency	950 - 1950 MHz
Input Level	+10 dBm, No Damage
Input Impedance	50 Ω
Input VSWR	1.4:1

I/O SPECIFICATIONS

Lock Detect	CAN Interface +5 V Logic
Gain Adjust	CAN Interface +5 V Logic
Supply Voltage	+12 VDC, $\pm$ 0.5 V
Current	775 mA Typ, 850 mA MAX



PACKAGE OUTLINE



PIN DESCRIPTIONS

J1	L-band IF Input with 10 MHz Ref
J2	Ka Band RF Output, Unfiltered
J3	Ka Band RF Input, Unfiltered
J4	Ka Band RF Output
P1	GND
P2	CANH
P3	CANL
P4	VCC

All dimensions are in inches unless otherwise specified
.XX = +/- 0.01

ENVIRONMENTAL SPECIFICATIONS

Standard Operating Temp	-20°C to +70°C (Case)
Optional Operating Temp	-40°C to +85°C
Storage Temperature	-50°C to +105°C
Altitude	15,000 feet
Humidity	0 to 95% non-condensing
Vibration (Survival)	5 G's RMS, 10 to 2000 Hz
Mechanical Shock (Survival)	15 G's / 15 ms (half sinewave)

MECHANICAL SPECIFICATIONS

Dimensions	BUC	4.0" x 2.5" x 1.2"
Housing	Aluminum Alloy	
Finish	Electroless Nickel	
Package Outline	EM Drawing 2200012025	
Part Label	EM Drawing 8000013026	
Connectors	IF/REF Input	Female SMA
	RF Output	Female SMK 2.92 mm
	DC	Filtered Feed-Thru
	CANH, CANL	Filtered Feed-Thru
	GND	Ground Lug

Custom designs are available. Please contact EM Research.



DETAILS

Title	Block Up-Converter Part No. BUC-28500-06
File	SPC-BUC-28500-06-REVA
Scale	N/A
Size	A
Rev.	A

APPROVALS

Department	Date
DWN:	
QA:	
MKTG:	
ENG:	
MFG:	
Other:	

REVISION HISTORY

Rev.	Description	Date	Approved
-	Preliminary		_____

NOTES

