

**Wide range of standard
Ku-band block up converters
from 1–8 watts**



US Monolithics provides microwave products and a comprehensive, advanced technology approach to your high volume communication systems. We work directly with you to optimize quality, cost, and performance for your microwave products. We bring you a combination of top-level, high frequency microwave systems knowledge and the experience to develop cost-effective, highly integrated custom MMIC chip sets and assemblies. The result is a high quality product, designed for high volume manufacturability and the lowest possible cost.

The US Monolithics ODU group can provide all your standard satellite communications outdoor units. We carry a complete line of standard Ku-band and C-band products including solid state block-up converters with power levels to 10 Watts, low-noise block-down converters for all frequency bands, and a full range of antennas up to 2.4-meter diameters.

Our capabilities include:

- Design and manufacture of high volume satcom and terrestrial microwave products
- Optimization of quality, cost, and performance
- Assessment of top-level system design options and tradeoffs
- Development of highly integrated custom MMIC chip sets and assemblies
- Design assurance for high volume manufacturability and the lowest possible cost
- Diverse technical staff, including the corporate resources of ViaSat

FEATURES

Frequency Configurations

- Available in Ku-band and Ext Ku-band configurations
- 14.00 to 14.50 GHz (Ku-band) RF frequency
- 13.05 GHz (Ku-band) local frequency
- 14.25 GHz (Ext Ku-band) RF frequency
- 12.8 GHz (Ext Ku-band) local frequency

Availability

- 1W (+30 dBm min) output power
- 2W (+33 dBm min) output power
- 3W (+35 dBm min) output power
- 4W (+36 dBm min) output power
- 8W (+39 dBm min) output power
- Available in N-type and F-type connectors

SPECIFICATIONS

FREQUENCY RANGE

	Input (MHz)	Output (GHz)	LO (GHz)
Standard	950 to 1450	14.00 to 14.50	13.05
Extended	950 to 1450	13.75 to 14.25	12.8

TRANSMIT

Power	Output P1 dB (dBm) min	Gain (dB) typ @25°C	Power Consumption (Typ)
1W	30	50	18W
2W	33	53	28W
3W	35	53	30W
4W	36	56	45W
8W	39	59	170W

INTERFACES

Gain Flatness for Full BW	+/-2.0 dB max
Gain Stability Over Temperature	+/-2.0 dB max
Spurious @P1 dB Output	-55 dBc max
Phase Noise @ 100Hz offset	-60 dBc/Hz
@ 1kHz offset	-70 dBc/Hz
@ 10kHz offset	-80 dBc/Hz
@ 100kHz offset	-90 dBc/Hz
Intermodulation Product (with 2 CXR @1 dB total back off)	-27dBc max
Input VSWR	2.0:1 max
IF Input Interface	50Ω N-Type Female 75Ω F-Type Female
Output Interface	WR 75 (with groove)

ENVIRONMENTAL

Operating Temperature	-40°C to +55°C
Relative Humidity	up to 100%

EXTERNAL REFERENCE

Frequency	10 MHz
Phase Noise @ 100Hz offset	-135 dBc/Hz
@ 1kHz offset	-140 dBc/Hz
@ 10kHz offset	-143 dBc/Hz
Power Level	-10 dBm to +5 dBm

POWER SUPPLY

DC Input Voltage for BUC	+24 Vdc (19V - 28V) +48 Vdc (Optional) (36V - 72V)
AC Input Voltage for Booster	220 Vac or 110 Vac (Factory preset)

MECHANICAL

Dimensions	178.7L x 100W x 44.5H mm	(1W)
	245.5L x 127W x 55H mm	(2W)
	186.7L x 119W x 44.5H mm	(3W)
	180L x 167W x 70H mm	(4W)
	275L x 246W x 135H mm	(8W)
Weight	1.0 kg	(1W)
	1.1 kg	(2W)
	1.2 kg	(3W)
	2.3 kg	(4W)
	9.3 kg	(8W)

Note: Specifications are subject to change without notice

PART NUMBER GUIDE

Example To order Ku-Band BUC USBB39N21:

USBB39N21

Type	Freq Band	Power Level	Connector	Operating Voltage Range	Voltage Input Port
B – BUC	A – Ka	30 – 1W	F – F Type	0 – +38 to +60V (+48V DC)	0 – Same as IF Signal
L – LNB	B – Ku	45 – 30W	N – N Type	1 – +30V DC	1 – MS Connector
	C – C	46 – 40W		2 – +24V DC (18 to 28V)	2 – TNC Connector
	D – Ext Ku	47 – 50W		3 – +12V DC	
	E – Ext C	48 – 60W		4 – AC	
		49 – 80W			
		39 – 8W			
		50 – 100W			
		40 – 10W			
		51 – 125W			
		42 – 16W			
		52 – 150W			
		43 – 20W			
		53 – 200W			
		44 – 25W			
		54 – 250W			

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