



μBUC X-Band or Ku-Band Block Up Converter

Description

Teledyne Paradise Datacom's μBUC is a Block Up Converter available in X- and Ku-Band. The module is specifically designed for highly mobile commercial and military satellite communication applications. The μBUC is ideal for use in any Fly-away or Manpack application where miniature form factor and light weight are a requirement.

The converter locks to a 10 MHz external reference signal of -10 dBm to +5 dBm. The external reference must be diplexed on the L-Band Input Connector.

The unit requires a customer designed heatsink.

FEATURES

- Ku-Band Output:
10, 20 and 25 W
- X-Band Output:
10, 20 and 25 W
- Multiple reference frequency operation
- L-Band Input
- Miniature and light weight
- Ideal for fly-away and manpack applications

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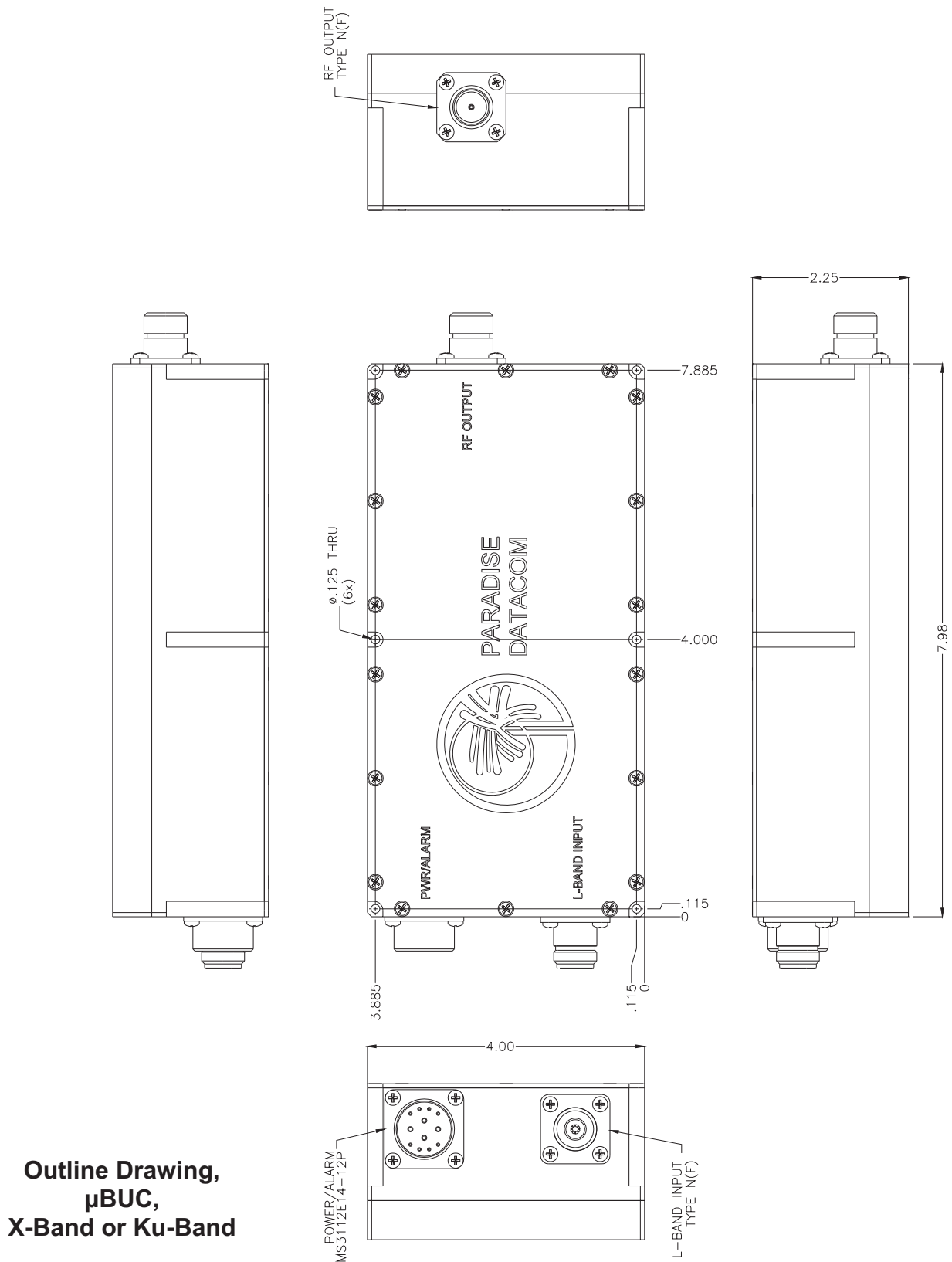
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Ku-Band Specifications

PARAMETER	NOTES	LIMITS	UNITS
Input Frequency	Option 950-1700	950 - 1450	MHz
Output Frequency	Option 13.75-14.50	14.0 - 14.5	GHz
LO Frequency	At 14.0-14.5 GHz	13.05	GHz
	At 13.75-14.50 GHz	12.80	GHz
Gain		60	dB
Gain Flatness	full band	± 2.0	dB
Gain Slope	per 40 MHz	± 0.5	dB
Gain variation vs. Temperature	-30 to +60 °C baseplate	0 ± 2.0	dB
Output Power	10W	P_{sat} / P_{1dB} 40.5 / 40.0	dBm
	20W	43.0 / 42.0	dBm
	25W	44.0 / 43.0	dBm
Intermodulation Distortion	3dB back off relative to P_{1dB}	-25	dBc
Spurious	In-Band Signal Related	-50	dBc
	Close to Carrier Spurious (≤ 20 MHz)	-50	dBc
	Local Oscillator	-30	dBm
Harmonics	2 nd harmonic measured at P_{1dB}	-40	dBc
Output Spectrum	Low side Local Oscillator	Non Inverted	
Input Return Loss		12	dB
Output Return Loss		12	dB
Noise Figure		15	dB
Group Delay (per 40 MHz segment)	Linear	0.01	ns/MHz
	Parabolic	0.003	ns/MHz ²
	Ripple	1.0	ns p-p
Reference Input Frequency	Diplexed on L-Band Input Connector	10	MHz
Reference Input Power	Diplexed on L-Band Input Connector	-10 to +5	dBm
Input Voltage	+48 VDC nominal	+36 to +60	VDC
	+24 VDC nominal	+24 ±10%	VDC
Input Power @ P_{1dB}	10W @ 48 VDC	2.7	A
	10W @ 24 VDC	6.3	A
	20W @ 48 VDC	4.2	A
	20W @ 24 VDC	9.2	A
	25W @ 48 VDC	4.8	A
	25W @ 24 VDC	10.4	A
Monitor & Control Functions	Tx Inhibit (GND for Unmute) Temperature Fault Summary Fault		
Alarm Output	Open Collector Output (requires external pull-up)	Open = Fault	
Weight Dimensions	L x W x H	4.5 (2.0) 7.98 x 4.0 x 2.25 (203.2 x 101.6 x 57.1)	lb. (kg) in (mm)
Heatsink (must meet thermal resistance specification)	10W μBUC	0.230	°C/W
	20W μBUC	0.150	°C/W
	25W μBUC	0.125	°C/W

X-Band Specifications

PARAMETER	NOTES	LIMITS	UNITS
Input Frequency		950 - 1450	MHz
Output Frequency		7.90 - 8.40	GHz
LO Frequency		6.95	GHz
Gain		60	dB
Gain Flatness	full band	± 2.0	dB
Gain Slope	per 40 MHz	± 0.5	dB
Gain variation vs. Temperature	-40 to +60 °C baseplate	0 ± 2.0	dB
Output Power		P_{sat} / P_{1dB}	
	10W	40.5 / 40.0	dBm
	20W	43.5 / 43.0	dBm
	25W	44.5 / 44.0	dBm
Intermodulation Distortion	3dB back off relative to P_{1dB}	-25	dBc
Spurious	In-Band Signal Related	-50	dBc
	Close to Carrier Spurious (20 MHz)	-50	dBc
	Local Oscillator	-30	dBm
Harmonics	2 nd harmonic measured at P_{1dB}	-40	dBc
Output Spectrum	Low side Local Oscillator	Non Inverted	
Input Return Loss		12	dB
Output Return Loss		12	dB
Noise Figure		15	dB
Group Delay (per 40 MHz segment)	Linear	0.01	ns/MHz
	Parabolic	0.003	ns/MHz ²
	Ripple	1.0	ns p-p
Reference Input Frequency	Diplexed on L-Band Input Connector	10	MHz
Reference Input Power	Diplexed on L-Band Input Connector	-10 to +5	dBm
Input Voltage	+48 VDC nominal	+36 to +60	VDC
	+24 VDC nominal	+24 ±10%	VDC
Input Power @ P_{1dB}	10W @ 48 VDC	2.0	A
	10W @ 24 VDC	4.6	A
	20W @ 48 VDC	3.2	A
	20W @ 24 VDC	6.0	A
	25W @ 48 VDC	3.7	A
	25W @ 24 VDC	8.2	A
Monitor & Control Functions	Tx Inhibit (GND for Unmute) Temperature Fault Summary Fault		
Alarm Output	Open Collector Output (requires external pull-up)	Open = Fault	
Weight		4.5 (2.0)	lb. (kg)
Dimensions	L x W x H	7.98 x 4.0 x 2.25 (203.2 x 101.6 x 57.1)	in (mm)
Heatsink (must meet thermal resistance specification)	10W μBUC	0.275	°C/W
	20W μBUC	0.230	°C/W
	25W μBUC	0.150	°C/W

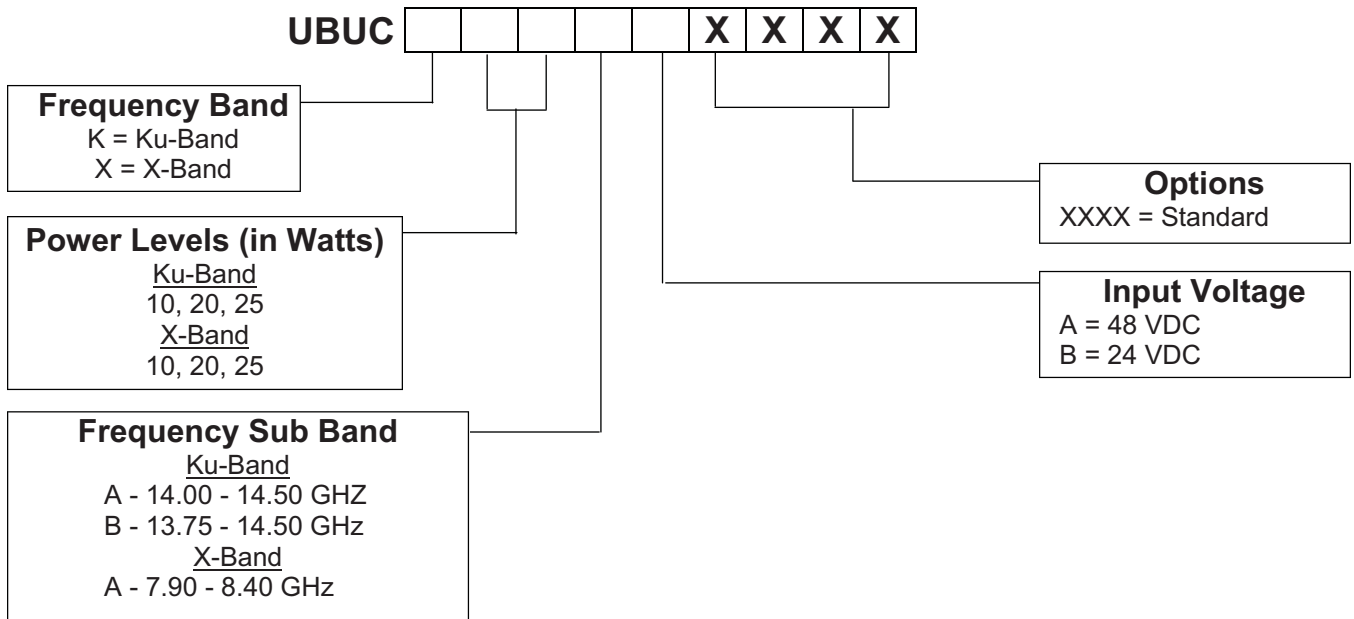


**Outline Drawing,
 μBUC,
 X-Band or Ku-Band**

Local Oscillator Phase Noise

Offset	Guaranteed Max.	X-Band or Ku-Band (Typical)	Units
10 Hz	-30	-60	dBc/Hz
100 Hz	-60	-75	dBc/Hz
1 KHz	-70	-75	dBc/Hz
10 KHz	-80	-100	dBc/Hz
100 KHz	-90	-110	dBc/Hz
1 MHz	-90	-122	dBc/Hz

Part Number Configuration



Specifications listed in this document are subject to change without notice.

X-Band products may be subject to ITAR restrictions and should not be exported from the U.S. without obtaining proper licensing from the appropriate government agencies.