



Transmit Block Up-Converter, Ku-Band

Customer: ViaSat
 Contact: Chris Stevens
 Customer Doc#: 1059743
 Rev.: 007

Quote#: Per BOA ALD-20210510
 Date: 4/19/2018
 Aldetec P/N: ALS03603
 Date :

Rev.: K
 6/21/2022

Parameter		Units	Specifications	Additional Comments	Compliance	Par.
IF Frequency:		MHz	950 - 1450		Comply	3.1.1
RF Frequency:		GHz	14.0 - 14.5GHz		Comply	3.1.2
Local Oscillator Frequency:		GHz	13.050		Comply	3.1.3
Noise Figure:		dB	8.5dB Over-Temp		Comply	3.1.4
Receive Band Noise		dBw	-125dBW	10.7 - 12.75GHz	Comply	3.1.5
Output Power (1dB Comp.)		dBm	+18dBm min.		Comply	3.1.6
Conversion Gain:		dB	18 - 23	IF to RF	Comply	3.1.7
Gain Variation with Freq:		dB	0.3dB P-P any 2MHz	2.0dB P-P and 50MHz	Comply	3.1.8
Gain Variation with Temp:		dB	3.0dB P-P		Comply	3.1.9
VSWR	Input	Ratio :1	1.5:1		Comply	3.1.10
	Output	Ratio :1	1.5:1		Comply	3.1.11
Input IF Power Handling		dBm	+10 dBm max.	No Damage	Comply	3.1.12
Image Rejection		dB	-45 min.		Comply	3.1.13
IM3		dBc	40dBc Min.	+5dBm Out (SCL)	NR	
Spurious Output:			Less than -88dBm 950 - 2150MHz with RF Input Terminated with 50 Ohms		Comply	3.1.14
Output Power Rise-Time		ns	25ns Max. (90% of Rated Pwr)		Comply	3.1.15
LO Leakage To IF Input			-50dBm		Comply	3.1.16
Input Reference Frequency / Power Level			10MHz	-6 to +7dBm	Comply	3.1.17/18
Input Reference Phase Noise			Carrier Offset	dBc/Hz	Ref	3.1.19
			100Hz	-130		
			1KHz	-150		
			10KHz	-155		
			100KHz	N/a		
			1MHz	N/a		
SSB Phase Noise: Including 10MHz Ref.			Carrier Offset	dBc/Hz		3.1.20
Intitial Offset:	+/-1ppm , 13.050gHz		100Hz	-56	Comply	
			1KHz	-72	Comply	
			10KHz	-83	Comply	
			100KHz	-90	Comply	
			1MHz	-100	Comply	



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LO Leakage To RF Output	dBm	-45dBm	Comply	3.1.21
Group Delay	ns	2ns/ 10MHz	Comply	3.1.22
Unlock RF Signal		See Spec. 1059743	Comply	3.1.23
Unlock RF Noise		See Spec. 1059743	Comply	3.1.24
IF Input Connector	Multiplexed IF and 10MHz Reference		Comply	3.1.25
Input Voltage on IF Input	Operate with DC up to +29Vdc (No damage or degradation)		Comply	3.1.26
Supply Voltage	Vdc	+11.5Vdc +/-1.0Vdc	Comply	3.1.27
Current	ma	900 ma. Peek 800ma Continuous	Comply	3.1.28
Power Interrupt	n/a	+20Vdc Surge/ 30ms max.	Comply	3.1.29
Voltage Spikes	n/a	50 Spikes up to +/-20Vdc	Comply	3.1.30
ESD Susceptibility	kV	25kV, No Damage	Comply	3.1.31

3.2 Physical Requirements

Input Connector	TNC Female	Comply	3.2.1-5
Input / Output Connector	Torque requirement, 15in-lbs Min.	Comply	3.2.9
Output Connector	SMA Female	Comply	3.2.6-10
DC Power Connector	Recommend Micro-D Connector	Comply	3.2.11
Fault Status	Recommend Micro-D Connector	Comply	3.2.11
Weight	<1.0lbs	Comply	3.2.12
Dimensions	In accordance with Outline drawing in Appendix C	Comply	3.2.13
Mounting Surface	Outline to be provided	Comply	3.2.14
Finish	Electroless Nickel	Comply	3.2.15



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3.3 Environmental Requirements

Operating Temperature	-55 to +70C	Comply	3.3.1
Storage Temperature	-55 to +85C	Comply	3.3.2
Temp Variation	Rate of Change, 10C per Minute	Comply	3.3.3
Operating Vibration	Per RTCA DO-160G, Section 8 Cat R, Curve C1 Fig. 8.4	Comply	3.3.4
Altitude	Sea Level to 55,000ft.	Comply	3.3.5
Humidity	Up to 95%, Condensing	Comply	3.3.6
Water Proof ness	Moisture Resistant Enclosure	Comply	3.3.7
Operating Shock	Per RTCA DO-160G, Section 7, Cat E Appendix B	Comply	3.3.8
Fungus Resistance	Non-Nutrient materials	Comply	3.3.9

3.4 Other Requirements

MTBF	100,000Hours, Per Mil-HdBK-217E, Cat AUC, 0DegC	Comply	3.4.1
Fault Output	NPN open Collector, Temperature Fault, "On"=Normal	Comply	3.4.2
Identification	Silkscreen Perm Ink, As Required	Comply	3.4.3

First Article Testing Per Table 4.1 (COMPLY)

Formal testing to demonstrate or verify converter is meeting performance requirements.

To be Verified by Inspection, Analysis, Test, demonstration and Certificate of Conformance.

Production Testing (Comply)

1) All units shall undergo ESS screening prior to ATP. A minimum of ten thermal cycles to be performed while operating.

2) All units will also be subjected to Vibration per RTCA Profile as stated in 3.3.4 Prior to ATP.

3) Converter Data to be provided as stated in "Production" column of Table 4.1 at +25C.