



Dual-Band Block Down-Converter

Customer:

Contact:

Customer Doc#:

Rev: 005

Quote#:

Date: 12/27/2017

Aldetec P/N: ALS05288

Rev: E

Parameter		Units	Specifications	Additional Comments	Comply	Par.
RF Frequency:		GHz	11.55 - 12.75GHz (Band 1)	10.95 - 11.7GHz (Band 2)	Y	3.1.1
IF Frequency:		MHz	950 - 2150		Y	3.1.2
Local Oscillator Frequency:		GHz	10.6GHz (Band 1)	10.0GHz (Band 2)	Y	3.1.3
Local Oscillator Select:		TTL	+5V (Or Open) = Band 1	+0V = Band 2	Y	3.1.4
Noise Figure:		dB	3.5db @ +25C	4.0db @+70C	Y	3.1.5
Conversion Gain:		dB	30 - 35		Y	3.1.6
Transmit Band Rejection:		dBm	No degradation	W/ -20dbm Input (TX-Band)	Y	3.1.7
Gain Variation with Freq:		dB	0.25db P-P any 2mHz	2.0db P-P and 50mHz	Y	3.1.8
Gain Variation with Temp:		dB	3.0dB P-P		Y	3.1.9
VSWR	Input	Ratio :1	1.5:1		Y	3.1.10
	Output	Ratio :1	1.5:1		Y	3.1.11
Output Power (1db Comp.)		dBm	+5dbm min.		Y	3.1.12
Input Power Handling		dBm	+10 dbm max.	No Damage	Y	3.1.13
IM3		dBc	-45dbc Min.	2-Tones at -50 dbm (SCL)	Y	3.1.14
Image Rejection		dB	-45 min.		Y	3.1.15
Spurious Output:			Less than -88dbm 950 - 2150MHz with RF Input Terminated with 50 Ohms		Y	3.1.16
LO Leakage		dBm	-60dBm	At If Output	Y	3.1.17
External Ref. Frequency / Power Level			10MHz	-6 to +7dbm	Y	3.1.18/19
Input Reference Phase Noise			Carrier Offset	dBc/Hz	For Ref. Only	3.1.20
*Aldetec uses a Wenzel 10MHz Reference for measurement of phase noise performance.			10Hz	-100		
			100Hz	-130		
			1KHz	-150		
			>10KHz	-155		
SSB Phase Noise: Including 10mHz Ref.			Carrier Offset	dBc/Hz	3.1.21	
Initial Offset:	+/-1ppm from 10.0GHz		100Hz	-56		Y
			1KHz	-72		Y
			10KHz	-83		Y
			100KHz	-90		Y
			1MHz	-100	Y	



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Parameter	Units	Specifications	Comply	Par.
Group Delay	ns	1ns/ 10MHz	Y	3.1.22
IF Output Connector		Multiplexed IF and 10MHz Reference	Y	3.1.23
Input Voltage on IF Output		With DC up to +29Vdc	Y	3.1.24
Supply Voltage ** Multiplex	Vdc	+11.5Vdc +/-1.0Vdc	Y	3.1.25
Current	mA	900 mA. Peek (Surge) 800mA. Typical Continuous	Y	3.1.26
Power Interrupt	n/a	+20Vdc Surge/ 30ms max.	Y	3.1.27
Voltage Spikes	n/a	50 Spikes up to +/-20Vdc	Y	3.1.28
ESD Susceptibility	kV	15kV, No Damage	Y	3.1.29
LO Selection		TTL Low = 10.0 GHz LO Selected	Y	3.1.30

Physical Requirements

Output Connector	TNC Female , 50 Ohms. Comply with Mil-STD-348		Y	3.2.1
Output Connector Material	Body: Brass per ASTM B16 Contact: Beryllium copper per ASTM B196 Insulator: Teflon ASTM D1710		Y	3.2.2
Output Connector Finish	Body: Nickel Plate per QQ-N-290 Contact: Gold Plate per MIL-G-45204		Y	3.2.3
Output Connector Torque	Shall withstand 15in-lbs of torque without damage		Y	3.2.4
Output Connector Durability	Shall withstand up to 100mate / demate without damage or perf.		Y	3.2.5
Input Connector	SMA Female , 50 Ohms. Comply with Mil-STD-348		Y	3.2.6
Input Connector Material	Body: Brass per ASTM B16 Contact: Beryllium copper per ASTM B196 Insulator: Teflon ASTM D1710		Y	3.2.7
Input Connector Finish	Body: Nickel Plate per QQ-N-290 Contact: Gold Plate per MIL-G-45204		Y	3.2.8
Input Connector Torque	Shall withstand 10in-lbs of torque without damage		Y	3.2.9
Input Connector Durability	Shall withstand up to 100 mate / demate without damage or perf.		Y	3.2.10
DC Power Connector / Fault	Connection Via 9 Pin Micro-D P/n: M83513			
	Pin 1: GND	Pin 5: N/C	Y	3.2.11
	Pin 2: GND	Pin 6: Fault Status	Y	
	Pin 3: +11.5Vdc	Pin 7: LO Select	Y	
	Pin 4: +11.5Vdc	Pin 8: and 9: N/C	Y	



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Weight	1lbs Max.	Y	3.2.12
Dimensions	4.0in x 2.5in x 0.99in	Y	3.2.13
Mounting Surface	Per Outline Dwg. 1149313 Pg. 23	Y	3.2.14
Finish	Electroless Nickel per SAE AMS-C-26074, Grade B	Y	3.2.15

Environmental Requirements

Operating Temperature	-55 to +70C	Y	3.3.1
Storage Temperature	-55 to +85C	Y	3.3.2
Temp Variation	Rate of Change, 10°C per Minute	Y	3.3.3
Operating Vibration	Per RTCA DO-160G, Section 8 Cat R, Curve C1 Fig. 8-4	Y	3.3.4
Altitude	Sea Level to 55,000ft.	Y	3.3.5
Humidity	Up to 95%, Including Condensing	Y	3.3.6
Water Proof ness	Moisture Resistant Enclosure	Y	3.3.7
Operating Shock	Per RTCA DO-160G, Section 7, Cat E	Y	3.3.8
Fungus Resistance	Non-Organic Materials	Y	3.3.9

Other Requirements

MTBF	100,000Hours, Per Mil-HDBK-217E, Cat AUC, 0DegC		
Identification	Silkscreen Perm Ink, As Required		

First Article

Formal testing to demonstrate or verify converter meeting performance requirements. Current design could be approved by similarity of product that Aldetec currently provides to Viasat.

*** If required by PO, additional costing will be required for screening activities.**

Production Testing

- 1) All units shall undergo ESS screening prior to ATP. A minimum of 3ea. thermal cycles to be performed while operational while monitoring output.
- 2) All units will also be subjected to Vibration per RTCA Profile as stated for Phase noise verification.
- 3) Confirm **LO Lock** "No fault" at +10.5 , +11.5 and +12.5Vdc over-temp. (-55C, +25C, +70C)
- 4) Converter Data to be provided as hardcopy with units at time of shipment.