UHF AMP50-D

50W DVB PALLET AMPLIFIER

This ultra linear power amplifier pallet has been designed to cover the entire UHF TV band from 470 to 862MHz, offering OEMs a single, unsurpassed solution for their medium power amplifier designs. Foreseen specifically for digital applications, UHFAMP50-D incorporates microstrip technology and the latest generation of LDMOS power devices for increased ruggedness and reliability. Patented bias control (IR SmartBias, optional). It is designed specifically as driver for 50V UHFAMP680-R pallet or equivalent amplifier.

Key Features and functions

- Temperature compensated bias
- Smart Bias® Infrared or Manual operated bias circuit (Option)

High temperature protections

Technical Specification Summary

Frequency Range	470-862MHz	Typ. Gain	19 dB
Supply Voltage	50V	Typ. Efficiency	> 20% @ 50W DVB-T
Working Class	AB	Temperature Range	-10 to +55C
DVB	50 Wrms	Max VSWR	3:1
Devices	BLF881		

Electrical Specifications

Parameter	Min.	Typ.	Max	Units	Notes
Frequency	470		862	MHz	Full coverage without tuning
Power		50		Wrms	
Power Input		1		W	
Gain	18	19		dB	
V Supply		50	52	Vdc	
Drain Current		5		A	@ 50Wrms DVB-T
Input return loss			-18	dB	
Phase Variation		+/-5%			Unit to unit
Gain Variation			+/- 0,5	dB	
F2 Second Harmonic		-27		dBc	@ 50Wrms
Baseplate Temp.	-10		+55	C	

Video Parameter	Min.	Typ.	Max	Units	Notes
Digital Power (DVB)	10	50		Wrms	
M.E.R. (DVB)		32		dB	
Shoulders (DVB)	-35	-38		dBc	At +/-4,2MHz

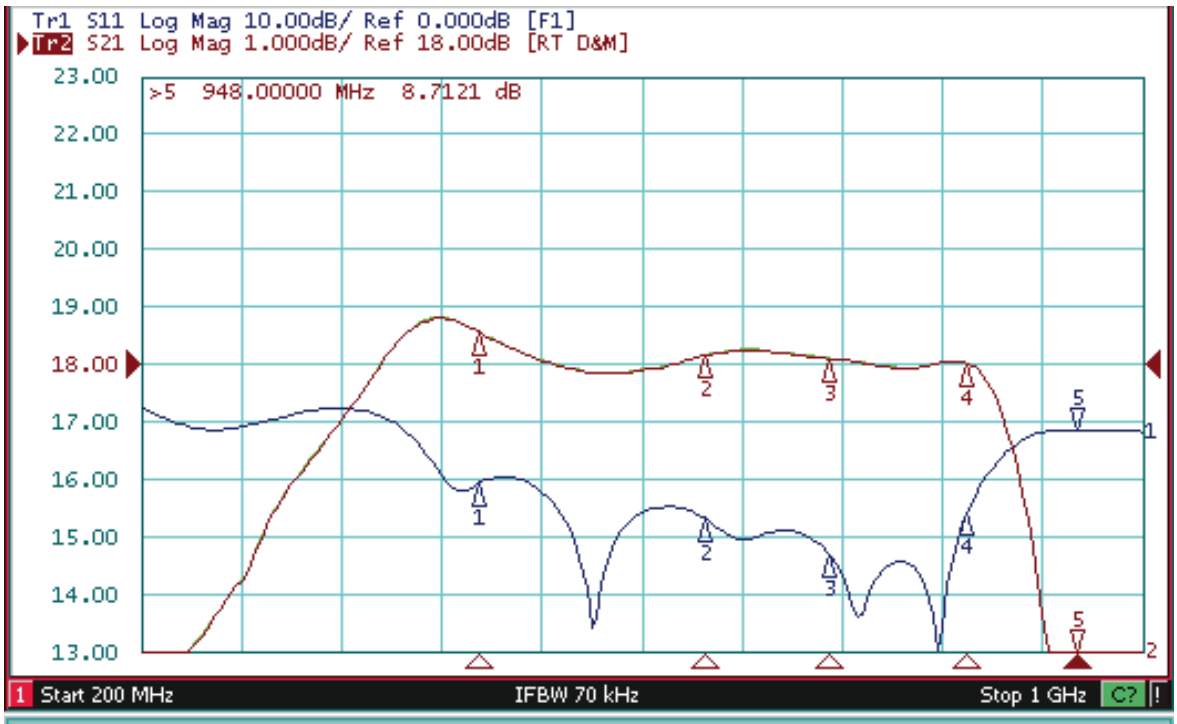
Physical Dimensions	78mm x 136mm x 25.4mm / 3,07" x 5,35" x 1,00"
Weight	130 g. / 0,29 Pounds

UHF AMP50-D

ABSOLUTE Maximum Ratings		
Parameter	Value	Units
Output Power	50	Wrms
Input Power	1.5	W
Operating Voltage	50	Vdc
Stable operations	48-52	Vdc
Bias Current	0,5 + 0,5	A
Drain Current	5	A
VSWR	3:1	
Storage Temp.	-20 +80	C
Base Plate temp.	55	C

Graphs and Charts

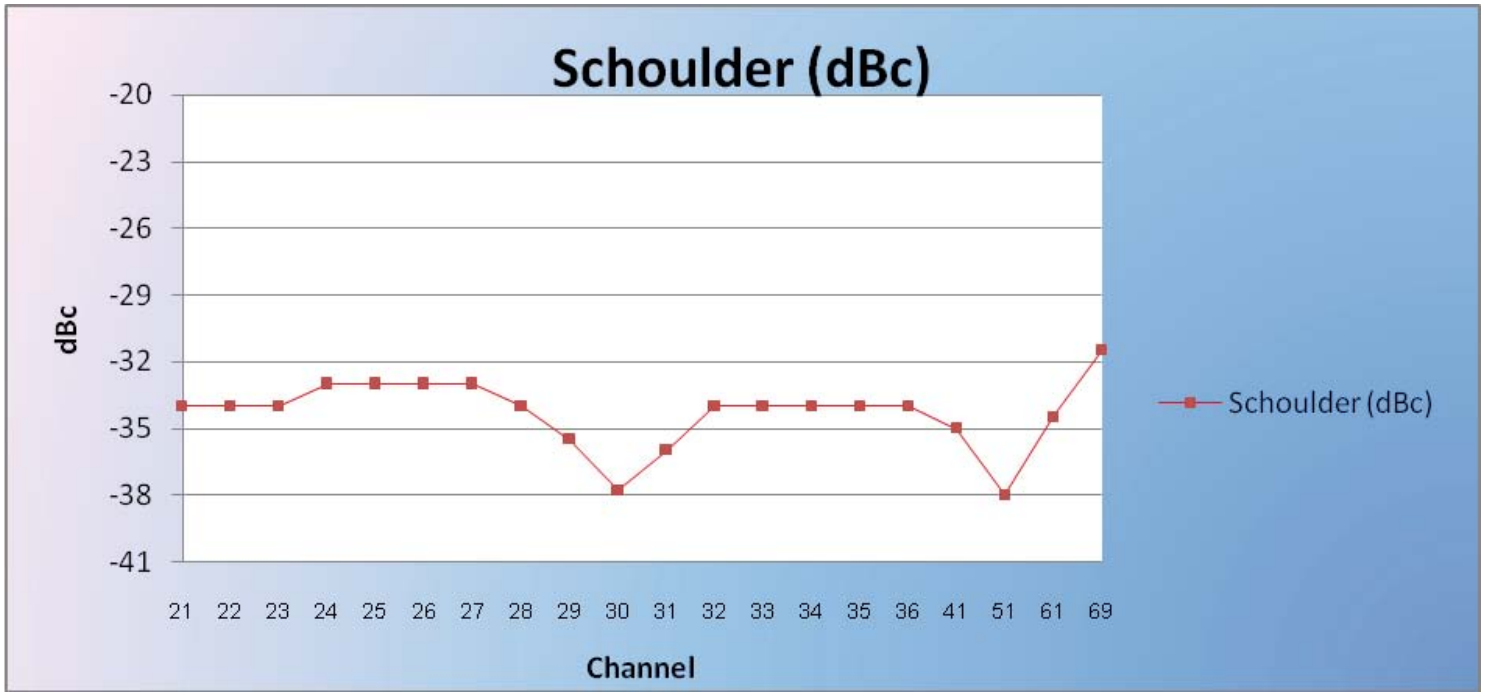
Test condition: VCC 50V Idq 0.5+0.5A @ 50W DVB-T



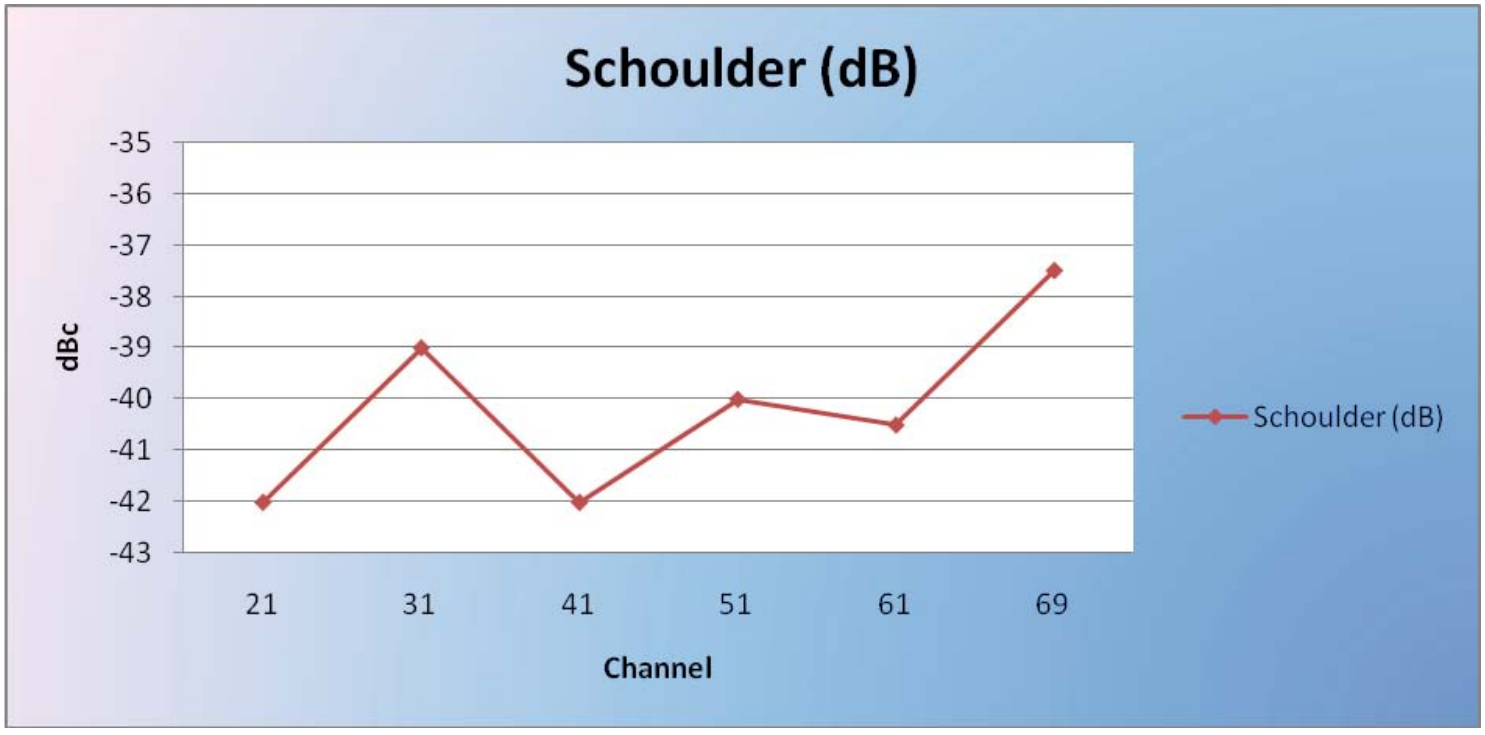
Ch1	Tr1	S11	1	470.00000 MHz -20.732 dB
Ch1	Tr1	S11	2	650.00000 MHz -26.861 dB
Ch1	Tr1	S11	3	750.00000 MHz -33.181 dB
Ch1	Tr1	S11	4	860.00000 MHz -25.702 dB
Ch1	Tr1	S11	5	948.00000 MHz -11.405 dB
Ch1	Tr2	S21	1	470.00000 MHz 18.550 dB
Ch1	Tr2	S21	2	650.00000 MHz 18.142 dB
Ch1	Tr2	S21	3	750.00000 MHz 18.086 dB
Ch1	Tr2	S21	4	860.00000 MHz 18.000 dB
Ch1	Tr2	S21	>5	948.00000 MHz 8.7121 dB

UHF AMP50-D

VCC 50V Idq 0.5+0.5A @ 50W DVB-T

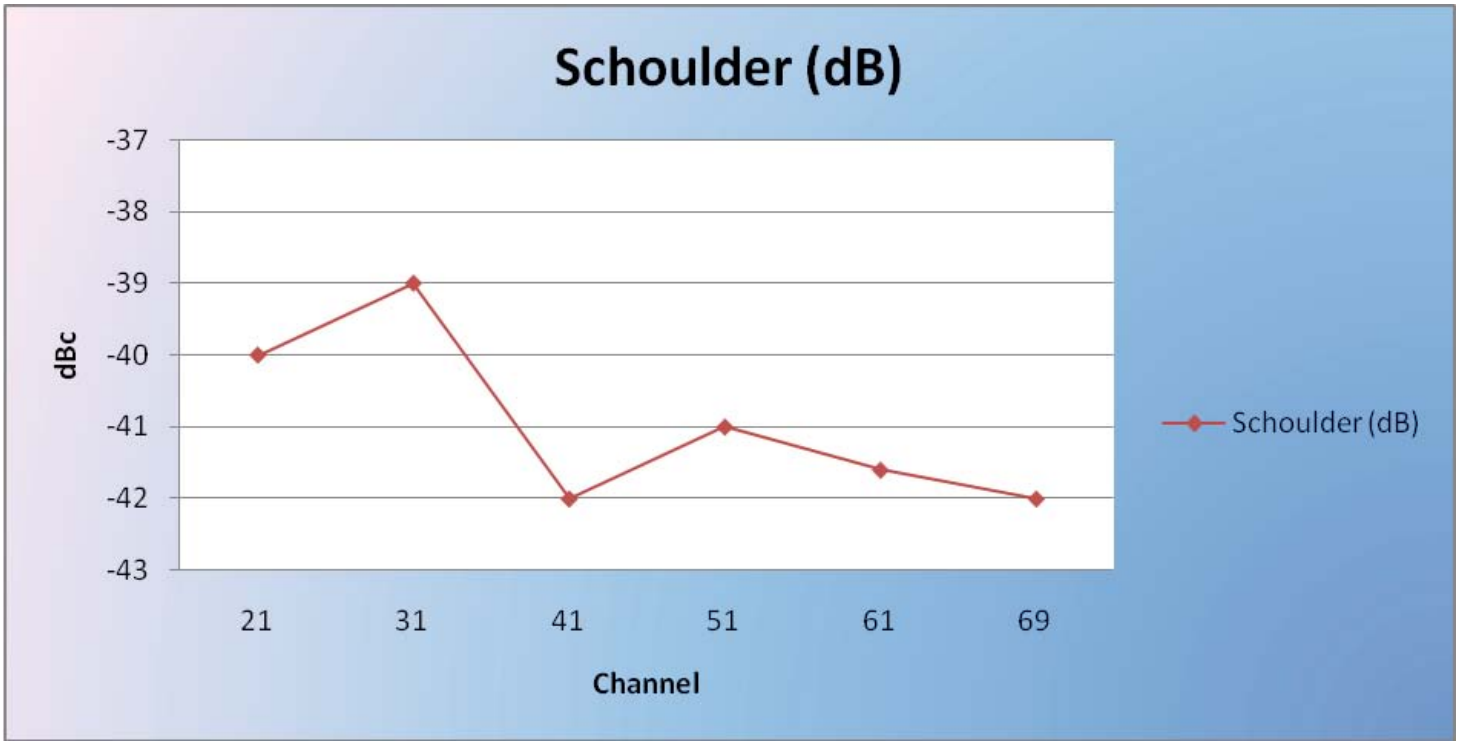


V_{CC} 50V I_{dq} 0.5+0.5A @ 30W DVB-T

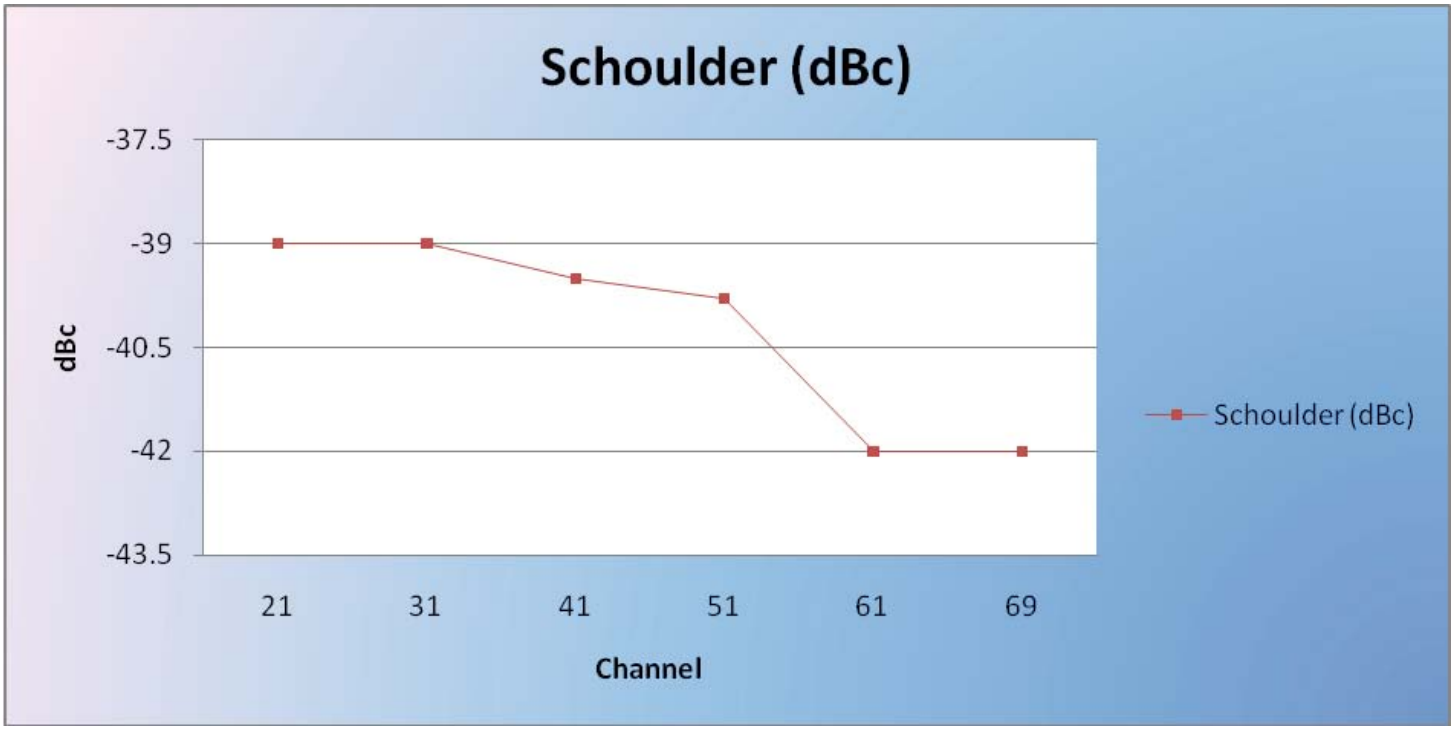


UHF AMP50-D

V_{CC} 50V I_{dq} 0.5+0.5A @ 20W DVB-T

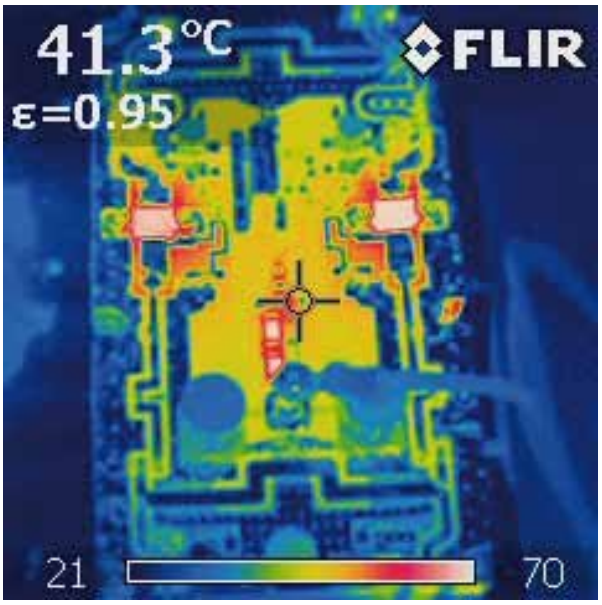


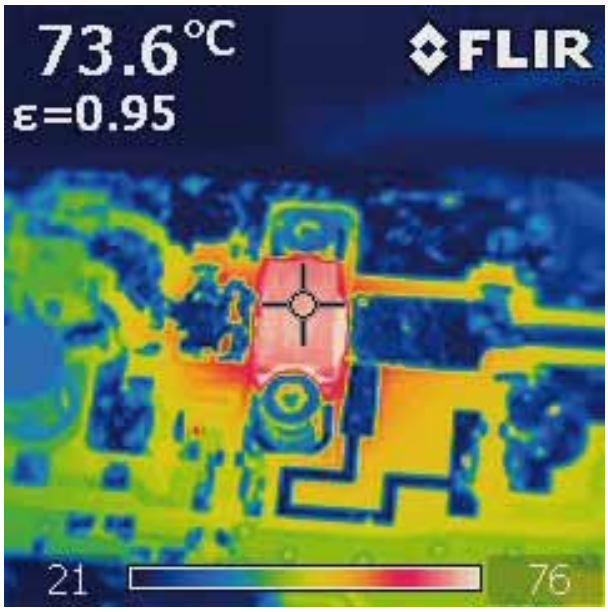
VCC 50V Idq 0.5+0.5A @ 10W DVB-T

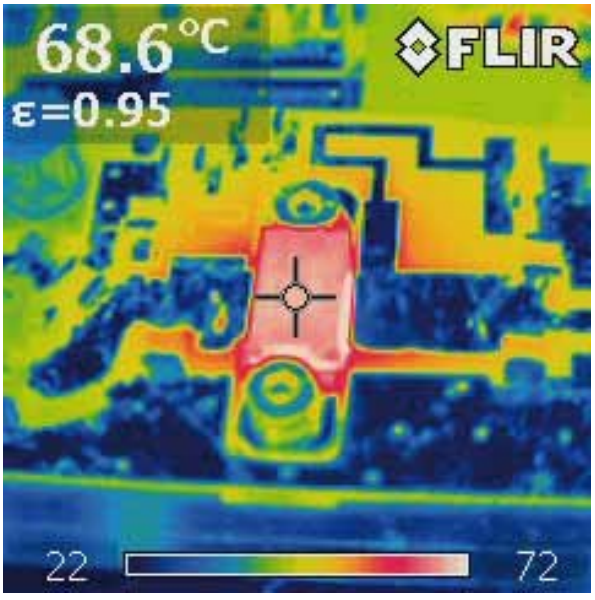


UHF AMP50-D

Thermal pictures @ 50W DVB-T

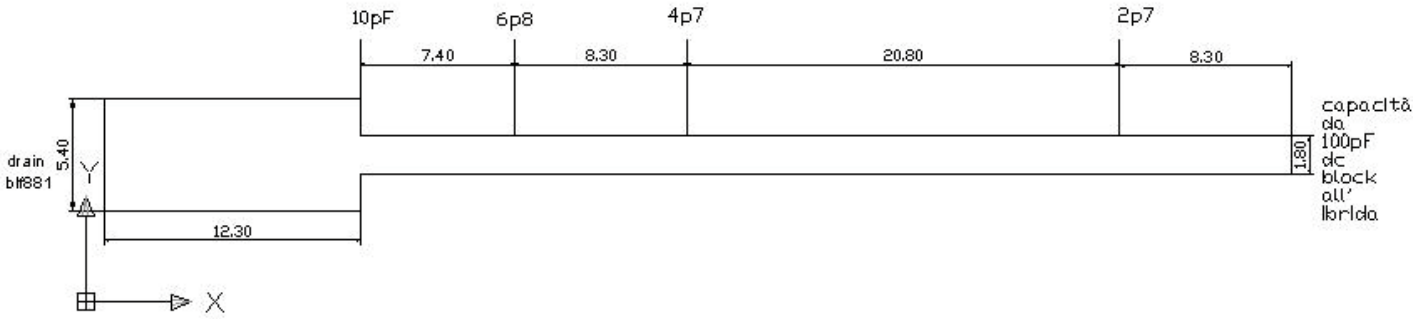


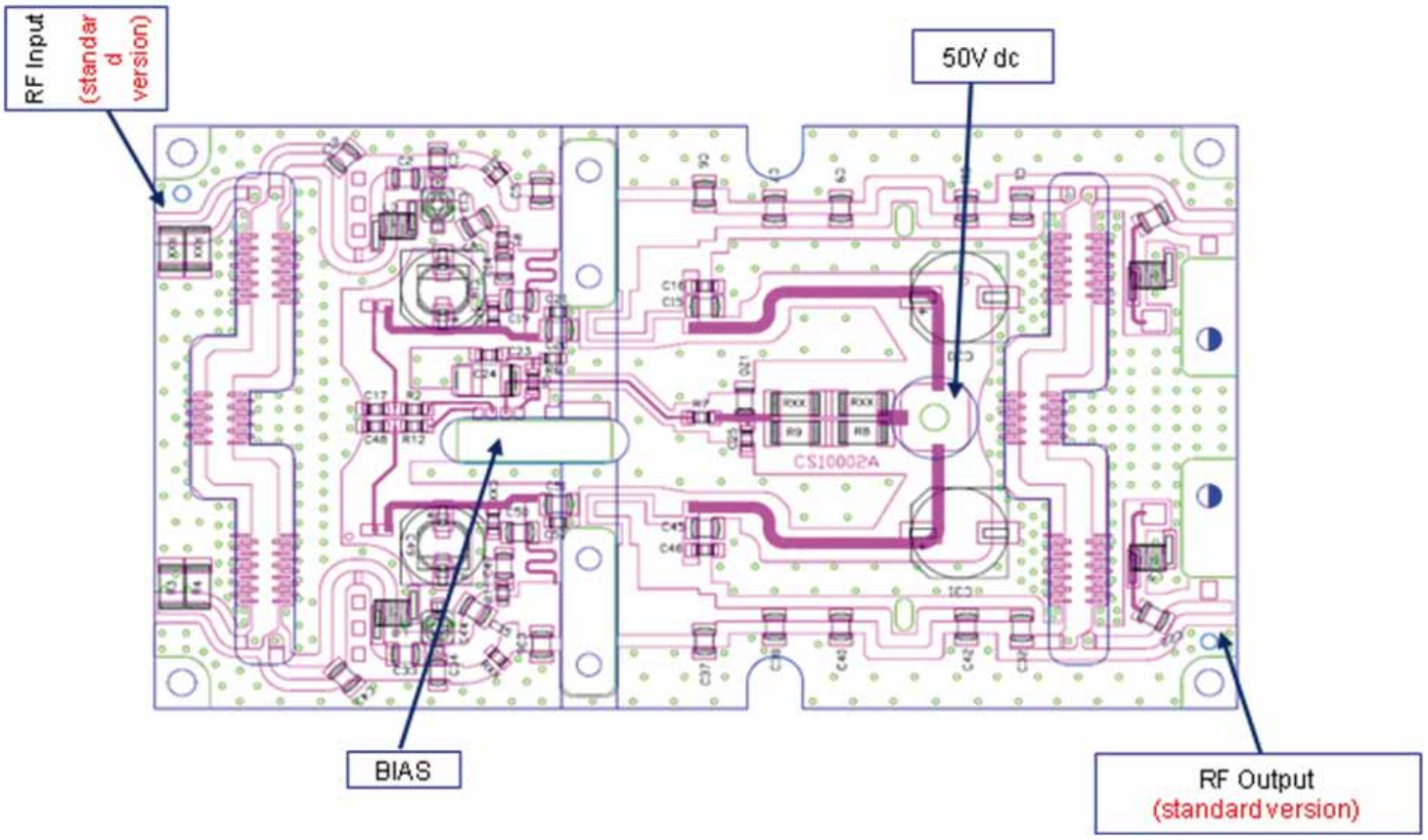




UHF AMP50-D

Mechanical Specifications





TYPE OF SCREWS
4 x M2.5 - Socket head cap screws - 4x M3 - Socket head cap screws
4 Split lock washers WZ Ø2,5 + 4 Flat washers ZU Ø2,5 - 4 Split lock washers WZ Ø3 + 4 Flat washers ZU Ø3.

RECOMMENDED TORQUE:
The recommended Torque is: 0.9 N/m for Devices Fixing (4 places) and 1 N/m for other screws.

THERMAL COMPOUND:
Paste with silicones
Thickness: optimum between 0.06 mm and 0.15 mm, on the whole back surface of the amplifier

HEATSINK TOOLING
Planarity: typical value 0.8µ
Roughness: better than 0.03 mm

Integration and important Operating instructions

The UHFAMP50-D is designed for operation of up to 50Wrms (DVB signal). The high power density of the amplifier will not safely allow prolonged operation above this average power level. The built-in security features of the SMARTBIAS ®, when present, should disable the amplifier before damage occurs in case of over-temperature.
SMARTBIAS (Optional) is a digital polarizer of LDMOS; this device allows the compensation of nonlinear VGS compared to the change of temperature and gate voltage. Moreover it allows you to independently adjust the gate voltage VGS1 VGS2 by means of an infrared tool (available upon request) to measure the temperature at the center of pallet.
The LDMOS devices used in this design are of the 6th generation family, capable of very high peak power as long as the average power does not exceed specified ratings. The devices are protected by an external circuit provided by the OEM, as specified in this datasheet (Overdrive and Mismatch load protection: See Graphs and Charts section).
Use stainless hardware and applying appropriate torque at all fixing points, as indicated in this datasheet. Direct some airflow over the top of the amplifier. Minimal airflow is recommended, strong airflow is not required.
Use appropriate size Teflon insulated wire for positive voltage. Please refer to the specific drawing in this datasheet for contact locations. Apply supply voltage with the RF drive OFF. Due to its high gain, the amplifier is sensitive to overdrive and can be damaged if overdriven.
Monitor pallet carrier temperature. In the event of cyclic shutdown, cooling must be improved.
IMPORTANT: This amplifier is sensitive to overdrive and may be damaged by careless application of input power.
The system must allow the nominal voltage before applying RF driver signal or damage can result to the amplifier. For this reason the voltage must be applied before the RF driver signal. Additionally, the input signal must be removed before powering down to prevent damage to the amplifier. You can accomplish this by removing the RF driver signal and powering down the power amplifier.
The pallet is delivered within its sealed ESD packaging. Use all professional caution during unpacking, handling and mounting.
Please consult ONAIR factory with any integration questions.

UHF AMP50-D

IMPORTANT NOTICE

ONAIR MEDYA RESERVE THE RIGHT TO MAKE CHANGES TO THE PRODUCT(S) OR INFORMATION CONTAINED HEREIN WITHOUT NOTICE. ONAIR MEDYA ASSUMES NO RESPONSIBILITY FOR ANY ERRORS WHICH MAY APPEAR IN THIS DOCUMENT.
WARRANTY INFORMATION APPLICABLE TO THE PRODUCT IDENTIFIED HEREIN IS AVAILABLE UPON REQUEST. NOTHING CONTAINED HEREIN SHALL CONSTITUTE A WARRANTY, REPRESENTATION OR GUARANTEE OF ANY KIND. ONAIR MEDYA EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND/OR IMPLIED INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, AND OF FITNESS FOR A PARTICULAR PURPOSE, USE OR APPLICATION.
NO PART OF THIS DOCUMENT MAY BE COPIED OR REPRODUCED IN ANY MEANS WITHOUT THE PRIOR WRITTEN CONSENT OF ONAIR MEDYA.

WARNING

THE SPECIFICATIONS CONTAINED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE. ONAIR MEDYA ASSUMES NO LIABILTY FOR THE USE OF THIS INFORMATION. THIS DATA SHEET AND CONTENTS ARE THE PROPERTY OF ONAIR MEDYA.
ONAIR MEDYA PRODUCTS ARE NOT INTENDED FOR USE IN LIFE SUPPORT APPLIANCES, DEVICES OR SYSTEMS. USE OF A ONAIR MEDYA PRODUCT IN ANY SUCH APPLICATION WITHOUT WRITTEN CONSENT IS PROHIBITED.