UHFIB300-R

This RF circuit allows control of RF input signal in all AU series amplifiers.
Its main functions are: Control of amplifier gain, both manual and through a logic control unit; RF In level measurement; Protection of power section in case of overdriver or excessive reflected power; (manual) Control of amplifier in/out phase.

- **470 – 860 Mhz;**
- **12Vdc 0.4 A Max**
- **Max power @ input port 100mW rms max (in digital)**
- **In R.Loss common port 18 dB Min**
- **Gain >12dB @att min**
- **Max time to switch off 0.5 us**
- **Att with Protection on 27 dB Min**
- **Attenuation control 0 Max att to 5V min Att**

ABSOLUTE MAXIMUM RATINGS (Device Flange T = 70 °C)

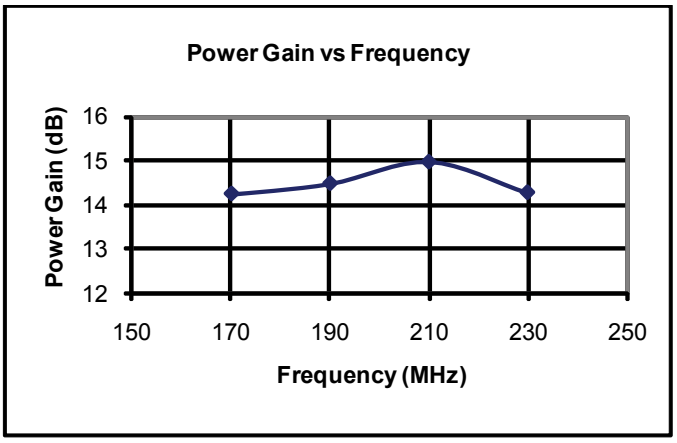
Symbol	Parameter	Value	Unit
V_S	**Voltage Supply**	12	**V dc**
I_S	**Current Supply**	0.4	**A**
Tstg	**Storage Temperature Range**	-20 + 80	**°C**
Tc	**Operating Base Plate Temperature** [1]	0 + 60[2]	**°C**
ψ	**VSWR max**	3:1 all phase angle	-
	Max input power	See note[3]	-
	Max cw output power (continuous work)	20	**dBm**

ELECTRICAL SPECIFICATIONS (Base Plate T. = 45 °C, 50Ω loaded, Vd = 30 V)

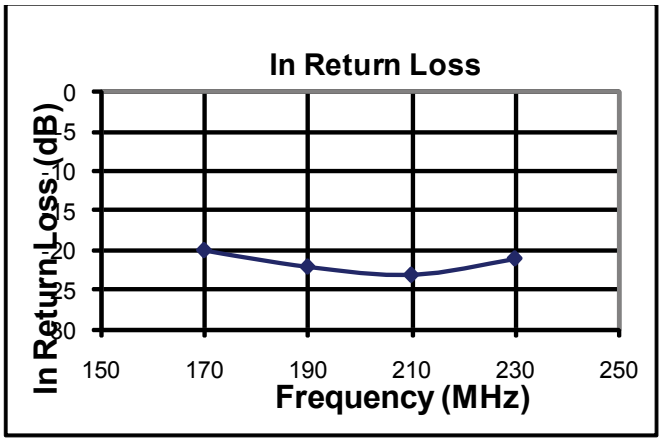
Symbol	Parameter	Test Conditions	Value Min	Typ.	Max	Unit
BW	**Bandwidth**	P_{out} = 250 W (CW)	170		230	**MHz**
Gp	**Power gain**	P_{ref} = 250 W (CW)	13.5	14.5	-	**dB**
P_{out} – 1dB	**Power Output @ 1dB Compression**	Referred to P_{out} = 60W (CW)	370	400	-	**W**
I_q *	**Quiescent Current**	P_{out} = 0 W – Total *[4]	-	-	6.0	**A**
I_{tot}	**@ P_{Max}**	300W Ps Black Level Video + Audio	-	-	18	**A**
Irl	**Input return loss**	P_{out} = 250 W CW	16	20	-	**dB**
	Load mismatch	Pref = 250 W CW, f= 230MHz, load VSWR = 2:1, all phase angles		No degradation in Pout		
Gr	**Gain Flatness**	Pref = 250 W CW, BW: 170-230MHz		±0.5	±1	**dB**
η	**Drain Efficiency**	P_{out} = 300 W (CW)	40	45	-	**%**
	Pout separate ampl.	Sync. Compression < 1dB without correction	350			**Wps**
	Pout common ampl.	Pout 300W ps common ampl. dual sound, with Red Field sound 1 @ -13dB and sound 2 @ -20dB without precorrection	-45	-50		**dBc**
	Pout DAB	Pout 150Wrms without precorrection	-27	-30		**Wrms**
	Pout DVB-T	Pout 80Wrms without precorrection	-28	-30		**Wrms**

[1] A temperature sensor is mounted on the circuit to have an immediate working temperature measurement. The temperature can be measured by a Voltmeter on the pin 1 (see picture on pag. 3), 1mV = 1 °C. **Warning**: the measured temperature refers to the Printed Circuit Board and not to the device flanges.
[2] **Warning**: The base plate temperature must be 75 °C max, using an appropriate Heatsink.
[3] The input power must not exceed +6dB, for 1 microsec. , the nominal input power referred to the 1dBcp power output.
[4] The Quiescent Current is set at typical value, in factory. This parameter can be adjusted by the final user depending on the applied signal and/or frequency and output power (See Application note ING01). (**Warning:** Do not exceed the specified max Iq value).
* Depending of handling signal (analog /digital)

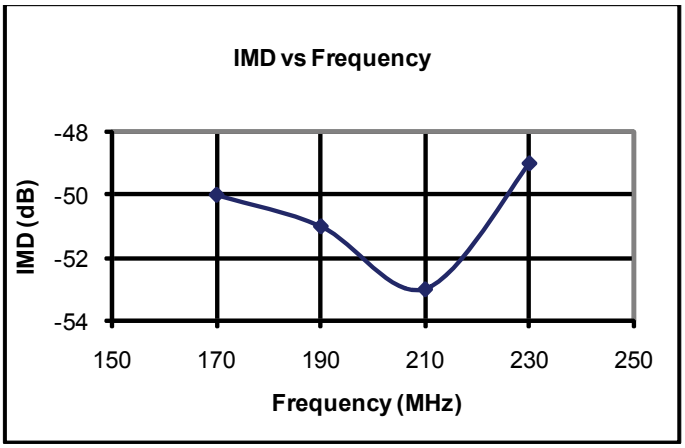
UHFIB300-R



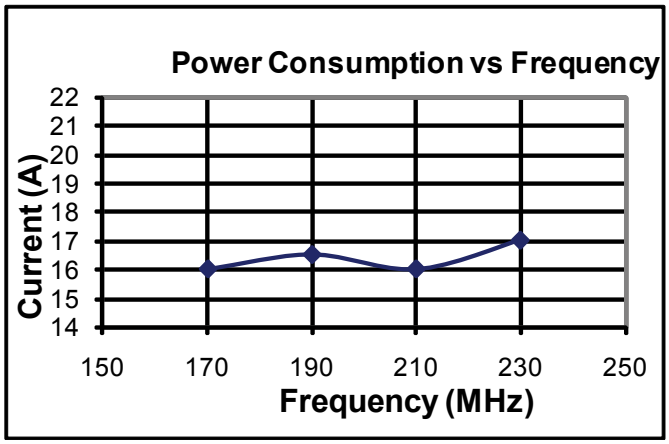
Test Condition: Vd 30V, Idq 2 x 2A, Pout 250W CW



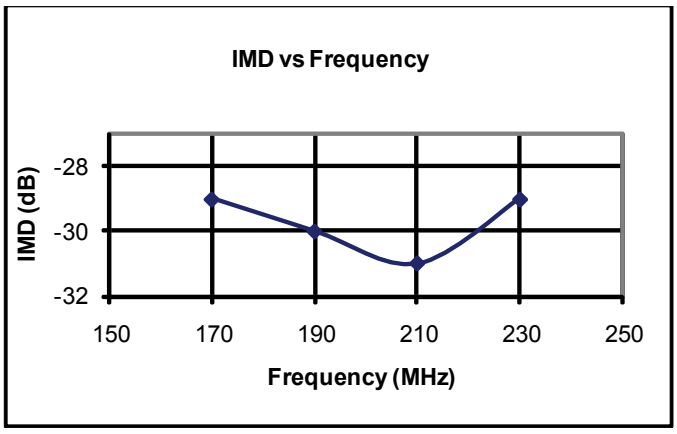
Test Condition: Vd 30V, Idq 2 x 2A, Pout 250W CW



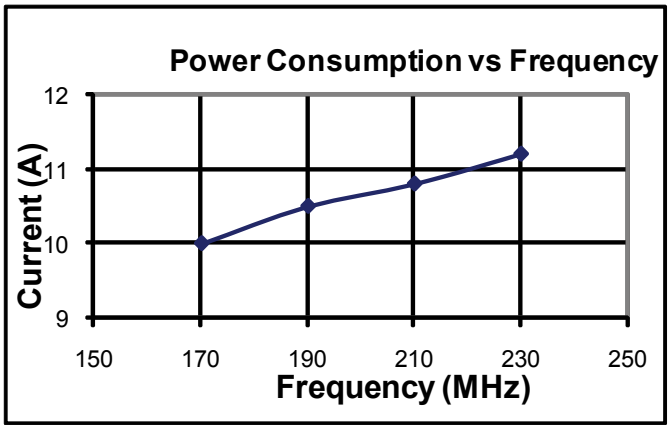
Test Condition: Vd 30V, Idq 2 x 2A, Pout 300W ps
(red field with sound 1 @-13dB and sound 2 @-20dB)



Test Condition: Vd 30V, Idq 2 x 2A, Pout 300W ps with black field



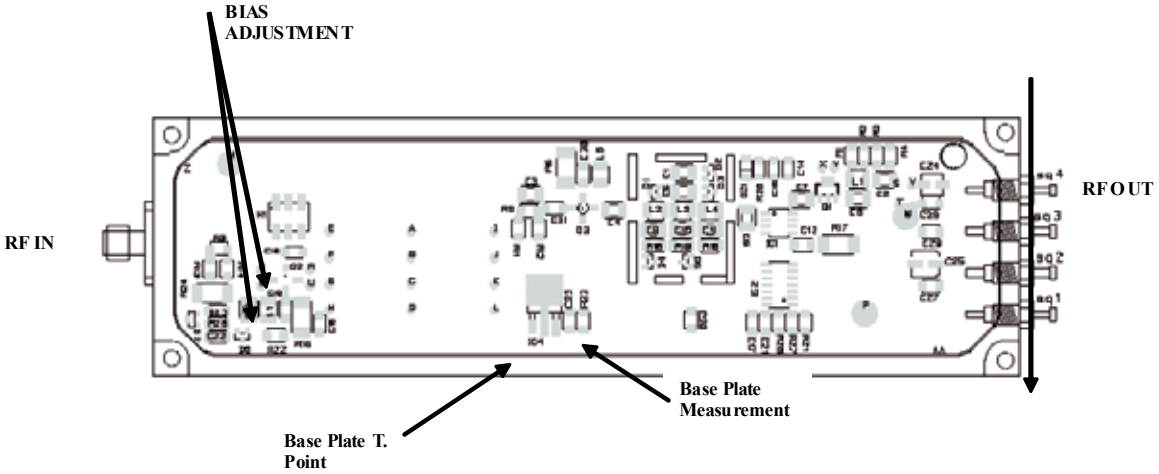
Test Condition: Vd 30V, Idq 2 x 2A, Pout 80Wrms
DVB-T signal



Test Condition: Vd 30V, Idq 2 x 2A, Pout 80Wrms DVB-T signal

The operating voltage range of this module is from 28V to 32V, 30V nominal. If used at 32V, the max power available will be higher but with a consequently decrease of MTBF. Under conditions of overdrive or reflected power, when a multicarrier signal is applied, the 32V supply can be the reason of a minor ruggedness. Please, use suitable protection circuits.

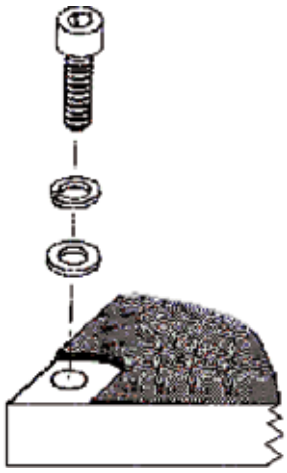
Layout and Connections[1]



HEATSINK MOUNTING/HARDWARE

1.HEATSINK TOOLING
-Planarity: typical value 0.8
-Roughness: better than 0.03

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



3.SCREWS
-8 x M3 - Socket head cap screws.
-8 Split lock washers WZ ∅3 + 8 Flat washers ZU ∅3.
-The recommended Torque is 12 Kg . cm (10.5 in .lbs).

4.TIGHTENING ORDER
-See next figure:

*Dimension in mm.

In the interests of continual product improvement all specifications are subject to change without notice

[1] ONAIR provides the pallet without unbalance load resistors (input 50 Ohm 20W/output 50 Ohm 100W. Dimensions: 13 x 6.3mm, about, 1 hole).

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