VHFAMP400-R

400W pep –27dBc min Tetrafet Technology

Designed for analog and digital TV transposers and transmitters, this amplifier incorporates microstrip technology and push-pull TETRAFET to enhance ruggedness and reliability.

- **170 - 230 MHz**
- **(28÷32 Volt) 30 Nominal**
- **Input/Output 50 Ohm/50 Ohm**
- **Pout CW: 200W (Continuous Work)**
- **P_{out} : 400W pep –27 dBc min (two-tone test 6MHz spacing)**
- **Gain : 13.5 dB min; 14.5 dB typ**
- **Class AB**
- **Devices: D1028UK or equivalent**
- **Connectorized version available**
- **RoHS Compliant**

Dimensions (LxWxH) 160x85x19mm

This picture is a mere example, it does not bind the provided product

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

Symbol	Parameter	Value	Unit
V_S	**Voltage Supply**	35	**V dc**
I_S	**Current Supply**	25	**A dc**
Tstg	**Storage Temperature Range**	-20 + 80	**°C**
Tc	**Operating Base Plate Temperature** [1]	0 + 75 [2]	**°C**
ψ	**VSWR max**	3:1 all phase angle	**-**
	Max input power	See note [3]	**-**
	Max cw output power (continuous work)	200	**Wattt**

ELECTRICAL SPECIFICATIONS (Base Plate T. = 45 °C, 50 Ohm 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.

Warning: The base plate temperature must be 75 °C max, using an appropriate Heatsink.

The input power must not exceed +6dB, for 1 microsec. , the nominal input power referred to the 1dBcp power output.

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)

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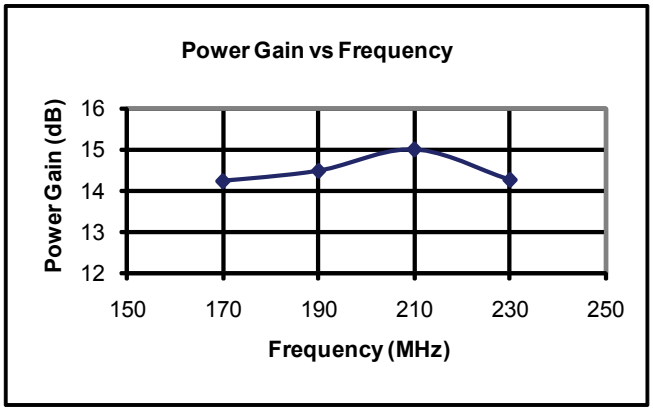
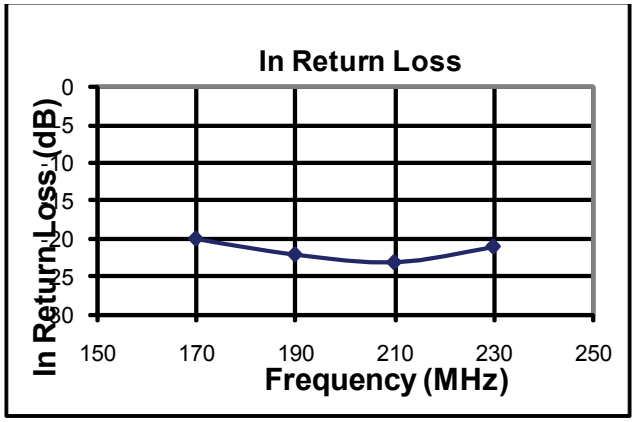
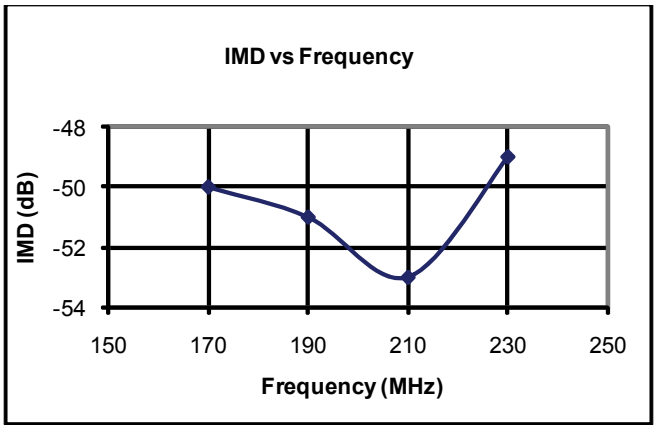


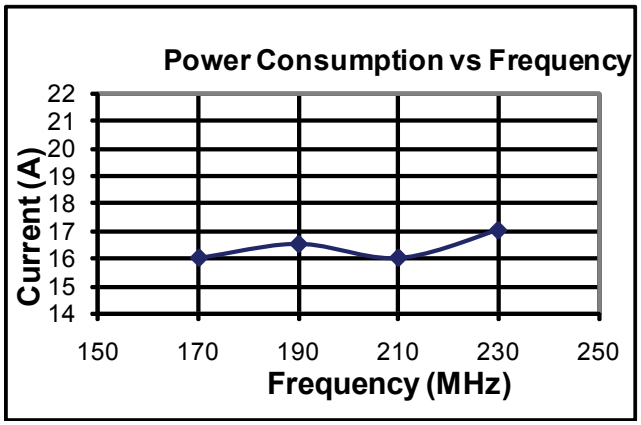
Test Condition: Vd 30V, Idq 2 x 2A, Pout 250W CW



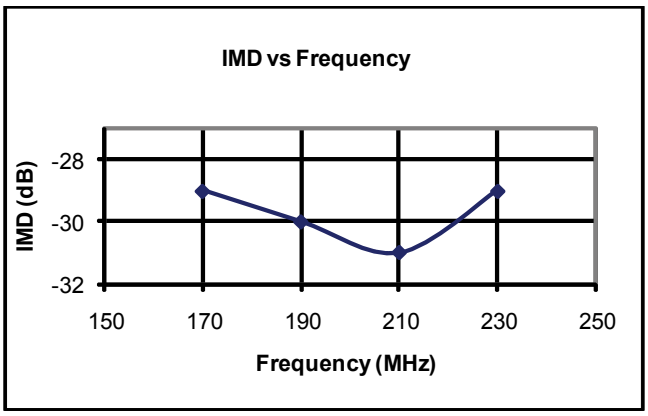
Test Condition: Vd 30V, Idq 2 x 2A, Pout 250W CW



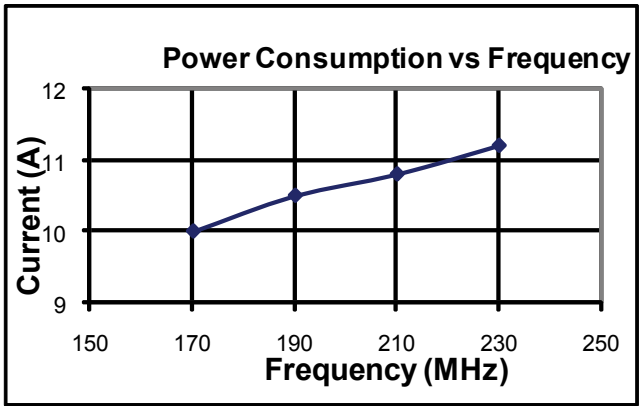
Test Condition: Vd 30V, Idq 2 x 2A, Pout 300W ps
(red field with sound 1 @-13dB and sound 2 @-20dB)



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.

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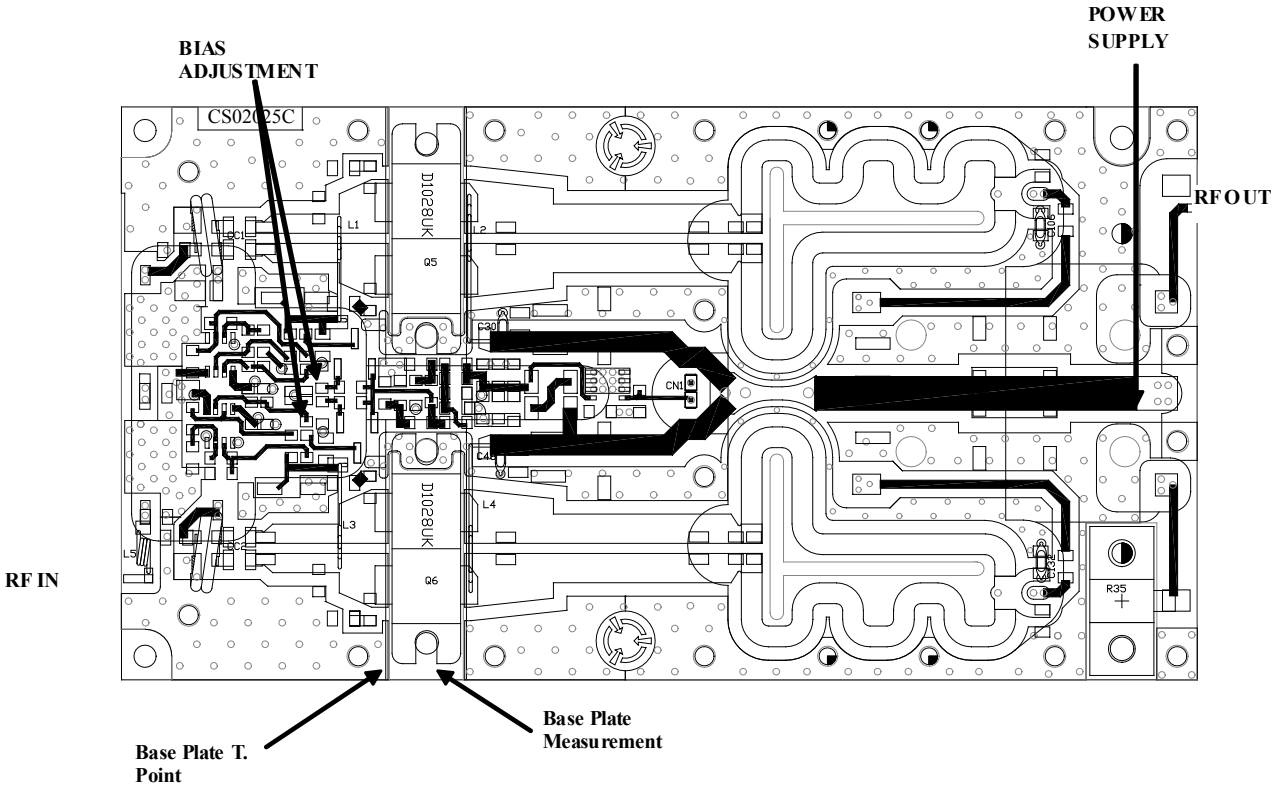
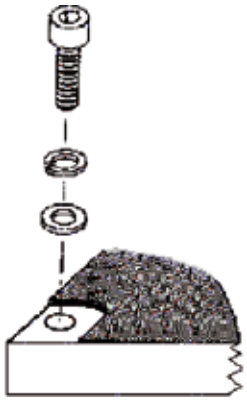


HEATSINK MOUNTING/HARDWARE

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

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 for M3 type screws and 10 Kg/cm for M2.5 type screws.



4. TIGHTENING ORDER
-See next figure:

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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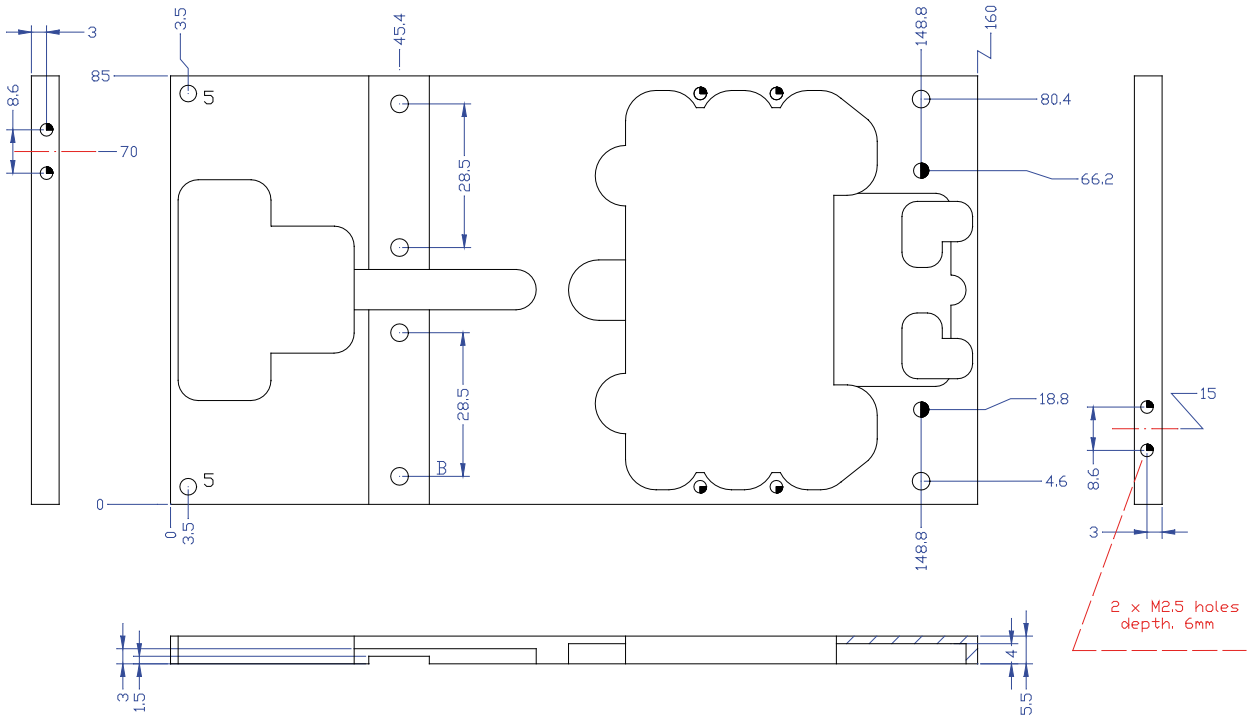
3
3.5
45.4
148.8
160
85
8.6
70
5
28.5
80.4
66.2
28.5
18.8
15
B
4.6
8.6
0
0
3.5
148.8
3
2 x M2.5 holes
depth. 6mm
3
1.5
4
5.5

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