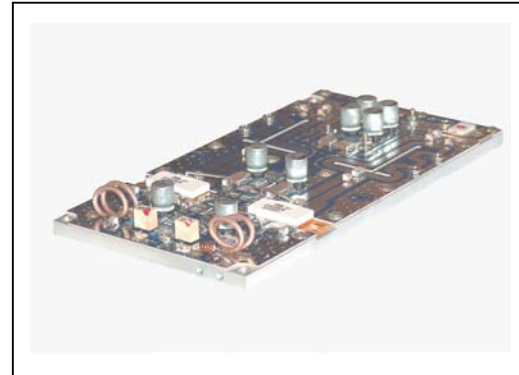


## 480W pep –27dBc min Tetrafet Technology Amplifier

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 50Ω - 50Ω
- P<sub>out</sub> : 480W pep –27 dBc min (two-tone test 6MHz spacing )
- P<sub>out</sub> 250W CW
- Gain : 13.5 dB min; 14.5 dB typ
- Class AB
- Devices: D1030UK or equivalent
- Connectorized version available



Dimensions (LxWxH) 160x5.5x85mm

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 <sub>S</sub>	Voltage Supply	35	V dc
I <sub>S</sub>	Current Supply	25	A dc
T <sub>stg</sub>	Storage Temperature Range	-20 + 80	°C
T <sub>c</sub>	Operating Base Plate Temperature <sup>1</sup>	0 + 75 <sup>2</sup>	°C
ψ	VSWR max	3:1 all phase angle	-
	Max input power	See note <sup>3</sup>	-
	Max cw output power (continuous work)	250	Watt

### ELECTRICAL SPECIFICATIONS (Base Plate T. = 45 °C, 50Ω loaded, V<sub>d</sub> = 30 V)

Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typ.	Max	
BW	Bandwidth	P <sub>out</sub> = 250 W (CW)	170		230	MHz
G <sub>p</sub>	Power gain	P <sub>ref</sub> = 250 W (CW)	13.5	14.5	-	dB
P <sub>out</sub> – 1dB	Power Output @ 1dB Compression	Referred to P <sub>out</sub> = 60W (CW)	450	500	-	W
I <sub>q</sub> *	Quiescent Current	P <sub>out</sub> = 0 W – Total * <sup>4</sup>	-	-	6.0	A
I <sub>tot</sub>	@ P <sub>Max</sub>	350W Ps Black Level Audio + Video	-	-	22	A
I <sub>rl</sub>	Input return loss	P <sub>out</sub> = 250 W CW	16	20	-	dB
ψ	Load mismatch	P <sub>ref</sub> = 250 W CW, f = 230MHz, load VSWR = 2:1, all phase angles	No degradation in P <sub>out</sub>			
Gr	Gain Flatness	P <sub>ref</sub> = 250 W CW, BW: 170-230MHz		±0.5	±1	dB
η	Drain Efficiency	P <sub>out</sub> = 300 W <sup>5</sup> (CW)	40	45	-	%
	P <sub>out</sub> separate ampl.	Sync. Compression < 1dB without correction	400	450		Wps
	P <sub>out</sub> common ampl.	Red field IMD < -45 dBc without correction	360	380		Wps
	P <sub>out</sub> DVB-T	Shoulder < -27 dB	80	100		Wrms
	P <sub>out</sub> DAB	P <sub>out</sub> 170Wrms without precorrection	-27	-30		

<sup>1</sup> 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.

<sup>2</sup> **Warning:** The base plate temperature must be 75 °C max, using an appropriate Heatsink.

<sup>3</sup> The input power must not exceed +6dB, for 1 microsec., the nominal input power referred to the 1dBp power output.

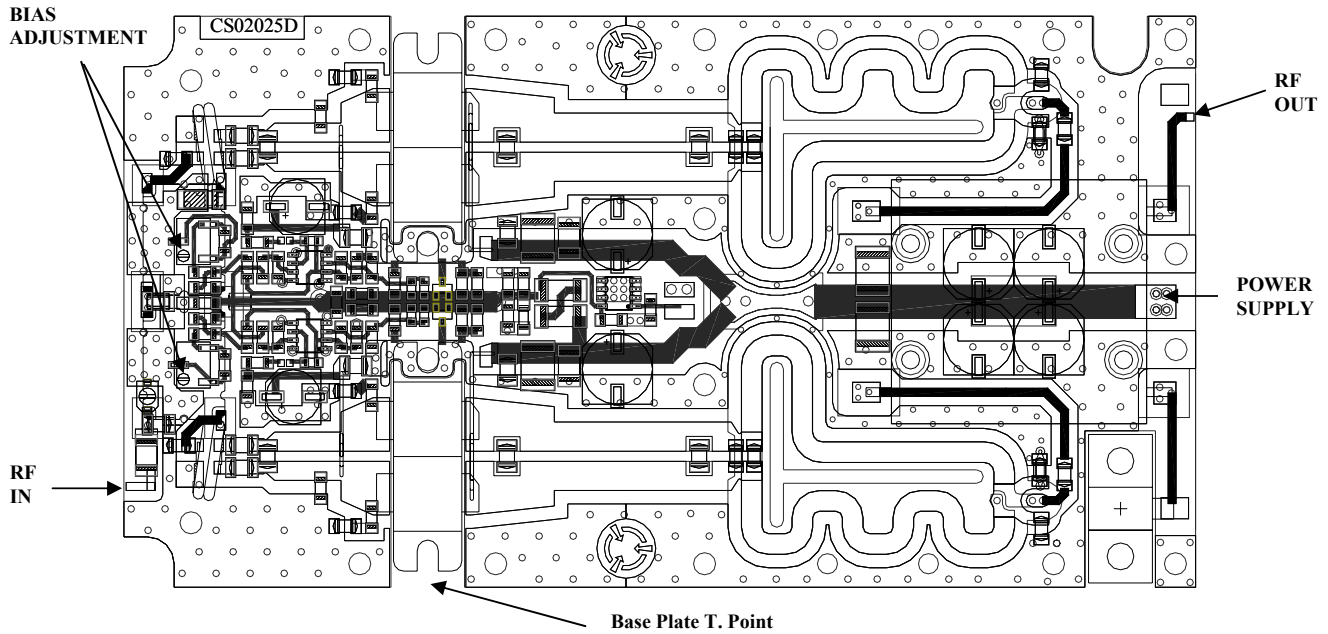
<sup>4</sup> The Quiescent Current is set at typical value, in factory. This parameter can be adjusted by the final user depending on the applied signal and/or frequency and output power (See Application note ING01). (**Warning:** Do not exceed the specified max I<sub>q</sub> value).

\* Depending of handling signal (analog /digital)

<sup>5</sup> Do not keep the amplifier working at this P<sub>out</sub> for more than one minute

Contact Res-Ingenium, +39 0763 316333 Fax +39 0763316002- or visit [www.res-ingenium.com](http://www.res-ingenium.com) for a complete listing.

## THV450C Layout and Connections<sup>6</sup>



## HEATSINK MOUNTING/HARDWARE

### 1. HEATSINK TOOLING

- Planarity: typical value 0.8
- Roughness: better than 0.03 mm

### 2. THERMAL COMPOUND

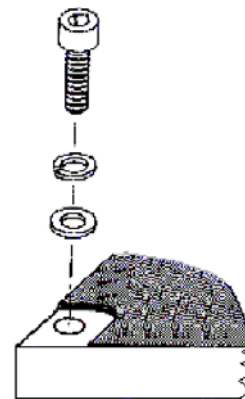
- Paste with silicones
- Thickness: optimum between 0.06 mm and 0.15 mm, on the whole back surface of the amplifier.

### 3. SCREWS

- 8 x M3 - Socket head cap screws.
- 8 Split lock washers WZ Ø3 + 8 Flat washers ZU Ø3.
- The recommended Torque is 12 Kg/cm for M3 type screws and 10 Kg/cm for M2.5 type screws.

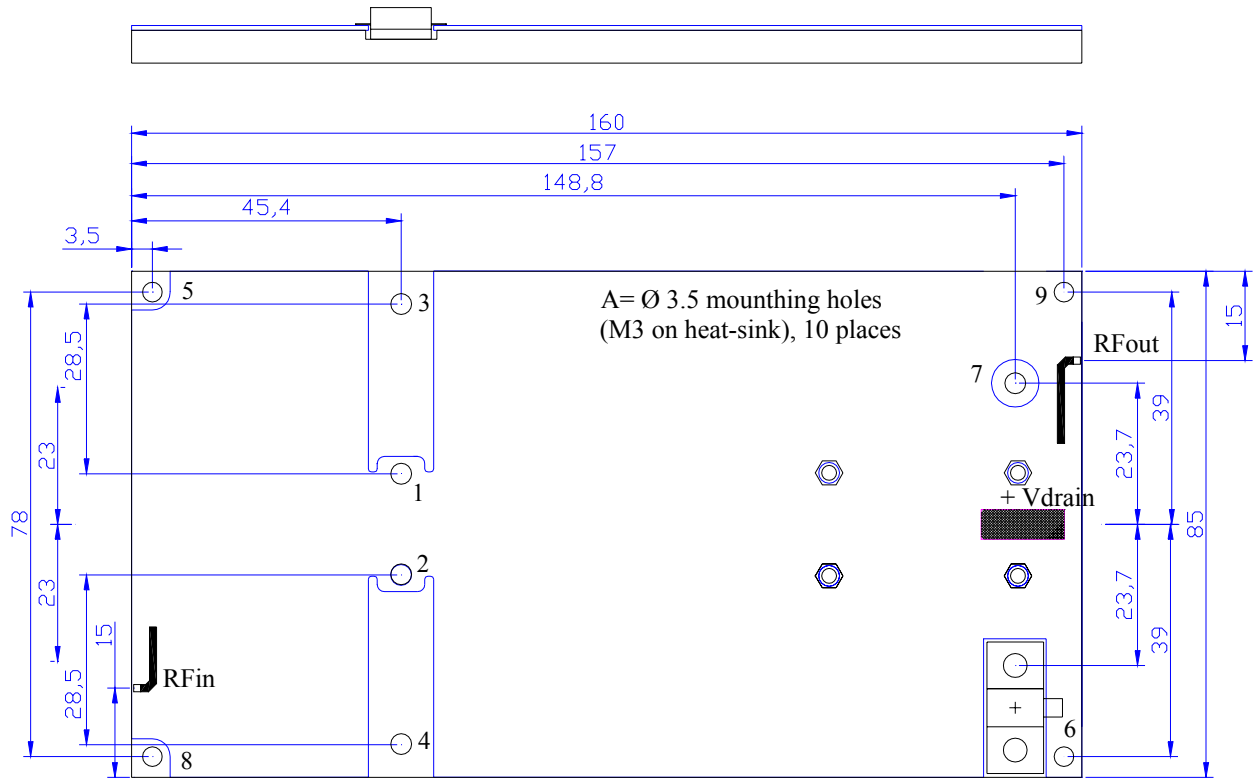
### 4. TIGHTENING ORDER

- See next figure:



<sup>6</sup> RES-Ingenium provides the pallet without unbalance load resistors (input 50 Ohm 20W/output 50 Ohm 100W. Dimensions: 13 x 6.3mm, about, 1 hole).

Contact Res-Ingenium, +39 0763 316333 Fax +39 0763316002- or visit [www.res-ingenium.com](http://www.res-ingenium.com) for a complete listing.



\*Dimensions in mm.

---

**Res-Ingenium**

Via dei Vasari, 17  
Zona Industriale Fontanelle di Bardano  
05018 Orvieto (TR)  
Italy  
Telephone: +39 0736 316333  
Fax: +39 0763 316002  
Internet: res-ingenium.com  
E-Mail: [map@res-ingenium.com](mailto:map@res-ingenium.com)

**IMPORTANT NOTICE**

RES-INGENIUM RESERVE THE RIGHT TO MAKE CHANGES TO THE PRODUCT(S) OR INFORMATION CONTAINED HEREIN WITHOUT NOTICE. RES-INGENIUM 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. RES-INGENIUM 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 form or by any means without the prior written consent of Res-Ingenium.

**WARNING**

RES-INGENIUM PRODUCTS ARE NOT INTENDED FOR USE IN LIFE SUPPORT APPLIANCES, DEVICES OR SYSTEMS. USE OF A RES-INGENIUM PRODUCT IN ANY SUCH APPLICATION WITHOUT WRITTEN CONSENT IS PROHIBITED.