

PRELIMINARY

600W pep –27dBc min LDMOS Technology

Designed for analog and digital TV transposers and transmitters, this amplifier incorporates micro-strip technology and push-pull LDMOS to enhance ruggedness and reliability. Patented bias control and matching circuit.

- 470 - 862 MHz
- (28 ±32 Volt) 30 Nominal
- Input/Output 50Ω - 50Ω
- P_{out} : 600W pep –27 dBc min (two-tone test 6MHz spacing)
- Gain : 13 dB min; 15 dB typ
- Class AB
- Devices: PTFA043002E or equivalent
- Connectorized version available
- No mechanical trimmers - maximizes MTBF



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

Symbol	Parameter	Value	Unit
V _S	Voltage Supply (without RF)	35	V dc
I _S	Current Supply	40	A dc
T _{stg}	Storage Temperature Range	-20 + 80	°C
T _c	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	400	Watt

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

Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typ.	Max	
BW	Bandwidth	P _{out} = 300 W (CW)	470		862	MHz
G _p	Power gain	P _{ref} = 200 W (CW)	13	15	-	dB
P _{out} – 1dB	Power Output @ 1dB Compression	Referred to P _{out} = 80W (CW) ⁴	400	550	-	W
I _q *	Quiescent Current	P _{out} = 0 W – Total * ⁵	-	-	4.0	A
I _{tot}	@ P _{Max}	450W Ps Black Level Video + Audio	-	-	30	A
I _{rl}	Input return loss	P _{out} = 300 W CW	16	20	-	dB
ψ	Load mismatch	P _{ref} = 300 W CW, f= 862MHz, load VSWR = 2:1, all phase angles	No degradation in Pout			
G _r	Gain Flatness	P _{ref} = 300 W CW, BW: 470-862MHz		±0.5	±1.5	dB
η	Drain Efficiency	P _{out} = 400 W ⁶ (CW)	40	45	-	%
	Pout separate ampl.	Sync. Compression < 1dB without correction	450			Wps
	Pout common ampl.	Pout 450W ps common ampl. dual sound, with Red Field sound 1 @ -13dB and sound 2 @ -20dB without precorrection	-46	-50		dBc
	Pout DVB-T	Pout 120Wrms without precorrection	-28	-32		dBc

¹ A temperature sensor is mounted on the circuit to have an immediate working temperature measurement.

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 Max 300W CW continuous work

⁵ 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 LDMOS Technology Note). (**Warning:** Do not exceed the specified max I_q value).

* Depending of handling signal (analog/digital)

⁶ Do not keep the amplifier working at this Pout for more than one minute

Contact Res-Ingenium, +39 0763 316333 Fax +39 0763316002- or visit www.res-ingenium.com for a complete listing.



SMART BIAS SPECIAL FEATURES

- No mechanical trimmers to increase reliability
- Unmatched stability of the rest current (I_q) in the range of -30 to +100 deg.C (flange temperature)
- Built-in over temperature protection
- Built-in soft start for switch-on at extreme low temperatures (for outdoor application)
- Bias factory settings stored in memory

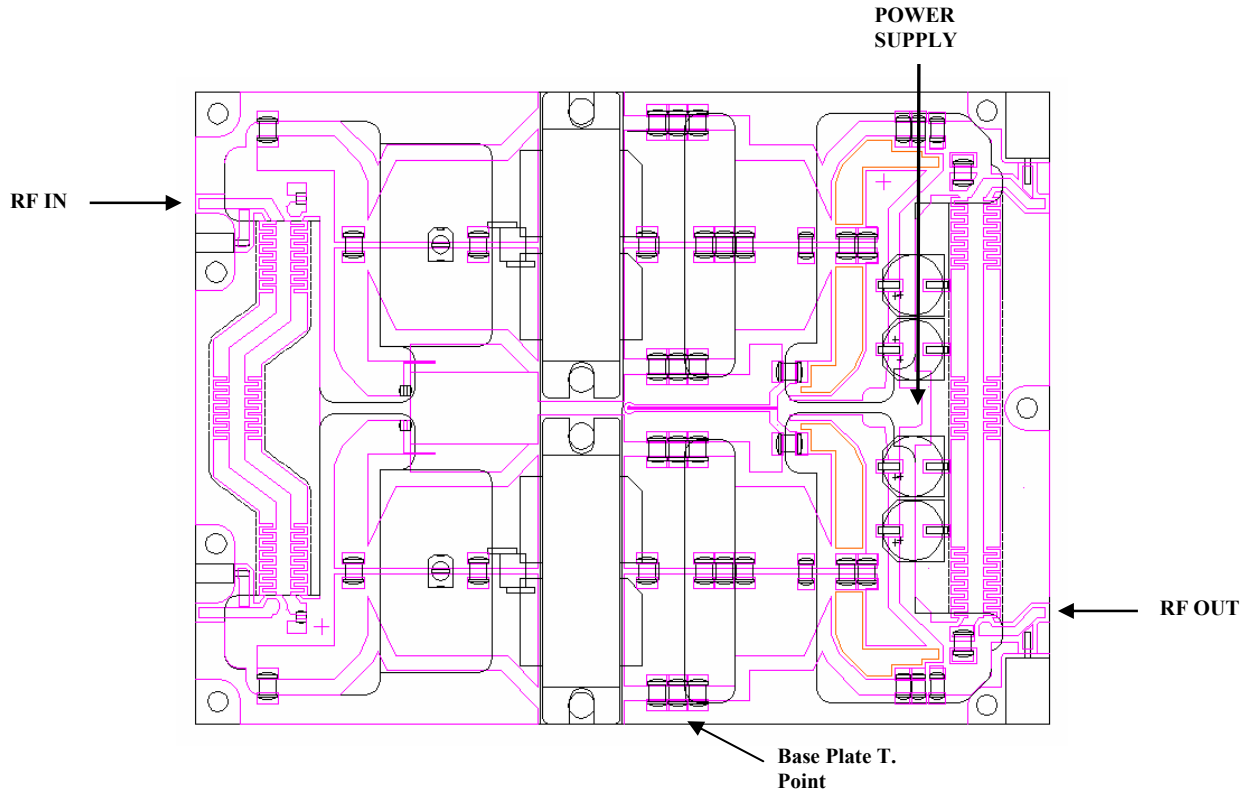
IR COMMANDS

- Current control (Left and right power device)
- Shut down (pallet switch-off)
- Look-up table bias values activation via IR port (Bias factory settings stored in memory)

Note

IR bias control unit (shown above with LDU601C) is available upon request.

LDU601C Layout and Connections⁷



NOTE. In response to customer request, this pallet has been designed to allow two different positions of IN/OUT connections: /TL = connection on the left side, /TR = connection on the right side.

HEATSINK MOUNTING/HARDWARE

1. HEATSINK TOOLING

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

2. THERMAL COMPOUND

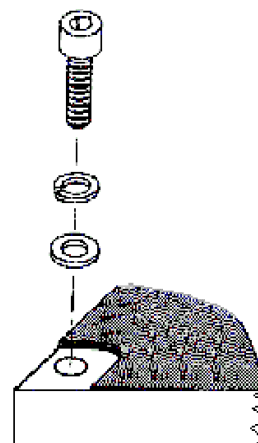
- Paste with silicones
- Thickness: optimum between 0.06 mm and 0.15 mm, on the whole back surface of the amplifier.

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 (10.5 in . lbs).

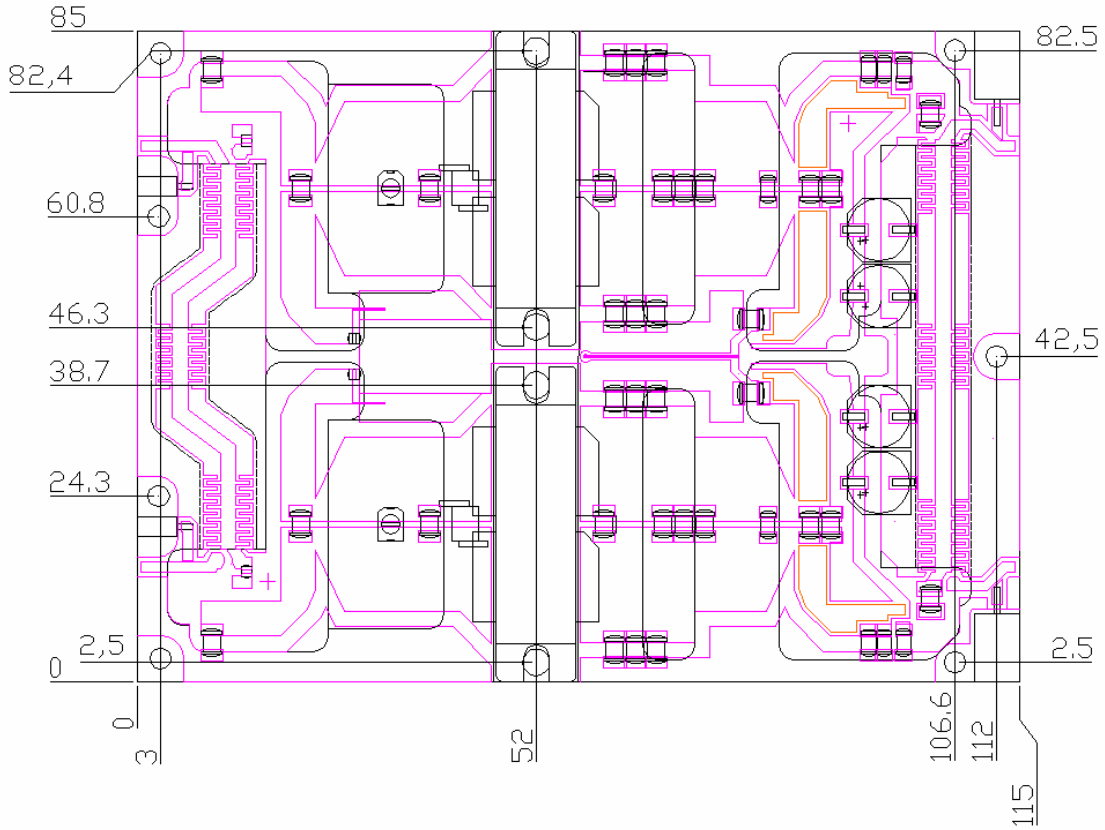
4. TIGHTENING ORDER

- See next figure:



⁷ RES provides the pallet without unbalanced load resistors (input 50 Ohm 20W/output 50 Ohm 100W. Dimensions: 13 x 6.3mm, about, 1 hole).

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Dimensions in mm.

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

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