

Revision 0.b Release Date July 24, 2007
Revision Notes Updated Mechanical Specifications

This document applies to 4206 and 3692 and 5208

Technical Specifications Summary

Frequency Range:	470 - 860 MHz	Gain:	40.5dB
P1dB:	70 Watts CW	Efficiency:	10%
Class:	A	Temperature Range:	-18 to 65°C
Supply Voltage:	32.0V	Max VSWR:	10:1

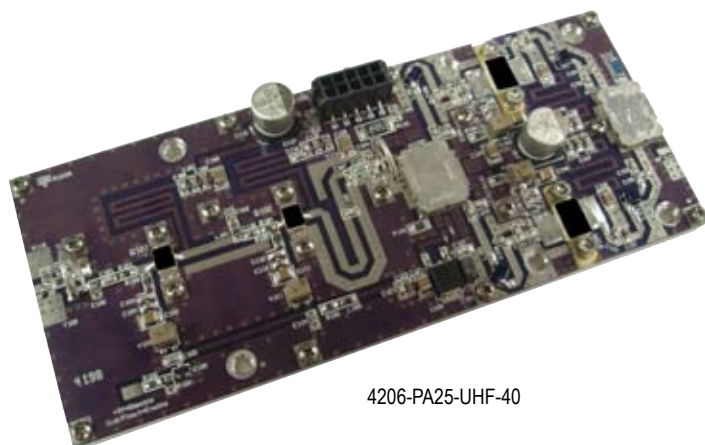
Amplifier General Description

The **PA25-UHF-40** is a three stage ultra linear class A integrated TV linear amplifier designed for the television integrator in mind. This fourth generation LDMOS powered amplifier is designed to satisfy both digital and analog applications. Whether your application requires up to 50W of output power for use in LPTV applications or 1 - 2 W CW for DVB or ATSC driver applications, this family of driver amps is the perfect fit. Available also in 25 and 12 dB gain versions. This amplifier is a direct replacement for the *PA10-UHF-40* and may be operated under those bias and voltage conditions.

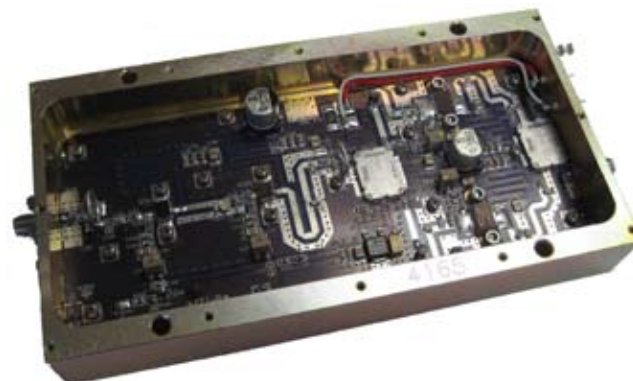
- No RF assembly or circuit tuning!
- 25 Watts of Linear Output Power!
- 40dB typical gain at Channel 69!
- Combined **Video and Aural** at full rated power!
- Proper heatsinking required

This amplifier is a direct replacement for the PA10-UHF-40 (Mosfet versions). It may be ordered and operated as a 10W amplifier and should be ordered as P10-UHF-40 in that case.

Amplifier Picture



4206-PA25-UHF-40



5208-PAB25-UHF-40, shown with cover removed



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Parameter	Min	Typ	Max	Units	Notes
Frequency	470		860	MHz	
P1dB	60	71	85	W, CW	25W Min for PA10-UHF-40
Linear Power Out	16	30		W	8W Min for PA10-UHF-40
IMD3		-45		dBc	For 2 tones, 1MHz spacing, 10 W PEP
Power Input		1		W, CW	
Gain	39	40.5		dB	
Vsupply		32		V, DC	
Drain Current		4.5		A, DC	2.75A For PA10-UHF-40
Input VSWR		1.2:1	1.5:1		
Output VSWR			1.5:1		
Gain Variation		±1.5		dB	Unit to unit
F2 Second Harmonic		-30		dBc	
F3 Third Harmonic		-20		dBc	
Baseplate Operating Temperature	-18		+65	°C	

Physical Dimensions 2.5" x 6.0" x 0.7" / 7cm x 15cm x 2cm

All specifications valid for 50 Ω output load, $V_{sup} = +32VDC$, $I_{dq} = 4.5A$ (2.75A for PA10-UHF-40)

Absolute Maximum Ratings

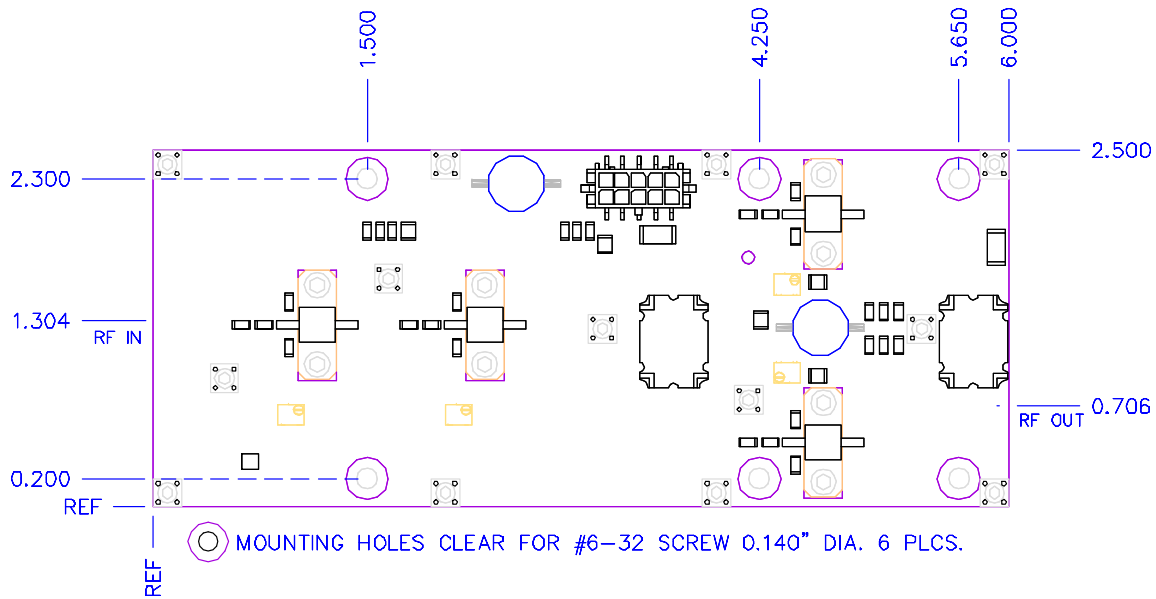
Parameter	Value	Units	Notes
Maximum Operating Voltage	+34.0	VDC	
Stable Operating Voltage	+28.0 to +32.0	VDC	
Maximum Bias Current, Q1	0.50	A, DC	Factory set to 0.25A (both versions)
Maximum Bias Current, Q2	0.50	A, DC	Factory set to 0.50A (both versions)
Maximum Bias Current, Q3, Q4	2.00	A, DC	Factory set to 2.00A (1.00A PA10-UHF-40)
Maximum Drain Current	5.0		
Load Mismatch Survival	10:1		
Storage Temperature	-40 to +105	°C	
Maximum Operating Baseplate Temp	+70	°C	

Features, Auxillary Functions

- ◆ Current Sense, Each Transistor
- ◆ Connectorized Power and I/O
- ◆ TTL Compatible Disable



This diagram applies to 4206 and 3692 only.



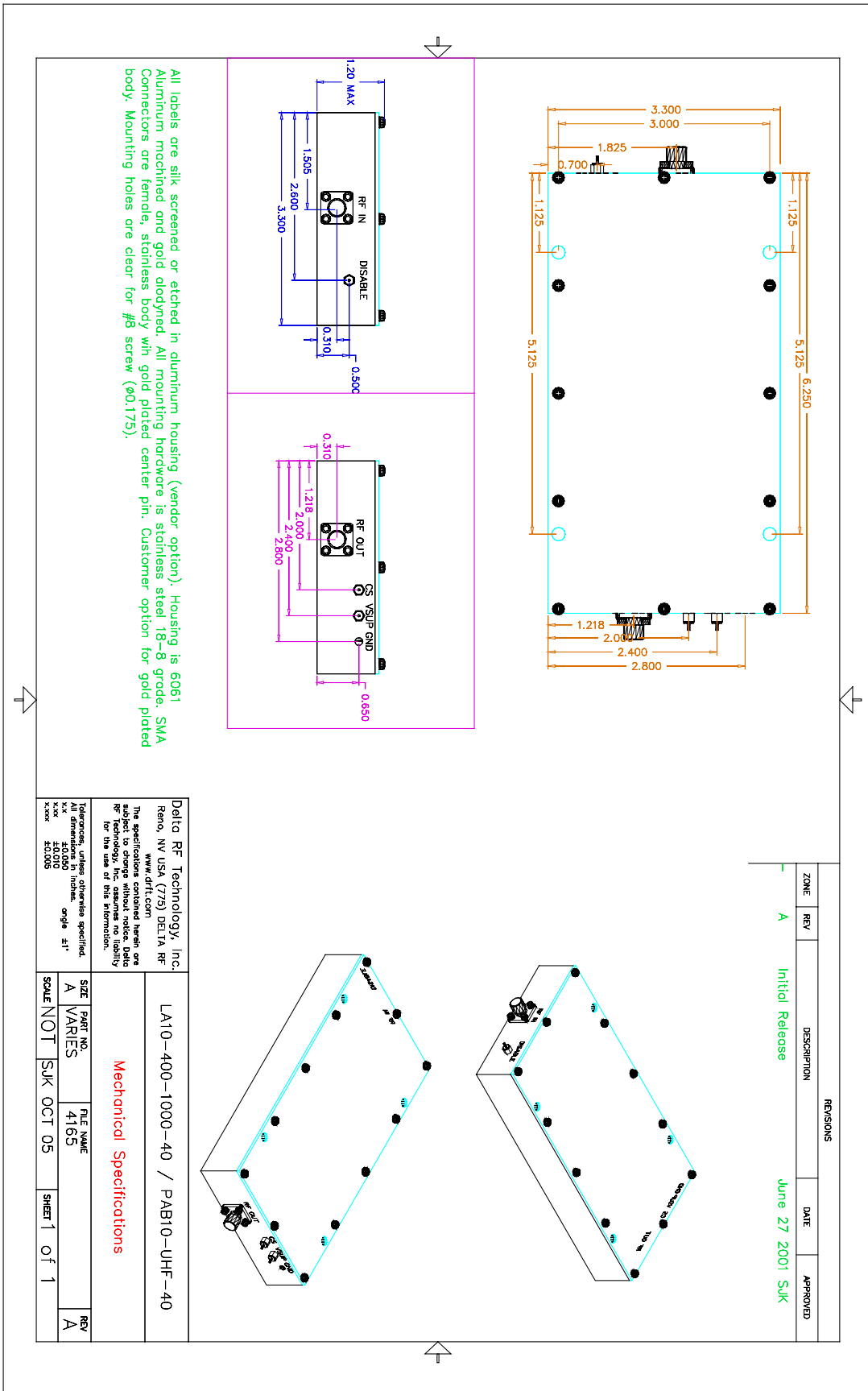
Tips for Mechanical Mounting:

- 1 All holes are clear for #6 Screw. Stainless Steel mounting hardware is recommended, grade 18-8 or better. A lock washer of same material should also be used.
- 2 Ensure mounting surface is flat to better than 0.003" / "
- 3 Use a thin layer of thermal compound on the backside of the PA - no more than 0.001" - 0.002" thickness!
- 4 Torque all screws to 10-12 in-lbs

(Please note - first production release of amplifier does not feature connectorized Power plug)



This drawing applies to 5208 only.



All labels are silk screened or etched in aluminum housing (Vendor option). Housing is 6061 Aluminum machined and gold electrolyzed. All mounting hardware is stainless steel 18-8 grade. SMA Connectors are female, stainless body with gold plated center pin. Customer option for gold plated body. Mounting holes are clear for #8 screw (90.175).

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Part No. LA10-400-1000-40 / PAB10-UHF-40		REV A	
Mechanical Specifications		REV A	
SIZE	PART NO.	FILE NAME	REV
A	VARIES	4165	A
SCALE	NOT	SJK	OCT 05
SHEET 1		OF 1	

ZONE	REV	DESCRIPTION	DATE	APPROVED
A		Initial Release	June 27 2001	SJK



Ordering Information:

Order Code	Description	DRFT Reference
PA25-UHF-40	25W LDMOSFET UHF Television Ultra Linear Amplifier Pallet	4206
PAB25-UHF-40	Amplifier in Enclosure	5208
PAB10-UHF-40	10W LDMOSFET UHF Television Ultra Linear Amplifier Pallet	3692

Options

-A11	SMA Female Connectors In / Out	0201
-A12	Heat Sink Option	0202
-A13	Heat Sink Option with DC Fan, pre wired	0203
-A14	Ruggedized for vibration	0204
-A15	Wire harness, 1' length, 10 wires for pallet amplifier only (NON-FM)	0205
-A16	Wire harness, customer specified length for pallet amplifier only	0206
-T2	Extended Burn In	0271
-T3	Extended Data Collection	0272

Standard Pallet Options:

SMA Female Connectors, Input and Output. Stainless Body, Gold Center pin, 4-hole SMA bolted to pallet amplifier edge through bottom two holes located at amplifiers RF IN and RF OUT locations. All stainless steel hardware.

Enclosure- all aluminum machined enclosure available for most pallet amplifiers. Alodined aluminum, alloy 6061-T6. SMA Female input and output RF connectors. Supply voltage and ground through solder / feedthrough connections. Module must be bolted to appropriate heatsink.

Heat Sink - aluminum extruded heat sink, black anodized. Pallet amplifier or module will be bolted to heatsink. Customer will be required to provide adequate airflow.

Heat sink with fan - aluminum extruded heat sink as above, with included fan bolted to push air through the heat sink. Depending on heat requirements, a second fan may also be provided on the output of the unit.

Ruggedized - all screws have threadlocking compound applied, and all flying components are staked and attached to base. Designed to withstand MIL-STD-810E 514.4 Category 8.

Power Connector - a 10 pin molex connector is used on all standard pallet amplifiers to supply +Vsup and Ground connections, as well as hi-side current shunts for current monitoring. Delta RF offers the mating connector with 1' wires - Red (Vsup), Black (Ground), Yellow (Current monitor). All wires are 18 gauge teflon insulated wires. Customer may optionally specify wire length and wire color.

Testing Options:

Standard - includes power test and brief burn - in under laboratory conditions. Printed test report gives graph of Gain and Input Return Loss at rated P1dB and Voltage Conditions. Report shows pass/fail criteria. All amplifiers include this test.

Extended burn in - 8-hour burn in at P1dB with standard test run at completion. Unit is monitored during test and any discrepancy reported. Standard test data is included.

Extended data collection - Standard data is run and included. Detailed data is taken point by point giving the customer 25 - 70 frequency points, depending on the amplifier model. For each frequency point, data is generated to include gain, input power, input return loss, current, second harmonic, third harmonic, efficiency, audio distortion.

Other tests available - Vibration, Temp cycling, Shock. Please inquire.

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