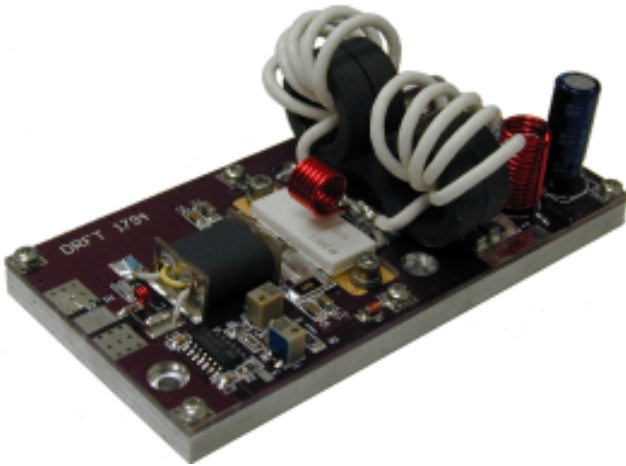




P125-30-120-20

High Power RF Amplifiers and Accessories

125W PEP 30- 120 MHz Linear Communications Amplifier Pallet



The P125-30-120-20 pallet amplifier offers excellent broadband operation in a cost-effective package. Using all gold-metallized MOSFET construction, this amplifier offers rugged performance from 30- 90 MHz, with extended operation possible to 120MHz. Designed for communications applications, -30dBc IMD performance is achieved at 100W minimum from 30 to 90MHz and above!

- **NO RF Assembly or Circuit Tuning!**
- **20dB Typical Gain 30-120MHz!**
- **-30dBc Typical IMD3 at 125W**
- **Amplifier Disable Line**
- **Operation from +24V to +32V**

Specifications

$T_{base} = 25C, V_{ds} = +28Vdc, I_{dq} = 1.0A, 30-120MHz$

Parameter	Min	Typ	Max	Units
Fundamental Pout, PEP <small>2-tone, 30-90MHz, IMD3 -30dBc, 10kHz Tone Spacing</small>	100	125		Watts
Power Output, P1dB <small>30-120MHz, CW</small>	100	125		Watts
Power Input		2.0	10.0	Watts
Power Gain <small>30-90MHz</small>		20		dB
Drain Current		8		A
Input VSWR		1.15:1	1.3:1	
Insertion Phase Variation <small>(unit to unit)</small>		±5		°
Power Gain Variation <small>(unit to unit)</small>		±1		dB
F2 Second Harmonic		-35		dBc
F3 Second Harmonic		-15		dBc
Baseplate Operating Temp	0		+70	°C
Physical Dimensions	2.0" x 4.0" x 1.5" / 5cm x 10cm x 4cm			

Absolute Maximum Ratings

Parameter	Value	Units
Maximum Operating Voltage	+32.0	V DC
Stable Operating Voltage	+24.0 to +32.0	V DC
Maximum Bias Current <small>Factory set to 1.0A.</small>	3.0	A
Maximum Drain Current	12	A
Load Mismatch Survival <small>At all phase angles with the base plate held at 40C and Id current limited to 12A, 2 seconds maximum</small>	5:1	
Storage Temperature	-40 to +105	°C
Maximum Operating Baseplate Temperature	+70	°C

Features Include:

- Temperature Compensated Bias
- Amplifier Disable
- Broadband Operation

web <http://www.drft.com> • email : sales@drft.com • 1.775.DELTA RF • FAX 1.775.DELTA FX

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The specifications contained herein are subject to change without notice. Delta RF Technology, Inc. assumes no liability for the use of this information.

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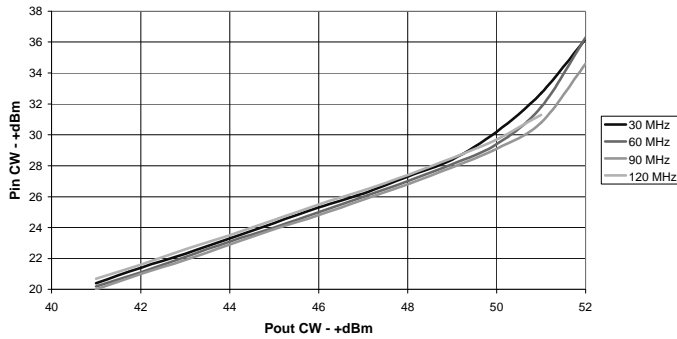


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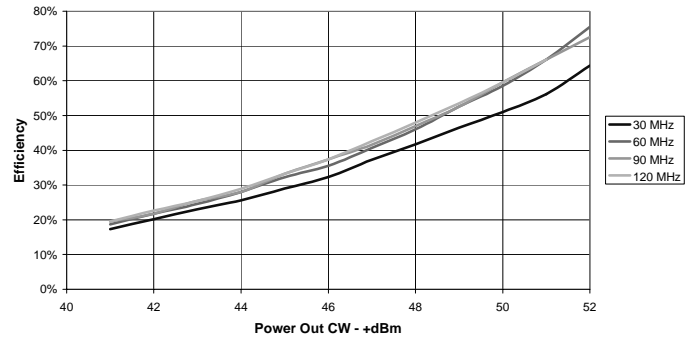
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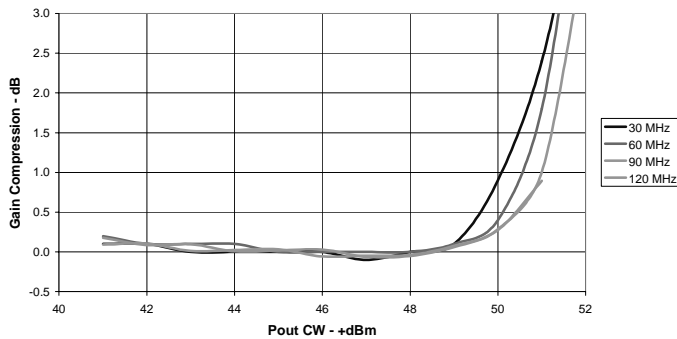
Pin vs. Pout



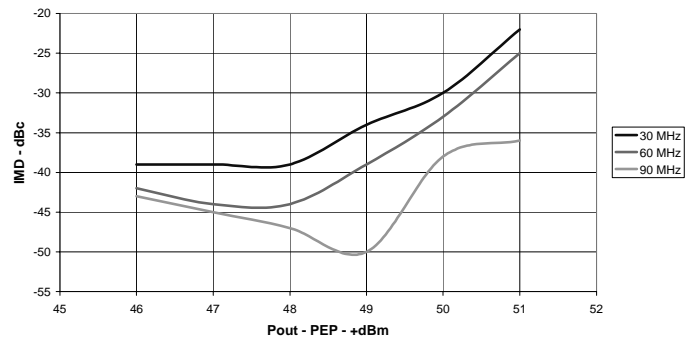
Efficiency vs. Power Out



Gain Compression



2 Tone IMD, 10kHz Tone Separation



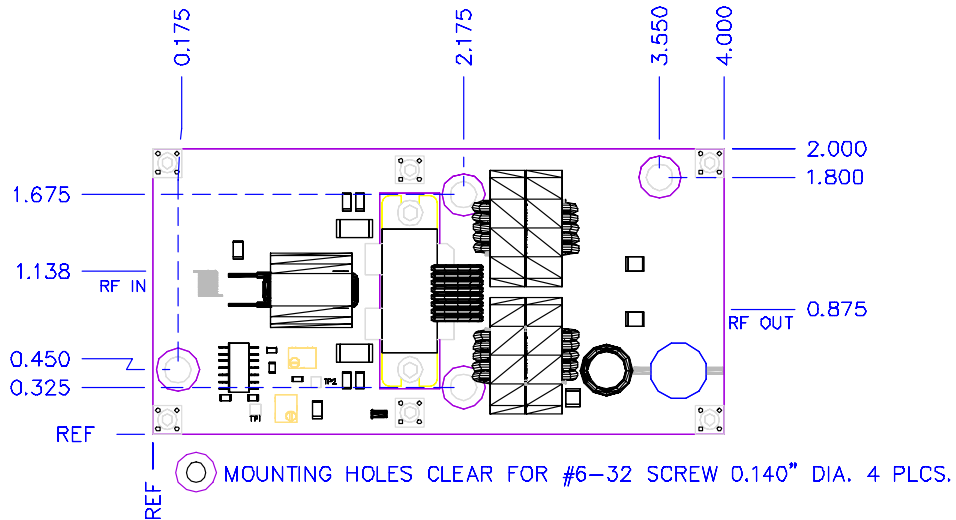
All data presented taken at default conditions - $V_{sup} = +28V$ DC, $I_{dq} = 1.0A$, baseplate temperature 25C, into a broadband 50 ohm load. All data is typical - actual performance may vary depending on installation and operating parameters.



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Tips for Mechanical Mounting:

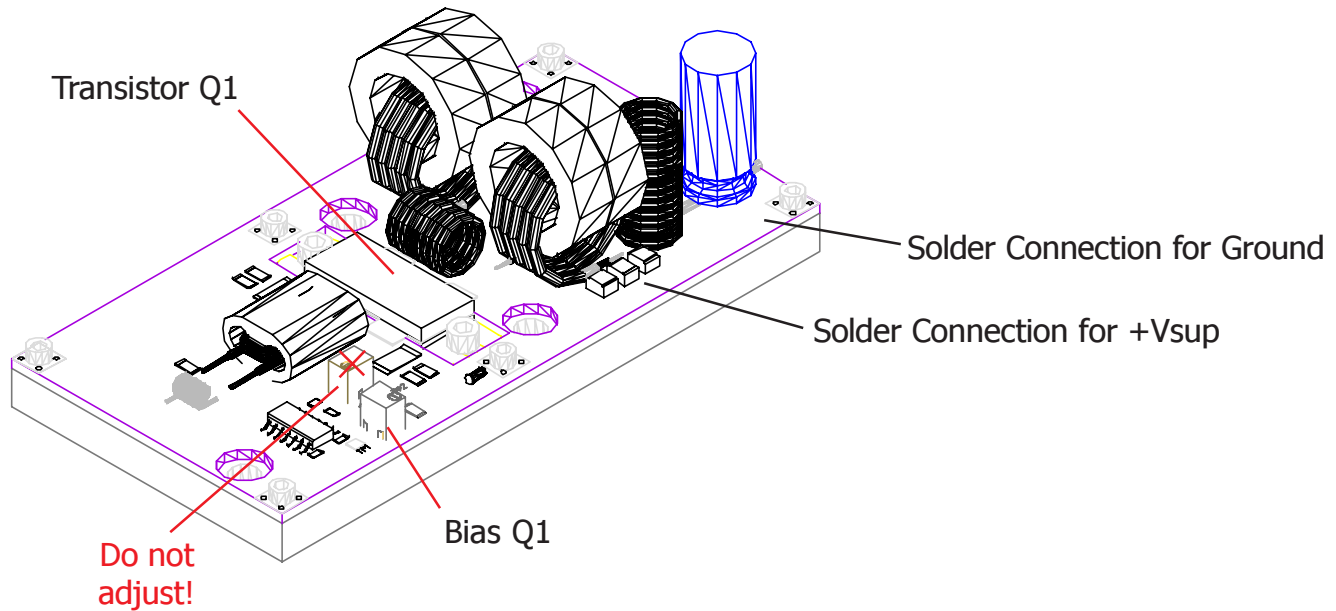
- 1 All holes are clear for #6 Screw. Stainless Steel mounting hardware is recommended, grade 18-8 or better. A lock washer of same material should also be used.
- 2 Ensure mounting surface is flat to better than 0.003" / "
- 3 Use a thin layer of thermal compound on the backside of the PA - no more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



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Connections:

Connect amplifier to +Vsup and Ground using solder pads indicated. 14 gauge wire minimum is recommended for supply and ground. In all cases, use of teflon insulated wire is highly recommended.

Connect coaxial cable to input and output RF connections (semi rigid or flexible) using best RF practices. Ensure output cable is of sufficient power handling capacity. Pads are provided for ground on co-axial connections.

'TP2' has been provided as an amplifier shutdown control. To disable the amplifier, ground this point. For proper operation, leave this pad open circuit (or float). Applying a positive voltage will damage the amplifier.

Amplifier Startup

+Vsup should be applied to amplifier with no drive applied. The system must allow drain voltage to reach +26V minimum before applying drive or damage can result to the amplifier and void warranty. This typically takes between 2 - 10 seconds and should be verified by the system integrator.

Bias Current:

Bias current is controlled via temperature compensated bias system that uses a hermetically sealed glass thermistor as reference. If excessive air is directed above the amplifier such that the thermistor is cooled below the temperature of the baseplate, this circuitry may not perform properly. Bias has been pre-set at the factory to 1.0A Q1 +28.0V DC. This bias point has been selected to offer the optimum balance between IMD performance, efficiency, and gain. If the bias point is changed, take great care not to exceed the bias listed on page 1 - Absolute Maximum Ratings.

Fault Condition - Bad VSWR

In the case of an output fault, the amplifier may draw excessive current. Care should be taken to current limit the power supply to prevent damage to the amplifier. Grounding TP2 will disable the amplifier and prevent further damage to the amplifier.

Amplifier Shutdown

To prevent damage to amplifier and surrounding systems, drive should be removed prior to powering down PA. This can also be accomplished by applying ground to TP2. Power can then safely be removed from PA.

Miscellaneous:

Placing noisy analog or digital systems, such as additional control circuitry, directly over the top of transistors or RF path can cause improper operation. Care should be taken to locate these components where they will not cause interference.