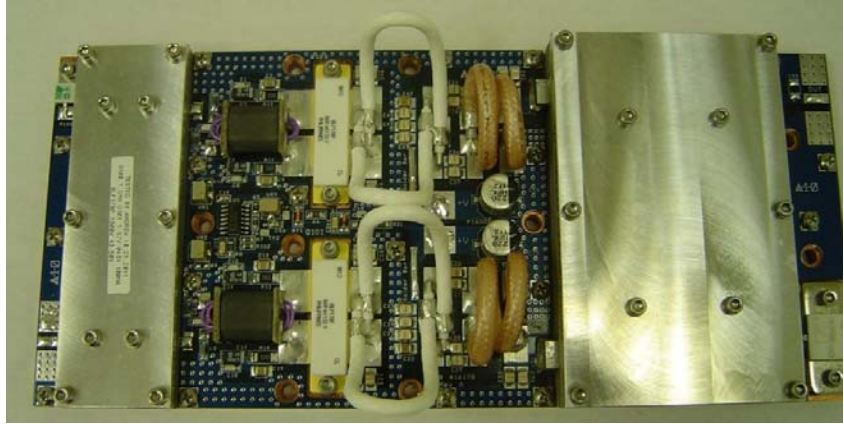


Model: P1600FM49 Pallet Amplifier Module

This amplifier module is ideal for driver and final output stages in analog and digital FM broadcast equipment.

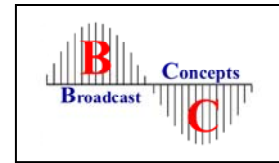
- **87.5 – 108MHz**
- **43 - 50Volts**
- **Input/output 50 ohms**
- **Pout: 1600W minimum**
- **25dB Gain (1600W)**
- **Thermal Tracking Bias**
- **Highest power density**
- **NXP BLF178P Mosfet**



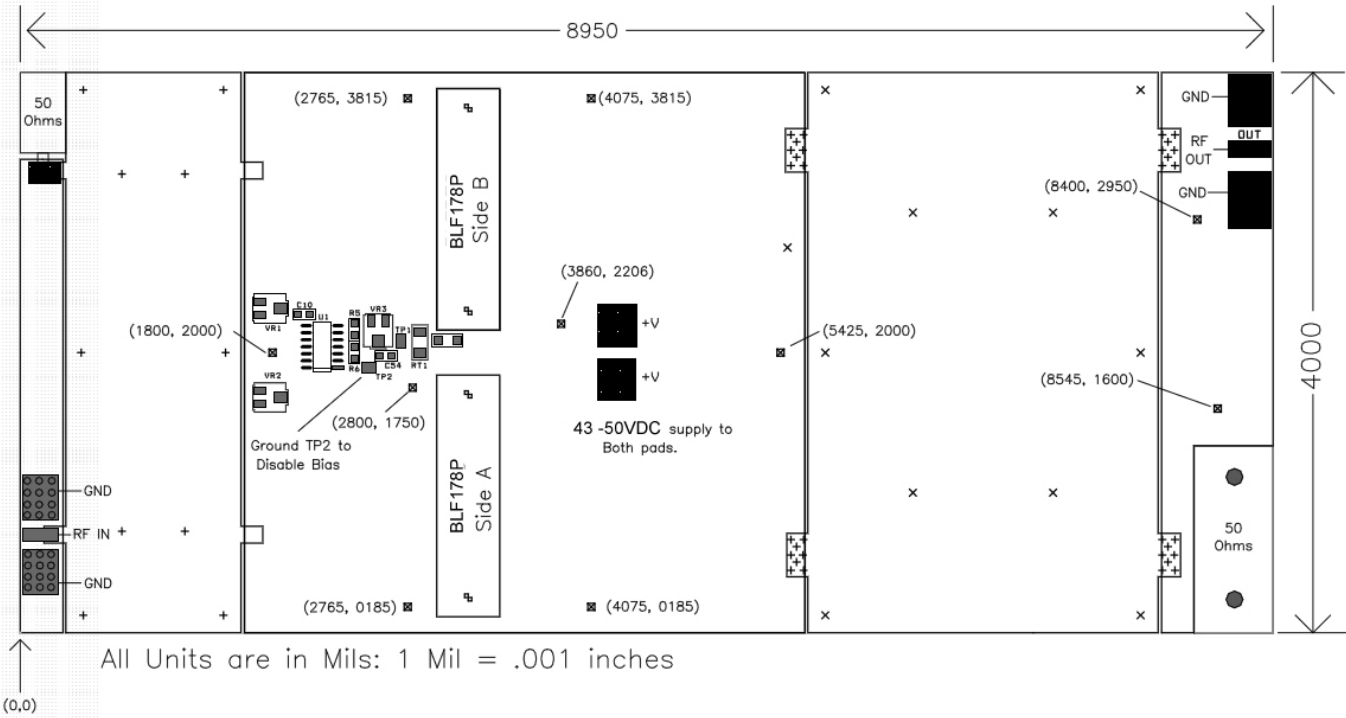
Dimension (L x W x H inch) [8.95" x 4.00" x 1.5"]

Absolute Maximum Ratings (T case = 25C)			
Symbol	Parameter	Value	Unit
Vs	Drain voltage supply	50	V DC
Is	Supply Current	49	A dc
VSWR	Load Mismatch (All phase angles, Id=48A, TC=+55C)	3 to 1	
Tstg	Storage temperature range	-40 to +85C	Celsius
Tc	Base plate operating temperature	-40 to +65C	Celsius
RF IN	RF Input	5.5	Watts
RF OUT	RF Output	1800	Watts

Electrical Specifications (T case = 25C, 50 ohm loaded, VS=43V bias=50ma)				
Characteristics	min	typ	max	unit
Operating Frequency range	87.5		108	MHz
Fundamental output power	n/a	1600	1800	W
Power Input	n/a	3.5	4.5	W
Input Return Loss		-23		dB
Power Gain (1500w output)	24	25		dB
Collector Efficiency	72	76	78	%
Collector Current (1500w output)	43.0	45	45.5	A dc
Insertion Phase variation (unit to unit)		+/-3.5		degrees
Power gain (unit to unit)		+/-0.75		dB
F2 Second Harmonic		-30dB		dB
F3 Third Harmonic		-25dB		dB
Transistor Bias Current: Factory set to 100ma @48V per fet. Adjustment is not required	100	100	100	ma dc



Amplifier Drawing



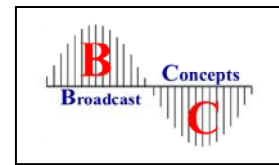
Heatsink Mounting/Hardware

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
- 5 Please use all of the mounting holes.

Use of cooling air on top of pallet to keep output transformers cool is required. Output transformers are rated for continuous operation at 150C. Keep any external circuitry away from input and output transformers to avoid any interference - give at least 1.5" clearance to avoid creating feedback paths.

Warning: Failure to use a proper heat sink will cause the transistors to burn out. This type of failure is not covered by warranty. This product can be ordered with a custom heat sink. Please contact factory for more information.



Theory of Operation:

The NXP BLF178P is a modern high power LDMOS transistor designed for broadcast applications. The transistors are rated for 1200W pulsed operation on 50V supply. Since FM broadcasting is a continuous operating condition the pallet amplifier has been optimized for operation at lower power. The circuit is tuned for 43 to 50 volt operation. Increased ruggedness is possible by operating in the 43 to 45V range.

Do not attempt to operate the pallet above 50 volts. The transistor will over dissipate and may burn out.

Low Pass Filter

Our Harmonic Absorbing low pass filter is ideally suited for use with this product.

Warning: Solid state amplifiers can be easily destroyed! Pay attention to these precautions.

- Do not over drive the amplifier. Exceeding maximum ratings can destroy the transistor.
- Do not run the amplifier into an open circuit. Do not run the amplifier when the SWR is unknown. System integrator must foresee adding VSWR protection if there is a risk that the amplifier will be subjected to high VSWR conditions. This transistor is extremely rugged and it might not fail during a high VSWR event; however, this high ruggedness also increases the risk of fire. Precautions must be taken to make sure that antennas and feed lines can not create a fire.
- Do not allow the amplifier to overheat. Do not let the base plate temp exceed 65C.
- Do not adjust the bias settings without a DC ammeter attached and current limited DC supply.
- Do not use an improper heat-sink. This product can produce 600W of heat in a worst case operating condition. Most aluminum extrusions can not safely dissipate this much heat; therefore, we insist that bonded fin heat-sinks must be the only type considered for this pallet.