

Model BCI-88-108-800 FM 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 - 45 Volts**
- **Input/output 50 ohms**
- **Pout: 800W minimum**
- **25dB Gain (800W)**
- **Thermal Tracking Bias**
- **Highest power density**
- **NXP BLF578 Mosfet**

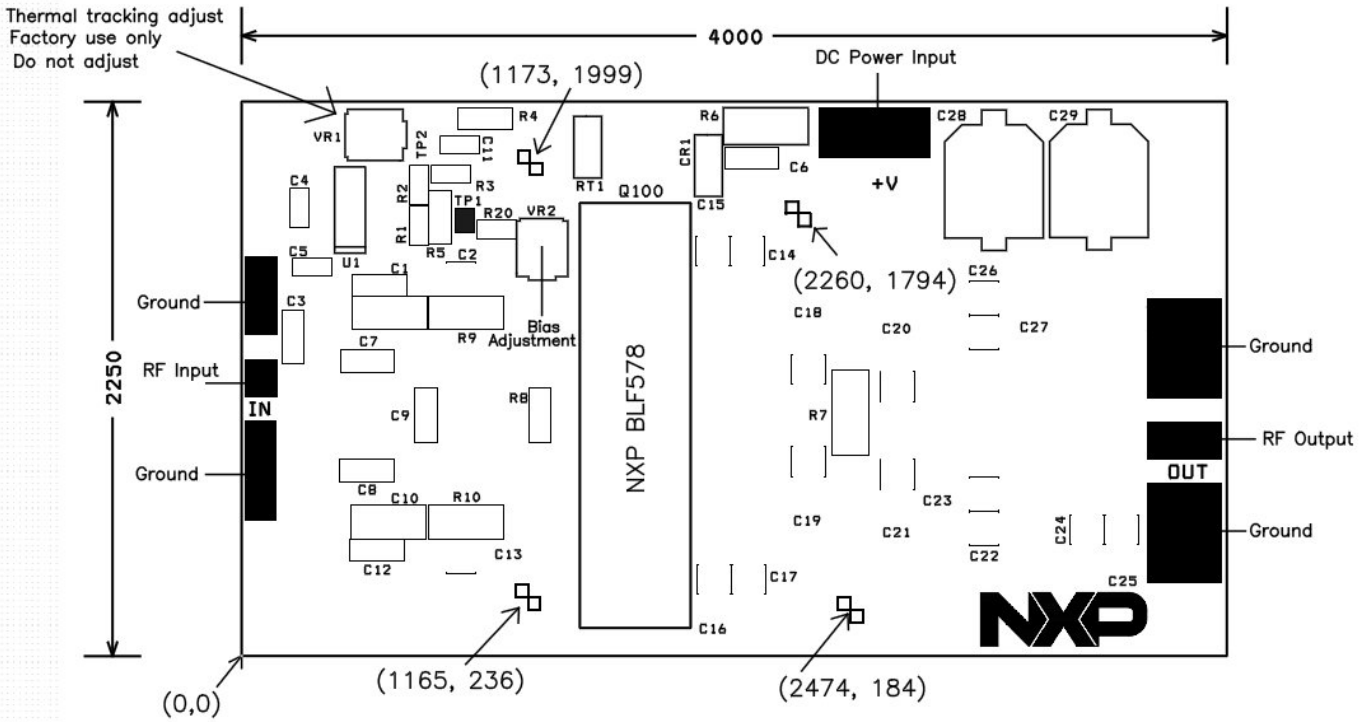


Dimension (L x W x H inch) [4.0" x 1.25" x 1.2"]

Absolute Maximum Ratings (T case = 25C)			
Symbol	Parameter	Value	Unit
Vs	Drain voltage supply	45	V DC
Is	Supply Current	26	A dc
VSWR	Load Mismatch (All phase angles, Id=26A, 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	3.0	Watts
RF OUT	RF Output	850	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	800			W
Power Input		2.5		W
Input VSWR			-14	dB
Power Gain (800w output)	24	25		dB
Collector Efficiency	77	79	82	%
Collector Current (800w output)		23.5		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 35ma @43V. Adjustment is not required	40	50	60	ma dc

Amplifier Drawing



All units are in mils. 1 mil = .001 inches

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

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 BLF578 is the most modern high power LDMOS transistor available for broadcast applications. The transistor is rated for 1200W pulsed operation on 50V supply. Since FM broadcasting is a CW operating condition the pallet amplifier has been optimized for operation at lower power. The circuit is tuned for 43 volt operation which gives the circuit high efficiency and superior electrical ruggedness. The BLF578 is extremely rugged under 43 volt operating conditions.

Do not attempt to operate the pallet above 45 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 800 watts 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.
- Don't attach anything to the bias disable pad TP1 if you don't plan to use this control line. Grounding this pad will remove bias voltage from the transistor.
- Do not adjust the bias settings without a DC ammeter attached.