



46 dB Gain, 25 Watt Psat, 20 MHz to 1 GHz, High Power LDMOS Amplifier, SMA Input, SMA Output, 48 dBm IP3, Class AB

## TECHNICAL DATA SHEET

PE15A5031F

The PE15A5031F is a 25W high gain coaxial power amplifier operating in the 20 to 1000 MHz frequency range. The amplifier offers 25 Watts typical saturated power and 46 dB typical small signal gain with  $\pm 1.5$  dB maximum gain flatness. The amplifier requires typically a +28V DC power supply. The connectorized SMA module is unconditionally stable, operates over the temperature range of 0°C and +50°C, and has a heatsink and fan for proper operation..

### Features

- 20 MHz to 1000 MHz Frequency Range
- Psat 25 Watts typ
- Small Signal Gain: 46 dB min
- Gain Flatness  $\pm 1.5$  dB max
- IP3 48 dBm typ
- 50 Ohms Input and Output Matched
- Unconditionally Stable
- Regulated Supply
- Heatsink and Fan

### Applications

- Military Radio
- Communication Systems
- High Gain Driver Power Amplifier
- High Gain Output Power Amplifier

**Electrical Specifications** (TA = +25°C, DC Voltage = 28Volts, DC Current = 5.8A)

Description	Minimum	Typical	Maximum	Units
Frequency Range	20		1,000	MHz
Small Signal Gain	46			dB
Gain Flatness			$\pm 1.5$	dB
Input Power (CW)			+0	dBm
Pout at Sat.		+44		dBm
Output Power at 1 dB Compression Point	+40			dBm
Output 3rd Order Intercept Point		+48		dBm
Harmonics		-20		dBc
Spurious		-60		dBc
Impedance (Input)		50		Ohms
Impedance (Output)		50		Ohms
Input VSWR			2:1	
Operating DC Voltage		28		Volts
Operating DC Current			5.8	A
Operating Temperature Range	0		+50	°C

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### Mechanical Specifications

#### Size

Length	6 in [152.4 mm]
Width	3 in [76.2 mm]
Height	1.1 in [27.94 mm]
Weight	3.9345 lbs [1.78 kg]
Input Connector	SMA Female
Output Connector	SMA Female

### Environmental Specifications

#### Temperature

Operating Range	0 to +50 deg C
Humidity	95
Shock	Normal Truck Transport
Vibration	Normal Truck Transport
Altitude	10000

### Compliance Certifications (see [product page](#) for current document)

### Plotted and Other Data

#### Notes:

- Values at +25 °C, sea level
- ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.



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### Amplifier Power-up Precautions

- 1.) Confirm that proper ESD precautions and controls are always in place before handling any Amplifier module.
- 2.) Confirm adequate thermal management is in place to effectively dissipate heat away from the Amplifier package. The Amplifier operational baseplate temperature must be within the operational temperature range stated in the Amplifier datasheet. Depending on the design and thermal requirements, using a heatsink with cooling fan is always recommended for safe reliable operation. A heat sink without a cooling fan may also be used. Damage caused from overheating will void the warranty.
- 3.) Confirm adequate system grounding is established. The DC power supply and Amplifier must have a common ground in order to operate properly.
- 4.) Power Amplifiers may require additional DC Current when initially powered-up. Depending on the design, the input current draw could range from an additional 10% to 100% above the maximum rated DC current of the Amplifier. This varies based on product part number.
- 5.) Confirm the DC power supply, if limited, is set to allow for additional start-up current that's rated for the Power Amplifier.
- 6.) Confirm the system is designed and calibrated for 50 ohms. Any impedance mismatch may cause performance issues.
- 7.) Perform a CALIBRATION (if required) with the loads before connecting the Amplifier to the Network Analyzer to ensure proper performance.
- 8.) Use a fixed attenuator between the signal source and input port of the Amplifier to optimize the input VSWR match.
- 9.) Confirm the input power level at the input port of the amplifier does not exceed the maximum rated limit for input power (as stated in the Amplifier datasheet).  
 $P_{in}$  for Small Signal Gain = P1dB-SSG-10 dB  
 $P_{in}$  for P1dB = P1dB-SSG+1 dB
- 10.) Confirm the Network Analyzer is always connected to the Amplifier first before DC power is applied to the Amplifier.
- 11.) As long as the input and output ports of the amplifier are connected to a 50Ohm load and RF signal power is applied, the Amplifier can be powered up with DC voltage.
- 12.) Confirm the Amplifier output load is matched for a 50 Ohm impedance and will not exceed the maximum rated VSWR or Return Loss limit for the Amplifier. Exceeding the maximum rated VSWR or Return Loss limit will result in reflected signal power that could damage the Amplifier and void the warranty.
- 13.) **Power Amplifier connected to an Antenna for signal transmission** - It's strongly recommended to use a high power fixed attenuator pad or an Isolator between the output port of the Amplifier and input port to the antenna. Any reflected signal power due to impedance mismatch will likely damage the Amplifier and void the warranty.
- 14.) The attenuator or isolator used at the output port of the Amplifier must be rated to handle the output power level and operational frequency band of the amplifier.

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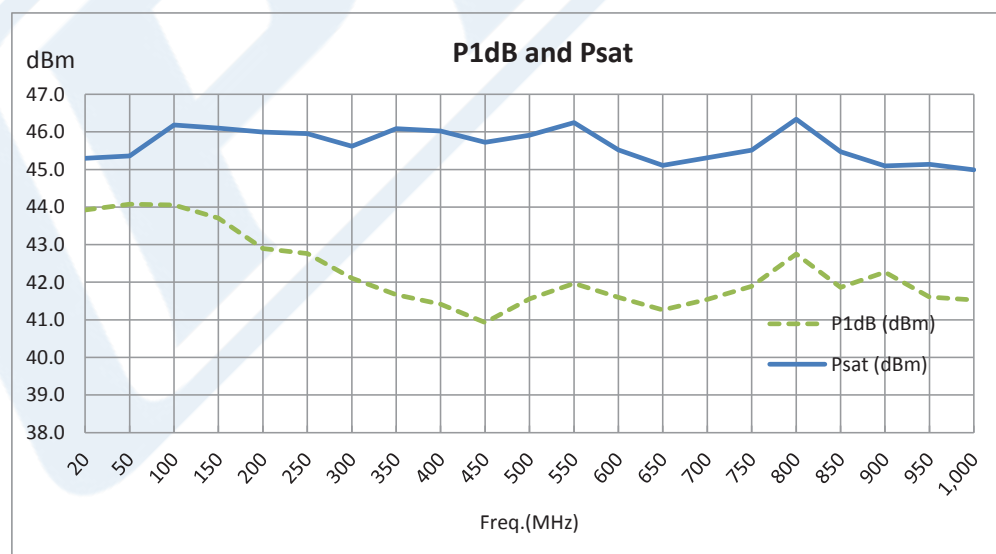
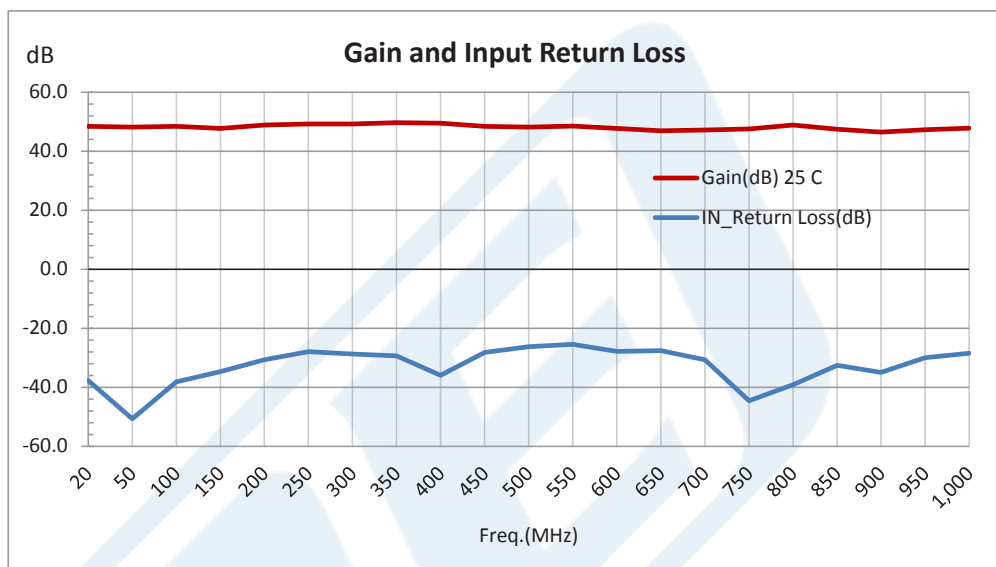
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### Typical Performance Data



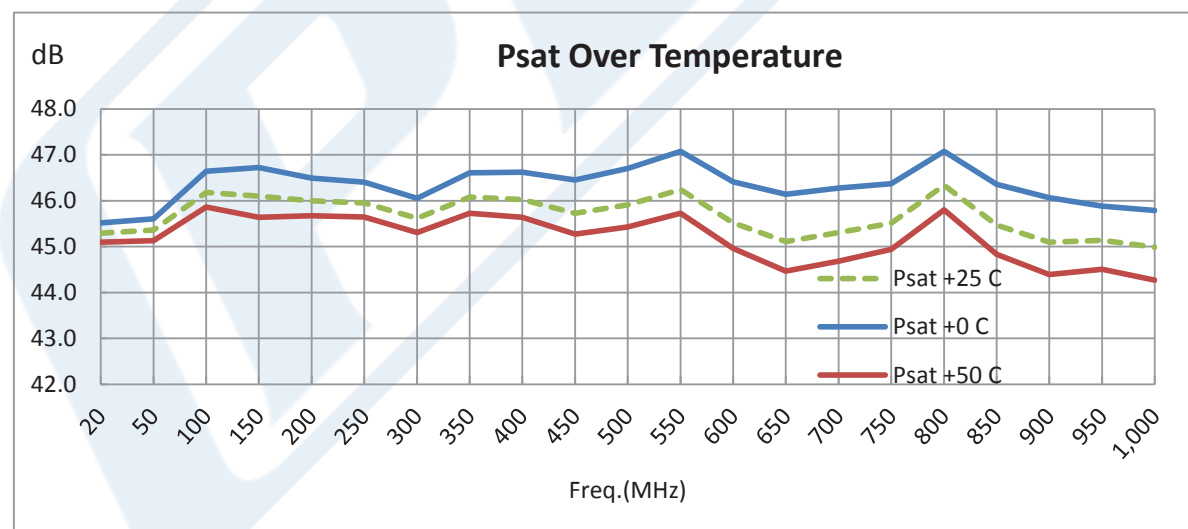
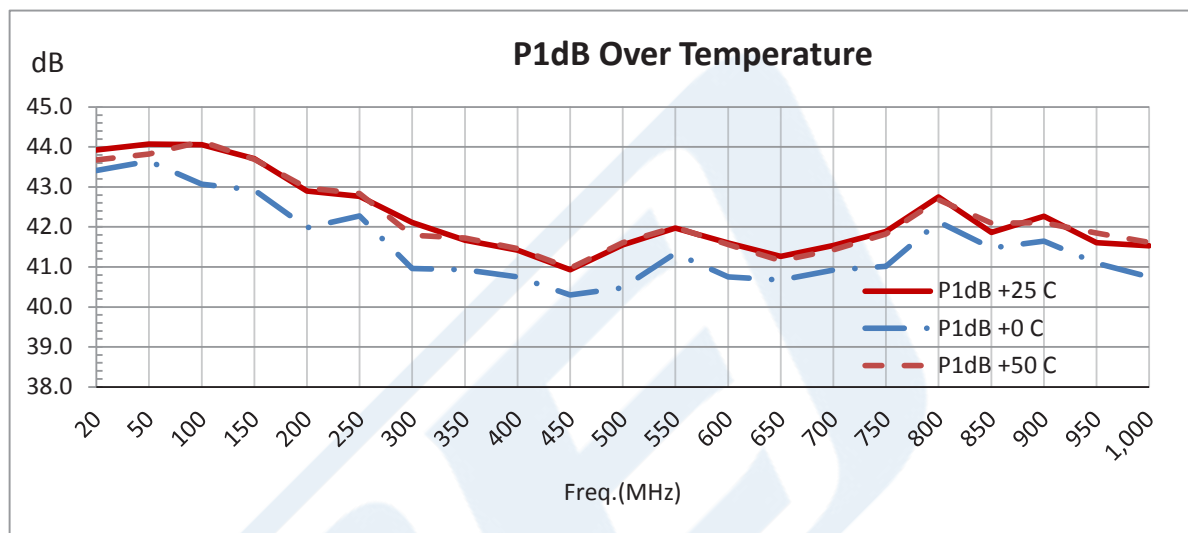
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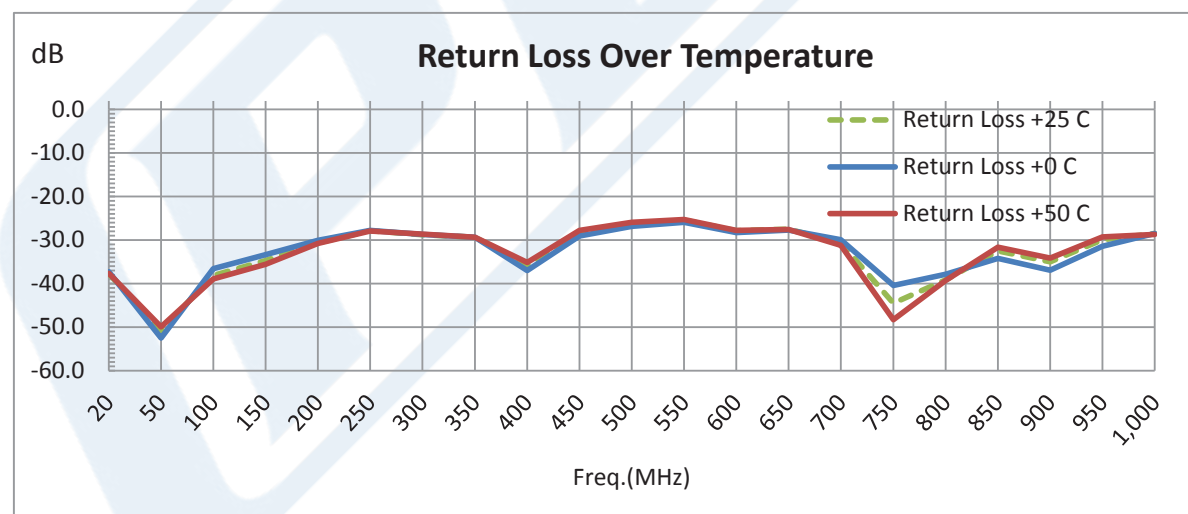
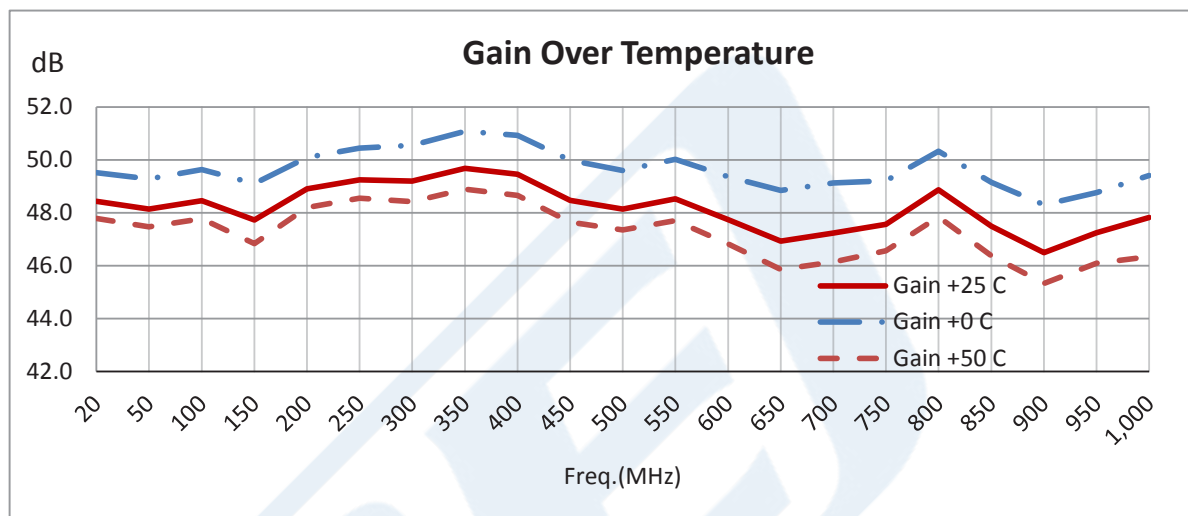
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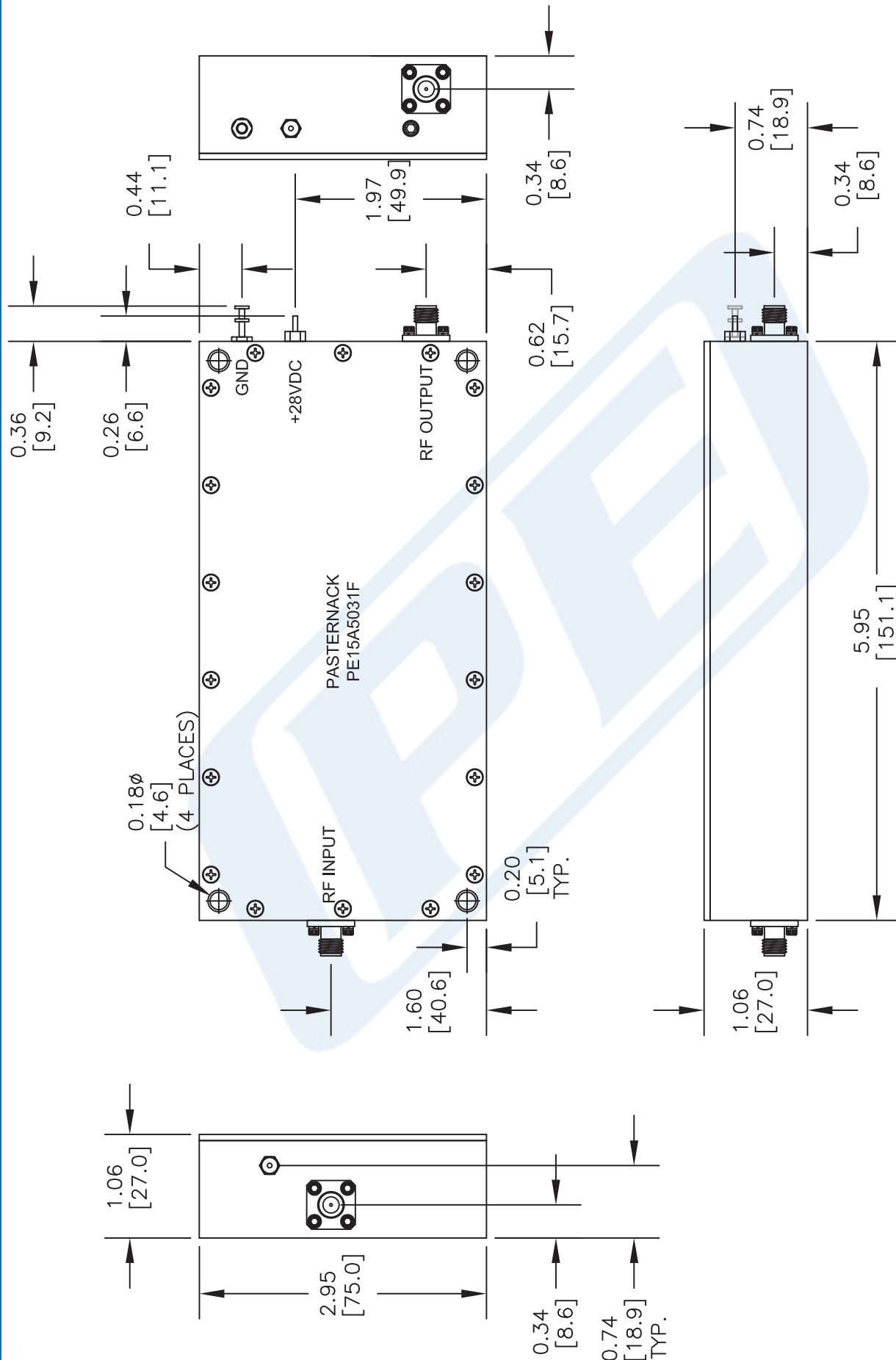
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# PE15A5031F CAD Drawing

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3. DIMENSIONS ARE IN INCHES [mm].

DWG TITLE  
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FSCM NO. 53919

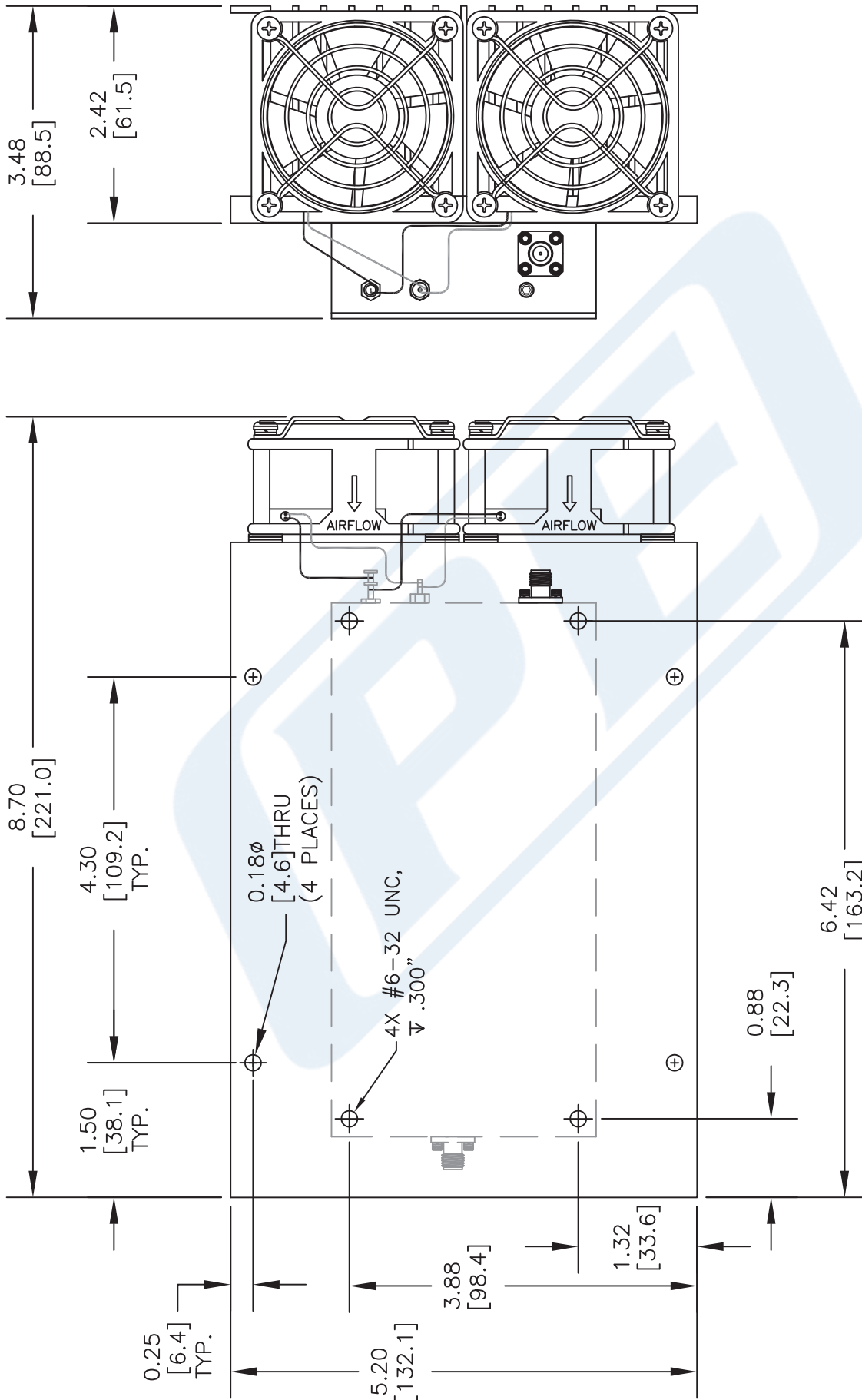
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CAD FILE 032515

SCALE N/A

SIZE A

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