



Product Features

- **Broadband High Power Amplifier**
- 700-2700MHz Operation Bandwidth
- Power Gain 53dB@ Pin -3dBm
- Gain Flatness+/-1.0 dB Typ.
- 100 W 'Typical @Pin -3dBm
- Unconditionally Stable
- 50 Ohm Input & Output Matched
- PAE 30%
- Operating Temperature 0°C to 50°C.
- Built-in Heatsink & Fan Cooling

Product Description

The AMTHPA-00700270-100W is a 100 Watt High Gain Power Amplifier operating in the 0.7 to 2.7 GHz. Frequency Band. The amplifier offers 100 Watts typical saturated power and 50 dB minimum small signal gain with ± 1.0 dB Typ. Gain flatness. The amplifier operates from a 32V DC power supply with a 30% PAE. The connectorized module operates over a temperature range of 0°C to 50°C and is 50 Ohms input and output matched for unconditional stability. The unit comes with built-in heat sink and fans for efficient cooling.

Application

- Communication system
- Microwave Radio
- Instrumentation
- Lab Test Equipment

Precautions

- I. This product is designed to be used for broadband amplification. Heat generation is higher when there is RF signal in the device. Therefore, the worst case scenario is when there is RF signal. The temperature must be calculated properly. Case temperature must maintain below 70°C.
- II. Fan should be on during RF operation to properly maintain case temperature.

Electrical Specifications @Vcc = 32V; Tc = 45°C; Zs = ZL = 50 Ohms char, Cooling Fan On:

| PARAMETERS | UNIT | MIN | TYP | MAX | CONDITION |
|---------------------------------|-------|------|-----------|-----------|-------------|
| Operating Frequency | MHz | 700 | - | 2700 | - |
| Power Gain @ Pin -3dBm | dB | 50 | 53 | - | 700-2700MHz |
| Power Gain Flatness @Pin -3dBm | dB pp | - | ± 1.0 | ± 2.0 | 700-2700MHz |
| Output Power @ Pin -3dBm | dBm. | 48 | 50 | - | 700-2700MHz |
| Input Return Loss | dB | - | -9 | -5 | - |
| Supply Voltage | v | 31.5 | 32 | - | Vcc(=Vds) |
| Quiescent Current consumption | Amps | - | 2.5 | 2.7 | - |
| Current Consumption @ Pin -3dBm | Amps | - | 10 | 12 | CW I-tone |

Absolute Maximum Ratings*

| PARAMETERS | UNIT | RATING |
|---------------------|------|-----------------------|
| Input RF Power | dBm. | 0 |
| Supply Voltage | v | 35 |
| Load Mismatch Value | - | 3 : 1 @all load phase |

- Input Signal Condition :CW I -Tone

Environmental Characteristics

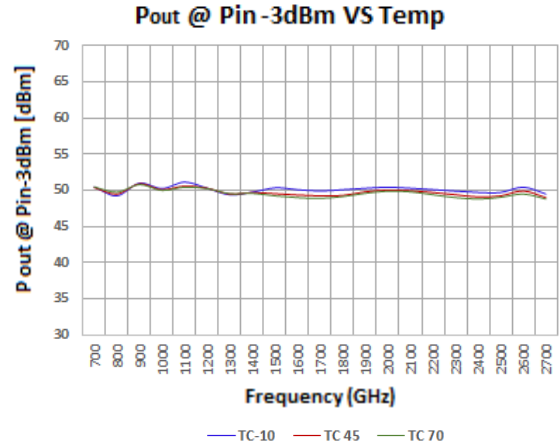
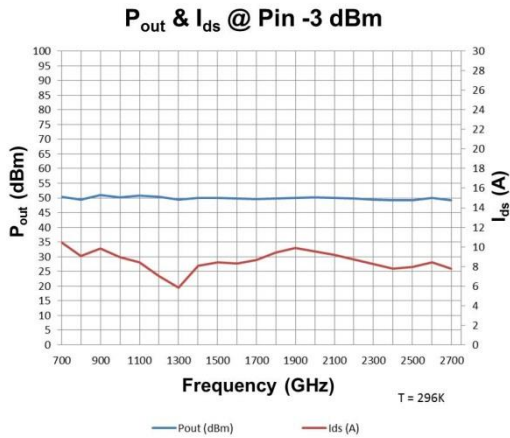
| PARAMETERS | UNIT | MIN | TYP | MAX | SYMBOL |
|------------------------------|----------------------------------|-----|-----|-----|--------|
| Operating Flange Temperature | °C | -10 | - | 70 | Tc |
| Storage Temperature | °C | -40 | - | 105 | Tstg |
| Vibration | MIL-STD-810G Method 514.6 ANNEXC | | | | VI |

Mechanical Specifications

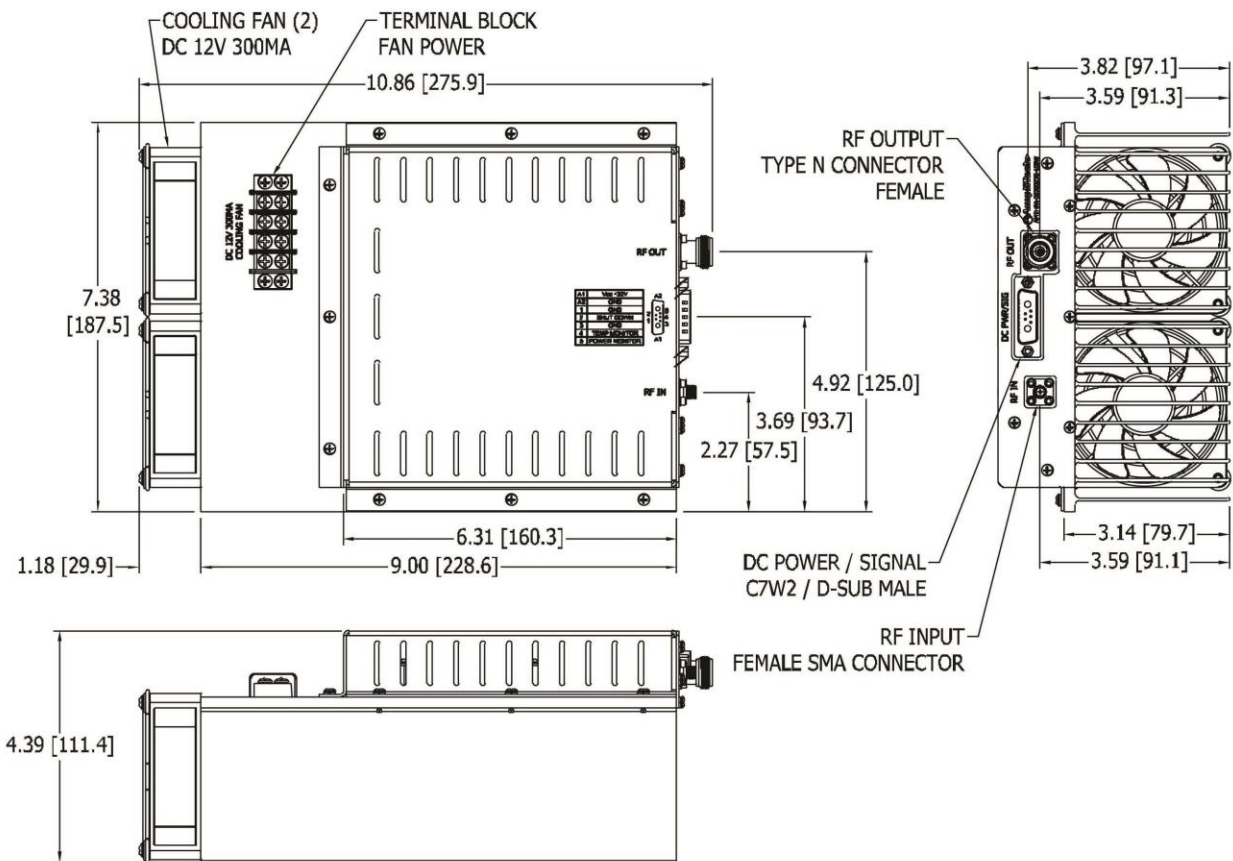
| PARAMETERS | UNIT | TYP |
|--------------|-------------|---|
| Dimension | Inches (mm) | 10.86 (275.9)(L)x 7.38 (187.5)(W) x 4.39 (111.4)(H) |
| Weight | Lbs. (gms.) | 7.5 (635) |
| RF Connector | - | RF Input : SMAFemale |
| | | RF Output :N-Type Female |
| DC Connector | - | C7W2/D-SUBIMaletype |
| Cooling | - | Built-In Heat-sink & Fan |

Typical Performance @ 25°C: Amplifiers. Supply 32V DC @ 10 Amps. Typ.; Cooling Fan On

| Frequency (MHz) | Pout @Pin -3dBm (dBm) | Gp @Pin -3dBm (dB) | Current @Pin -3dBm (A) | PAE @ Pin -3dBm (%) | Harmonic | |
|--------------------|-----------------------------|--------------------------|------------------------------|---------------------------|-------------------|-------------------|
| | | | | | 2•d Harm (dBc) | 3•d Harm (dBm) |
| 700 | 50.47 | 53.47 | 10.47 | 33.26 | -12.26 | -31.88 |
| 800 | 49.45 | 52.45 | 9.04 | 30.46 | -15.66 | -24.97 |
| 900 | 51.07 | 54.07 | 9.80 | 40.80 | -22.20 | -24.46 |
| 1000 | 50.18 | 53.18 | 8.92 | 36.52 | -16.51 | -40.08 |
| 1100 | 50.87 | 53.87 | 8.41 | 45.40 | -21.79 | -38.36 |
| 1200 | 50.33 | 53.33 | 6.98 | 48.31 | -19.76 | -33.86 |
| 1300 | 49.42 | 52.42 | 5.85 | 46.74 | -18.99 | -18.83 |
| 1400 | 50.01 | 53.01 | 8.07 | 38.81 | -28.13 | -30.48 |
| 1500 | 50.00 | 53.00 | 8.41 | 37.16 | -34.43 | -40.04 |
| 1600 | 49.78 | 52.78 | 8.30 | 35.79 | -34.02 | -54.08 |
| 1700 | 49.66 | 52.66 | 8.64 | 33.45 | -43.59 | -56.70 |
| 1800 | 49.88 | 52.88 | 9.43 | 32.24 | -35.86 | -64.36 |
| 1900 | 50.07 | 53.07 | 9.89 | 32.11 | -21.00 | -58.44 |
| 2000 | 50.29 | 53.29 | 9.53 | 35.06 | -21.04 | -45.14 |
| 2100 | 50.04 | 53.04 | 9.20 | 34.28 | -41.85 | -49.81 |
| 2200 | 49.81 | 52.81 | 8.68 | 34.46 | -47.34 | -61.68 |
| 2300 | 49.45 | 52.45 | 8.24 | 33.41 | -42.68 | -59.77 |
| 2400 | 49.21 | 52.21 | 7.74 | 33.66 | -62.21 | -63.68 |
| 2500 | 49.26 | 52.26 | 7.97 | 33.07 | -51.35 | -69.88 |
| 2600 | 50.03 | 53.03 | 8.44 | 37.28 | -57.91 | -46.57 |
| 2700 | 49.22 | 52.22 | 7.75 | 33.69 | -61.61 | -55.20 |



PACKAGE DIMENSION:



Pin Description (C7W2 / D-SUB I Male type)

| Pin No | Description | I/O | Specifications |
|--------|---------------------|-----|--|
| A1 | Vee | I | +32VDC |
| A2 | GND | I | Ground |
| 1 | GND | I | Ground |
| 2 | Shut Down | I | Enable:TTL "Low", Disable:TTL "High" (Low :0-0.5V, High :2.5 -5V) Disable Status :150mA Current consumption |
| 3 | GND | I | Ground |
| 4 | Temperature Monitor | O | Reference voltage :750mV @ 25°C, Scale : 10mVfC |
| 5 | Power Monitor | O | Pout 48dBm Voltage :700-1000mV, Scale :25mV/dB |

Recommended Screw Torque : 8.0kgf.cm± I using SEMS M3 I9mm Bolt

Revision History

| Part Number | Release Date | Version | Modification | Data Sheet Status |
|----------------------|--------------|---------|-----------------|-------------------|
| AMTHPA-00700270-100W | 2017-01-24 | 1.0 | Initial Release | - |
| | | | | - |
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