

Drop-In Medium Power Amplifier

TAMP-112-2W+

50Ω 650 to 1200 MHz



CASE STYLE: NP1933

The Big Deal

- Miniature Shielded Rugged Case
- Wide frequency range
- Excellent Gain Flatness
- Power ON/OFF feature

Product Overview

Mini-Circuits' TAMP-112-2W+ can be used as a driver amplifier with P1dB of 1W (typ.) and P3dB of up to 2W (typ.). The gain of this amplifier has an excellent flatness over a wide frequency range. This amplifier has a dynamic range and therefore can be used as RF front end or a driver amplifier.

Key Features

| Feature | Advantages |
|--|---|
| Frequency Range: 650 to 1200 MHz | Covers fixed, mobile, land mobile, aeronautical radio navigation frequency bands. |
| Excellent Gain flatness: ± 1.0 dB typ. | Excellent gain flatness minimizes distortion of amplified signals, including multi-tone, complex modulation, wide frequency range and noise-like signals. |
| Output Power 1W (+30dBm, typ) | High output power in a small package |
| Noise Figure | Low noise figure, 2.8 dB typ. and high OIP3, +41dBm typ. defines the high dynamic range of the amplifier. |

Drop-In Medium Power Amplifier

TAMP-112-2W+

50Ω 650 to 1200 MHz

Features

- Power ON/OFF
- Single +5V operation
- Wide bandwidth, 650 to 1200 MHz
- Excellent gain flatness: ± 1.0 dB, typ.
- Low noise figure, 2.8 dB typ.
- Output power, up to +30 dBm typ.
- Unconditionally stable
- Small size

Applications

- Buffer amplifier
- Driver amplifier
- UHF communication
- Instrumentation
- Test equipment



CASE STYLE: NP1933

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications at 25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Units |
|-------------------------------------|-----------------|------|-----------|------|-------|
| Frequency Range | | 650 | — | 1200 | MHz |
| Gain | 650 - 1200 | 28 | 31 | — | dB |
| Gain Flatness | 650 - 1200 | — | ± 1.0 | — | dB |
| Output Power at 1dB compression | 650 - 1200 | — | +30 | — | dBm |
| Output third order intercept point | 650 - 1200 | — | +41 | — | dBm |
| Noise Figure | 650 - 1200 | — | 2.8 | — | dB |
| Input VSWR | 650 - 1200 | — | 1.9 | — | :1 |
| Output VSWR | 650 - 1200 | — | 2.1 | — | :1 |
| Active Directivity (Isolation-Gain) | 650 - 1200 | — | 20 | — | dB |
| DC Supply Voltage | | — | +5.0 | — | V |
| Supply Current ¹ | | — | 750 | 850 | mA |

Note 1. Supply current is 170 mA typ., in power OFF mode, when Vcntl=0V, or Vcntl port is open.

Maximum Ratings

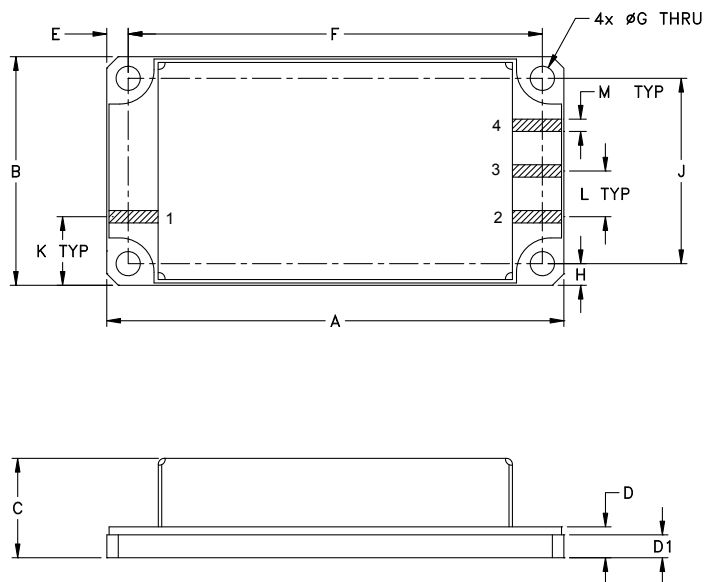
| Parameter | Ratings |
|------------------------------------|----------------|
| Operating Temperature (base plate) | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| DC Voltage | +5.5 V |
| Input RF Power (no damage) | +15 dBm |
| Power Dissipation | 4.4W |

Permanent damage may occur if any of these limits are exceeded.

Pad Connections

| | |
|-----------|---|
| RF Input | 1 |
| RF Output | 2 |
| +Vcc | 3 |
| Vcntl | 4 |

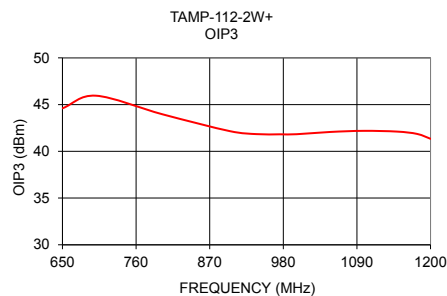
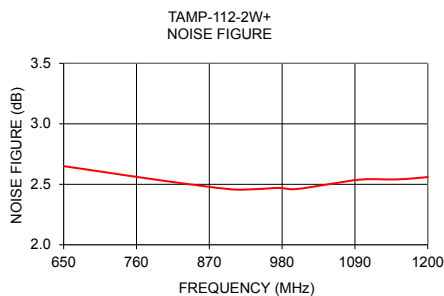
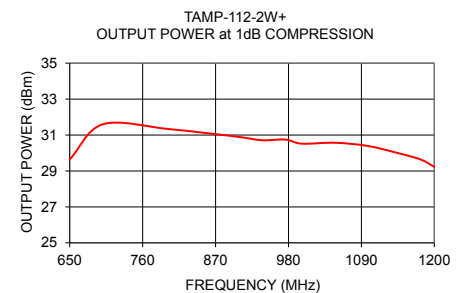
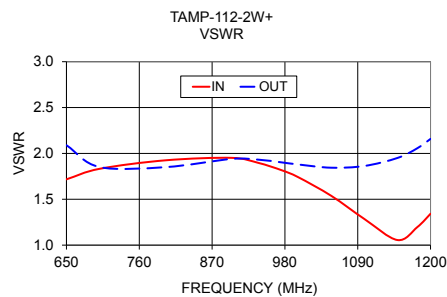
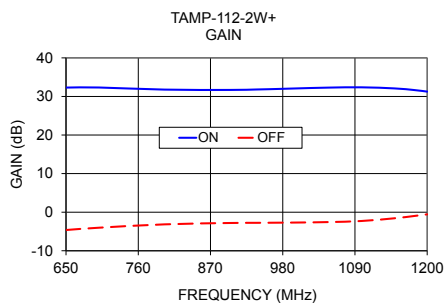
Outline Drawing



Outline Dimensions (inch mm)

| A | B | C | D | D1 | E | F | G |
|-------|-------|-------|------|------|-------|-------|------|
| 2.00 | 1.00 | 0.44 | 0.14 | .110 | .094 | 1.812 | .106 |
| 50.80 | 25.40 | 11.18 | 3.56 | 2.79 | 2.39 | 46.02 | 2.69 |
| H | J | K | L | M | wt | | |
| .095 | .810 | .30 | .20 | .050 | grams | | |
| 2.41 | 20.57 | 7.62 | 5.08 | 1.27 | 35 | | |

| FREQUENCY (MHz) | GAIN (dB) | | VSWR (:1) | | NOISE FIGURE (dB) | POUT at 1 dB COMPR. (dBm) | OIP3 (dBm) |
|--------------------|-----------------|-------------------------|--------------|-----|-------------------------|---------------------------------|---------------|
| | Vcctl=+5V ON | Vcctl=0V or open OFF | IN | OUT | | | |
| 650 | 32.30 | -4.63 | 1.7 | 2.1 | 2.65 | 29.64 | 44.60 |
| 700 | 32.32 | -4.03 | 1.8 | 1.9 | 2.61 | 31.60 | 45.95 |
| 800 | 31.78 | -3.16 | 1.9 | 1.9 | 2.53 | 31.33 | 43.95 |
| 900 | 31.69 | -2.81 | 2.0 | 1.9 | 2.46 | 30.92 | 42.16 |
| 940 | 31.81 | -2.76 | 1.9 | 1.9 | 2.46 | 30.71 | 41.84 |
| 975 | 31.95 | -2.72 | 1.8 | 1.9 | 2.47 | 30.75 | 41.82 |
| 1000 | 32.08 | -2.69 | 1.7 | 1.9 | 2.46 | 30.52 | 41.83 |
| 1050 | 32.29 | -2.57 | 1.5 | 1.8 | 2.50 | 30.57 | 42.07 |
| 1100 | 32.37 | -2.29 | 1.3 | 1.9 | 2.54 | 30.39 | 42.19 |
| 1150 | 32.09 | -1.59 | 1.1 | 2.0 | 2.54 | 29.95 | 42.11 |
| 1180 | 31.67 | -1.00 | 1.2 | 2.1 | 2.55 | 29.63 | 41.86 |
| 1200 | 31.25 | -0.56 | 1.3 | 2.2 | 2.56 | 29.23 | 41.34 |



Drop-In Medium Power Amplifier

TAMP-112-2W+

Typical Performance Data

| FREQUENCY (MHz) | GAIN (dB) | | DIRECTIVITY (dB) 5V | VSWR (:1) | | NOISE FIGURE (dB) 5V | POUT @ 1 dB COMPRESSION (dBm) 5V | OUTPUT IP3 (dBm) 5V |
|--------------------|----------------|-------------------------|---------------------------|-----------|-----------|----------------------------|---|---------------------------|
| | Vctrl=5V ON | Vctrl=0V or OPEN OFF | | IN 5V | OUT 5V | | | |
| 650 | 32.30 | -4.63 | 22.01 | 1.72 | 2.09 | 2.65 | 29.64 | 44.60 |
| 700 | 32.32 | -4.03 | 24.53 | 1.83 | 1.85 | 2.61 | 31.60 | 45.95 |
| 800 | 31.78 | -3.16 | 27.29 | 1.93 | 1.85 | 2.53 | 31.33 | 43.95 |
| 900 | 31.69 | -2.81 | 24.75 | 1.95 | 1.94 | 2.46 | 30.92 | 42.16 |
| 940 | 31.81 | -2.76 | 22.68 | 1.90 | 1.93 | 2.46 | 30.71 | 41.84 |
| 975 | 31.95 | -2.72 | 20.94 | 1.82 | 1.90 | 2.47 | 30.75 | 41.82 |
| 1000 | 32.08 | -2.69 | 19.84 | 1.74 | 1.88 | 2.46 | 30.52 | 41.83 |
| 1050 | 32.29 | -2.57 | 17.89 | 1.54 | 1.84 | 2.50 | 30.57 | 42.07 |
| 1100 | 32.37 | -2.29 | 16.35 | 1.29 | 1.86 | 2.54 | 30.39 | 42.19 |
| 1150 | 32.09 | -1.59 | 15.72 | 1.06 | 1.95 | 2.54 | 29.95 | 42.11 |
| 1180 | 31.67 | -1.00 | 15.98 | 1.20 | 2.06 | 2.55 | 29.63 | 41.86 |
| 1200 | 31.25 | -0.56 | 16.47 | 1.34 | 2.16 | 2.56 | 29.23 | 41.34 |



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site
 **The Design Engineers Search Engine** Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

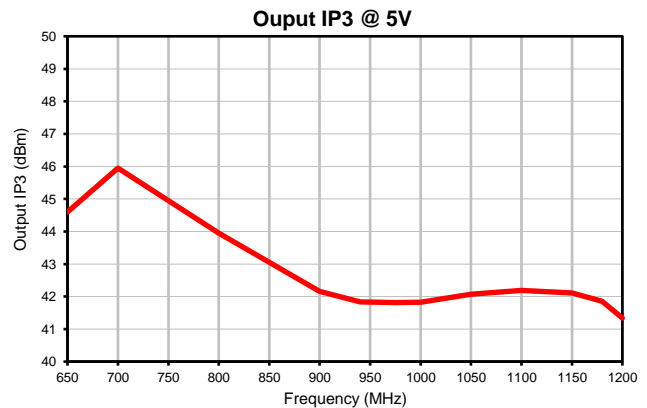
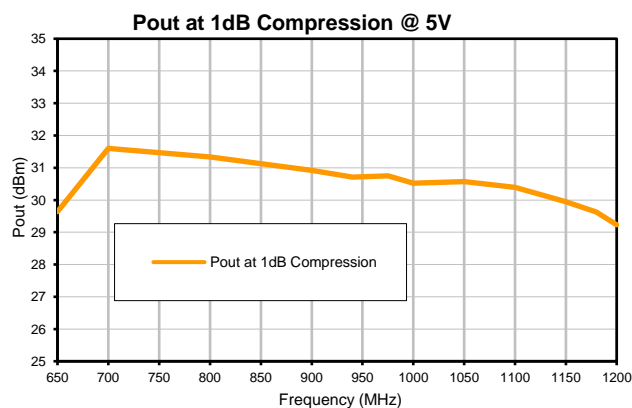
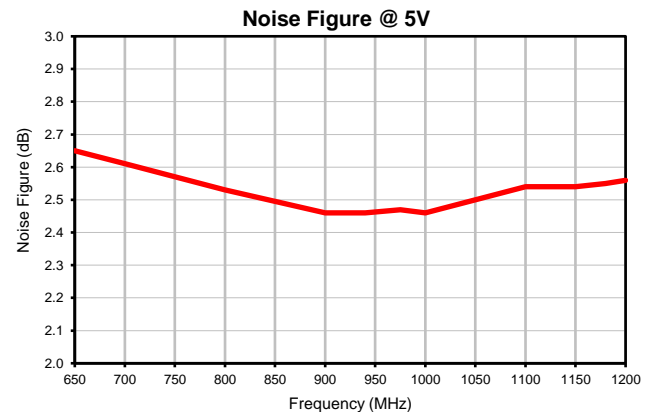
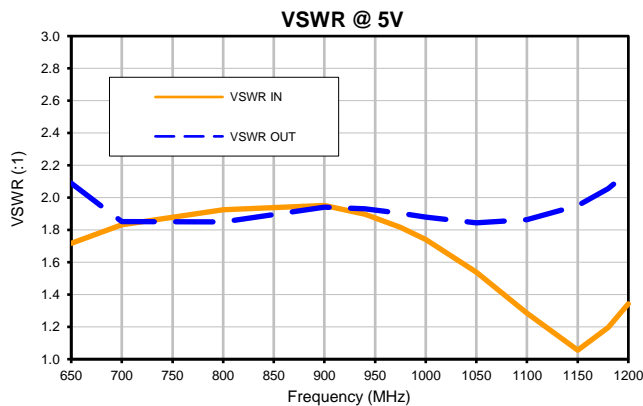
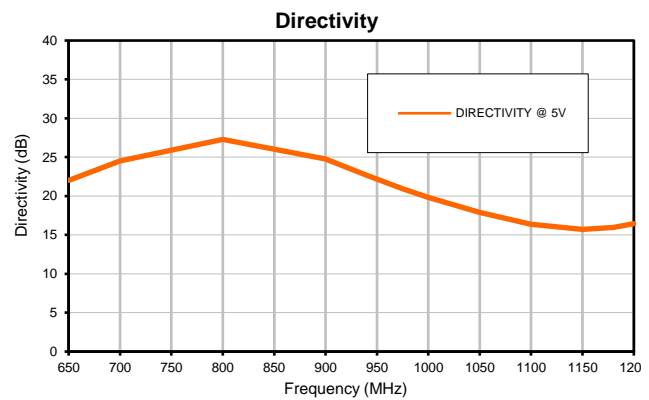
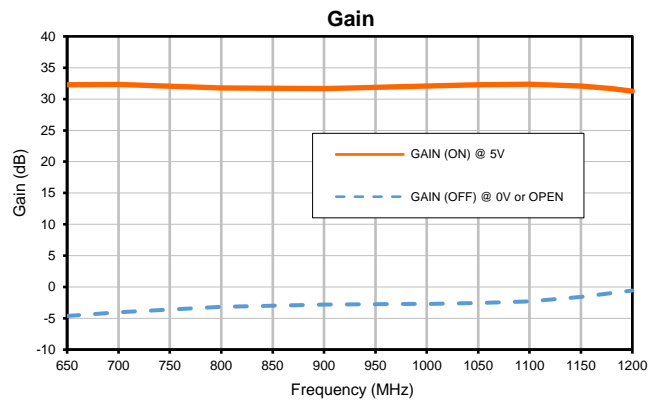
IF/RF MICROWAVE COMPONENTS

REV. OR
TAMP-112-2W+
11/11/2015
Page 1 of 1

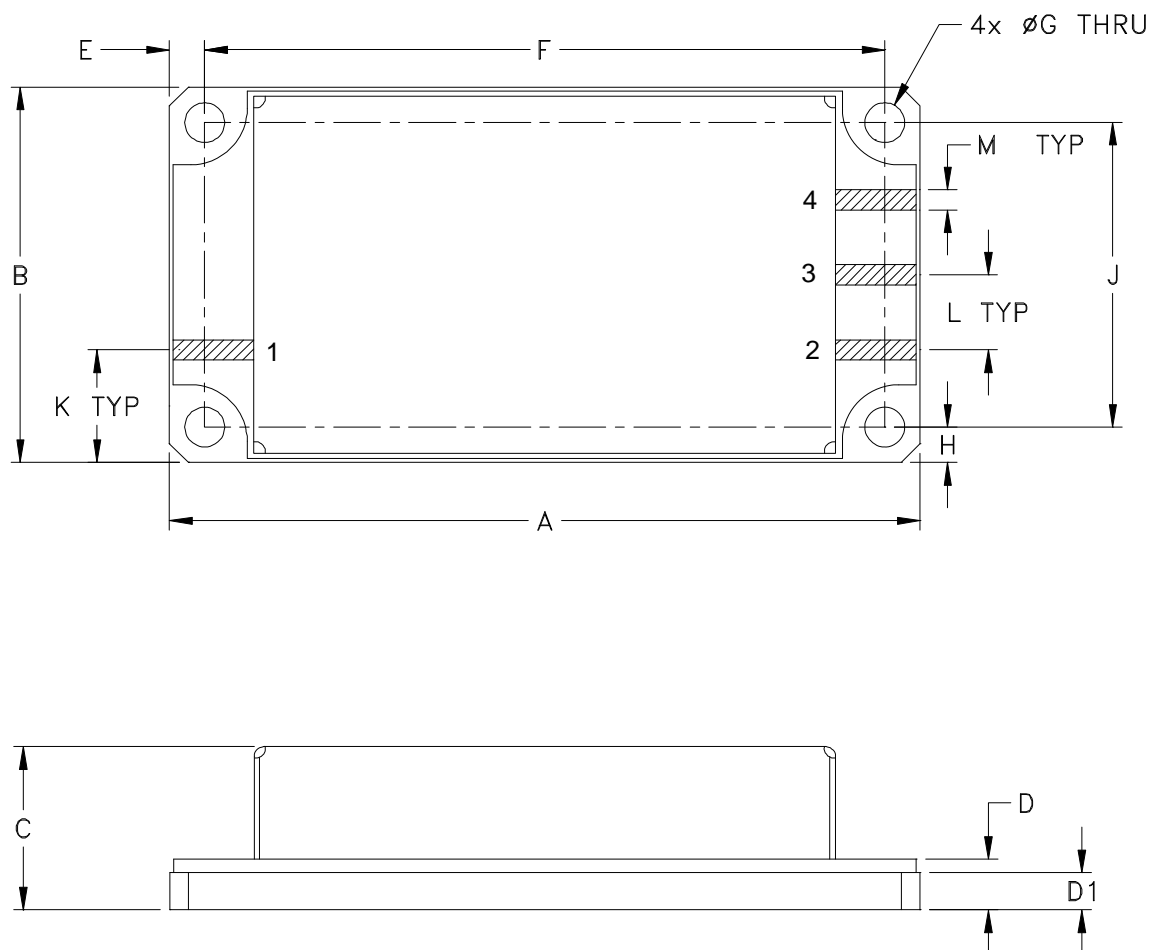
Drop-In Medium Power Amplifier

Typical Performance Curves

TAMP-112-2W+



Outline Dimensions



| CASE# | A | B | C | D | D1 | E | F | G | H | J | K | L | M | WT GRAMS |
|--------|-----------------|----------------|----------------|---------------|----------------|----------------|------------------|----------------|----------------|-----------------|---------------|---------------|----------------|-------------|
| NP1933 | 2.00 (50.80) | 1.00 (25.4) | .44 (11.18) | .14 (3.56) | .110 (2.79) | .094 (2.39) | 1.812 (46.02) | .106 (2.69) | .095 (2.41) | .810 (20.57) | .30 (7.62) | .20 (5.08) | .050 (1.27) | 35 |

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

1. Can material: Nickel Silver
2. Base plate material: brass Alloy
3. Base plate Finish:
For RoHS Case Styles: Tri-Metal Plating



INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|--------------------------------|---|--|
| Operating Temperature | -40° to 85° C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C Ambient Environment | Individual Model Data Sheet |
| HAST | 130°C, 85% RH, 96 hours | JESD22-A110 |
| Humidity | 90 to 95% RH, 240 hours, 50°C | MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours |
| Thermal Shock | -55° to 100°C, 100 cycles | MIL-STD-202, Method 107, Condition A-3, except +100°C |
| Solder Reflow Heat | Sn-Pb Eutectic Process: 225°C peak Pb-Free Process, 245°C peak | J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1 |
| Solderability | 10X Magnification | J-STD-002, Para 4.2.5, Test S, 95% Coverage |
| Vibration (High Frequency) | 20g peak, 20-2000 Hz, 4 times in each of three axes (total 12) | MIL-STD-883, Method 2007.3, Condition A |
| Mechanical Shock | 50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes | MIL-STD-202, Method 213, Condition A |
| Marking Resistance to Solvents | Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215 |