



SUPER ULTRA

Wideband Amplifier

ZVA-183-S+ ZVA-183X-S+

50Ω 700 MHz to 18 GHz

BIG DEAL

- Super ultra-wideband, 700 MHz to 18 GHz
- High output IP3, +33 dBm typ.
- Rugged, compact case (including mounting bracket)
- Unconditionally stable
- Good matching at input and output
- Withstands open/short load at 1dB compression point output power
- Very good isolation, 75 dB typ.



Generic photo used for illustration purposes only

| | | |
|------------|------------|---------------|
| Model No. | ZVA-183-S+ | ZVA-183X-S+ ▲ |
| Case Style | AV1280 | |
| Connectors | SMA | |

+RoHS Compliant

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

APPLICATIONS

- Radar
- Very wideband test instrumentation
- Lab use
- Wideband isolation, directivity 50 dB typ.

ELECTRICAL SPECIFICATIONS AT 25°C

| Parameter | Condition (MHz) | ZVA-183+ ZVA-183X+▲ | | | Units |
|------------------------------------|-----------------|------------------------|------|-------|-------|
| | | Min. | Typ. | Max. | |
| Frequency Range | | 700 | — | 18000 | MHz |
| Gain | 700 - 18000 | 24 | 26 | — | dB |
| Gain Flatness | 700 - 18000 | — | ±1.0 | — | dB |
| Output Power at 1dB compression | 700 - 18000 | 21 | 24 | — | dBm |
| Noise Figure | 700 - 18000 | — | 3.0 | 5.5 | dB |
| Output third order intercept point | 700 - 18000 | — | +33 | — | dBm |
| Input VSWR | 700 - 18000 | — | 1.35 | — | :1 |
| Output VSWR | 700 - 18000 | — | 1.25 | — | :1 |
| DC Supply Voltage | | — | 12* | — | V |
| Supply Current | | — | — | 400 | mA |

*Recommended Operating Voltage.

▲ Heat sink not included. Alternative heat sinking and heat removal must be provided by the user to limit maximum base-plate temperature to 85°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 4°C/W max.

MAXIMUM RATINGS

| Parameter | Rated | Conditions |
|-------------------------------|-----------|--------------------------------|
| Operating Temperature | ZVA-183+ | -55°C to 65°C ambient |
| | ZVA-183X+ | -55°C to 85°C base plate temp. |
| Storage Temperature | | -65°C to 150°C |
| DC Voltage | | 15V |
| CW Input RF Power (no damage) | | +4 dBm |

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

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ECO-011916
ZVA-183-S+
BC/CP/AM
220215



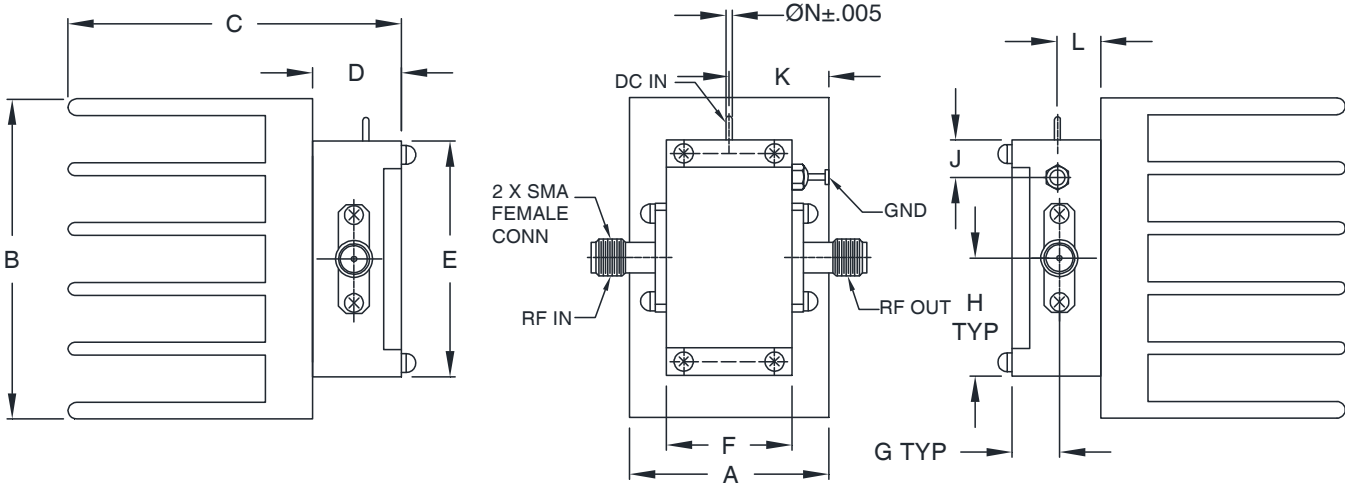


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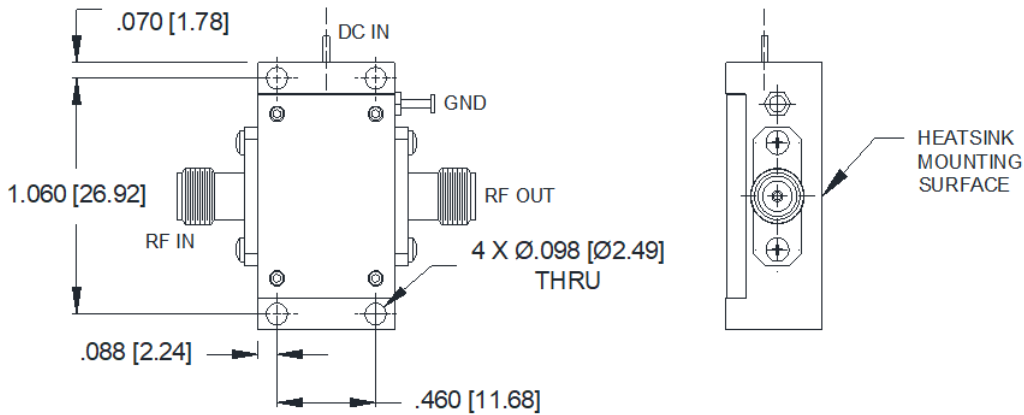
Wideband Amplifier

ZVA-183-S+
ZVA-183X-S+

OUTLINE DRAWING FOR MODELS WITH HEATSINK



OUTLINE DRAWING FOR MODELS WITHOUT HEATSINK



OUTLINE DIMENSIONS (MM/INCH)

| A | B | C | D | E | F | G | H | J | K | L | M | N | wt |
|-------|-------|-------|-------|-------|-------|------|-------|------|------|------|---|------|--------|
| 1.01 | 1.63 | 1.74 | .45 | 1.20 | .64 | .24 | .60 | .19 | .32 | .22 | - | .03 | grams* |
| 25.65 | 41.40 | 44.20 | 11.43 | 30.48 | 16.26 | 6.10 | 15.24 | 4.83 | 8.13 | 5.59 | - | 0.76 | 58 |

*17 grams without heatsink





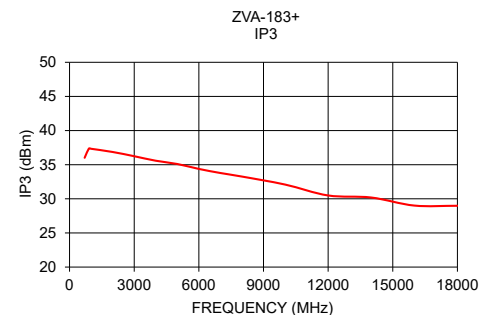
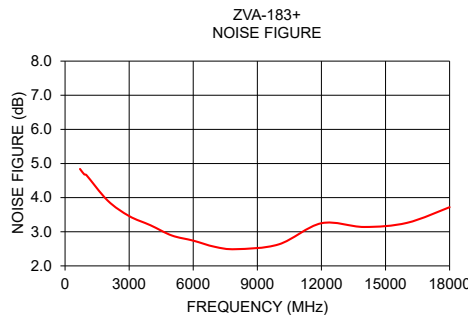
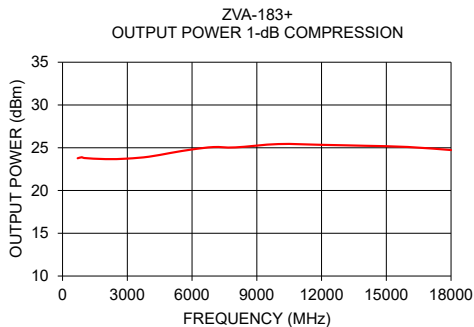
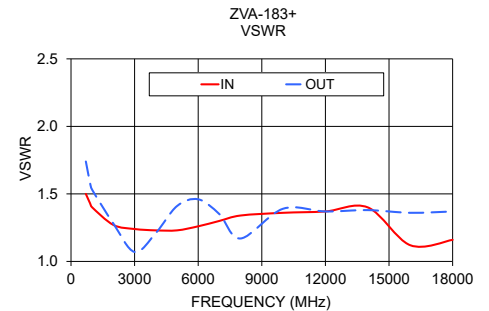
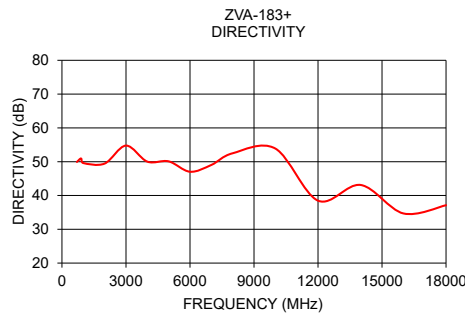
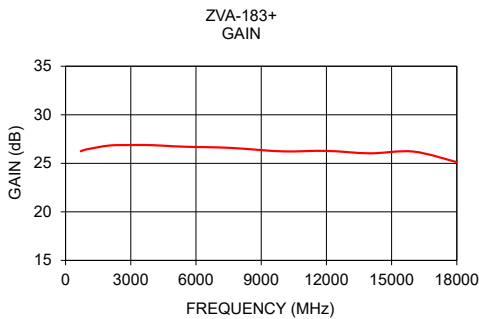
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Wideband Amplifier

ZVA-183-S+ ZVA-183X-S+

TYPICAL PERFORMANCE DATA/CURVES

| Frequency (Mhz) | Gain (dB) | Directivity (dB) | VSWR (:1) | | Noise Figure (dB) | P _{OUT} at 1 dB COMPR. (dBm) | Frequency (Mhz) | IP3 (dBm) |
|-----------------|-----------|------------------|-----------|------|-------------------|---------------------------------------|-----------------|-----------|
| | 12V | 12V | IN | OUT | 12V | | | |
| 700 | 26.25 | 49.93 | 1.50 | 1.74 | 4.84 | 23.77 | 700 | 36.01 |
| 900 | 26.40 | 50.96 | 1.43 | 1.58 | 4.68 | 23.80 | 900 | 37.38 |
| 1000 | 26.45 | 49.60 | 1.40 | 1.53 | 4.66 | 23.67 | 1000 | 37.33 |
| 2000 | 26.83 | 49.44 | 1.27 | 1.28 | 3.91 | 23.95 | 2000 | 36.86 |
| 3000 | 26.88 | 54.76 | 1.24 | 1.07 | 3.46 | 24.39 | 3000 | 36.24 |
| 4000 | 26.87 | 50.02 | 1.23 | 1.21 | 3.19 | 24.80 | 4000 | 35.58 |
| 5000 | 26.75 | 50.10 | 1.23 | 1.41 | 2.89 | 25.08 | 5000 | 35.10 |
| 6000 | 26.68 | 47.03 | 1.26 | 1.46 | 2.74 | 25.04 | 6000 | 34.38 |
| 7000 | 26.64 | 49.03 | 1.30 | 1.35 | 2.56 | 25.43 | 7000 | 33.78 |
| 8000 | 26.53 | 52.49 | 1.34 | 1.17 | 2.49 | 25.34 | 8000 | 33.26 |
| 10000 | 26.23 | 53.89 | 1.36 | 1.39 | 2.63 | 25.09 | 10000 | 32.09 |
| 12000 | 26.28 | 38.47 | 1.37 | 1.37 | 3.25 | 24.14 | 12000 | 30.49 |
| 14000 | 26.03 | 43.11 | 1.40 | 1.38 | 3.14 | 23.21 | 14000 | 30.19 |
| 16000 | 26.21 | 34.69 | 1.12 | 1.36 | 3.26 | 23.06 | 16000 | 29.01 |
| 18000 | 25.12 | 37.12 | 1.16 | 1.37 | 3.72 | 21.65 | 18000 | 28.98 |



NOTES

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained there in. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



Wideband Amplifier

ZVA-183+

Typical Performance Data

| FREQUENCY (MHz) | GAIN (dB) 12V | DIRECTIVITY (dB) 12V | VSWR IN (:1) 12V | VSWR OUT (:1) 12V | NOISE FIGURE (dB) 12V | Pout at 1dB Comp. (dBm) 12V | Output IP3 (dBm) 12V |
|--------------------|---------------------|----------------------------|------------------------|-------------------------|-----------------------------|-----------------------------------|----------------------------|
| 700.0 | 26.25 | 49.93 | 1.50 | 1.74 | 4.84 | 23.77 | 36.01 |
| 800.0 | 26.32 | 49.16 | 1.47 | 1.64 | 4.74 | 23.89 | 36.82 |
| 900.0 | 26.40 | 50.96 | 1.43 | 1.58 | 4.68 | 23.80 | 37.38 |
| 1000.0 | 26.45 | 49.60 | 1.40 | 1.53 | 4.66 | 23.67 | 37.33 |
| 2000.0 | 26.83 | 49.44 | 1.27 | 1.28 | 3.91 | 23.95 | 36.86 |
| 3000.0 | 26.88 | 54.76 | 1.24 | 1.07 | 3.46 | 24.39 | 36.24 |
| 4000.0 | 26.87 | 50.02 | 1.23 | 1.21 | 3.19 | 24.80 | 35.58 |
| 5000.0 | 26.75 | 50.10 | 1.23 | 1.41 | 2.89 | 25.08 | 35.10 |
| 6000.0 | 26.68 | 47.03 | 1.26 | 1.46 | 2.74 | 25.04 | 34.38 |
| 7000.0 | 26.64 | 49.03 | 1.30 | 1.35 | 2.56 | 25.43 | 33.78 |
| 8000.0 | 26.53 | 52.49 | 1.34 | 1.17 | 2.49 | 25.34 | 33.26 |
| 9000.0 | 26.42 | 59.55 | 1.36 | 1.19 | 2.48 | 25.23 | 32.62 |
| 10000.0 | 26.23 | 53.89 | 1.36 | 1.39 | 2.63 | 25.09 | 32.09 |
| 11000.0 | 26.12 | 54.33 | 1.38 | 1.52 | 2.87 | 24.73 | 31.27 |
| 12000.0 | 26.28 | 38.47 | 1.37 | 1.37 | 3.25 | 24.14 | 30.49 |
| 13000.0 | 26.27 | 56.13 | 1.37 | 1.02 | 3.33 | 23.68 | 30.47 |
| 14000.0 | 26.03 | 43.11 | 1.40 | 1.38 | 3.14 | 23.31 | 30.19 |
| 15000.0 | 26.04 | 44.40 | 1.34 | 1.55 | 3.31 | 23.24 | 29.63 |
| 16000.0 | 26.21 | 34.69 | 1.12 | 1.36 | 3.26 | 23.06 | 29.01 |
| 17000.0 | 25.90 | 33.52 | 1.08 | 1.01 | 3.41 | 22.76 | 28.88 |
| 18000.0 | 25.12 | 37.12 | 1.16 | 1.37 | 3.72 | 21.65 | 28.98 |



ISO 9001 ISO 14001 AS 9100 CERTIFIED

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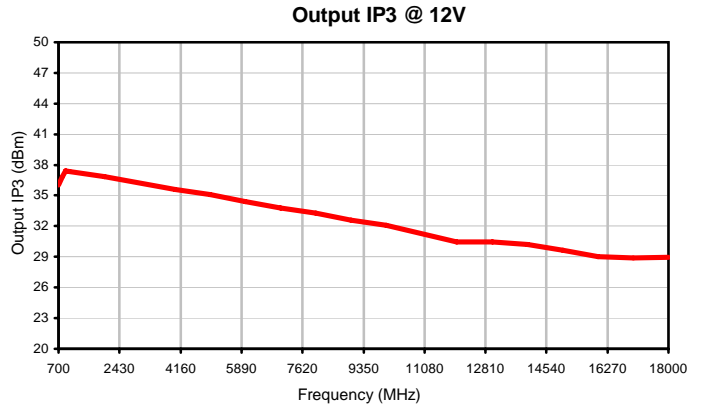
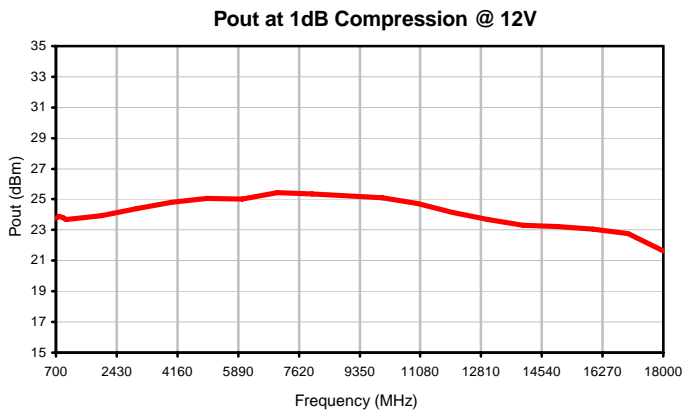
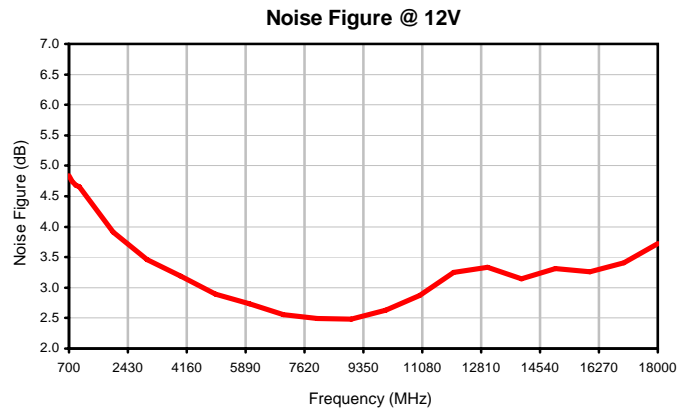
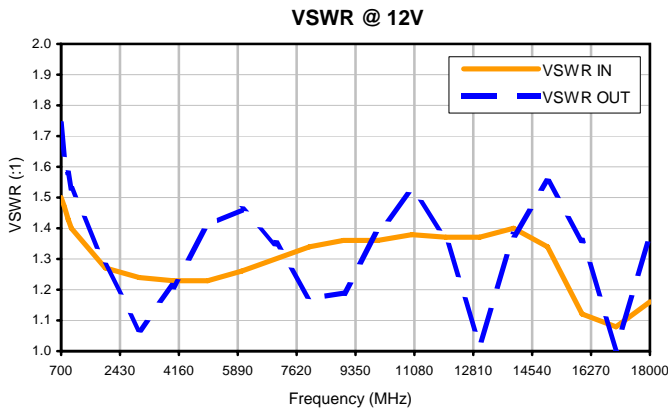
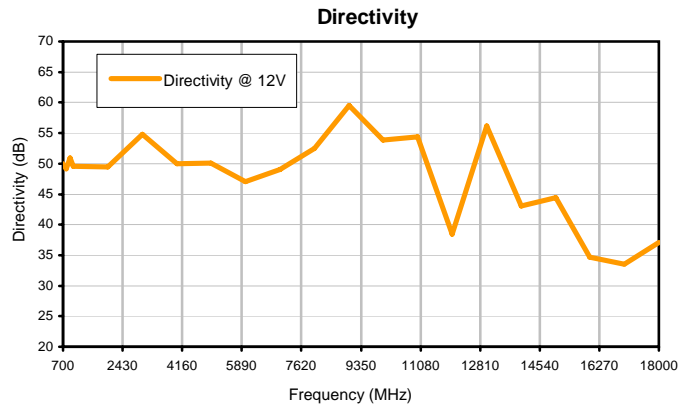
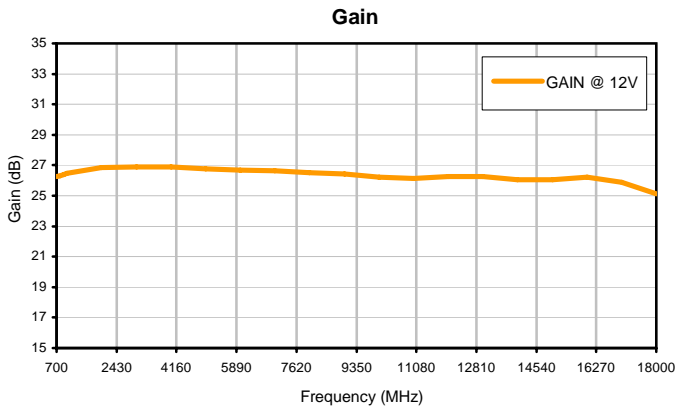
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RF/MW MICROWAVE COMPONENTS

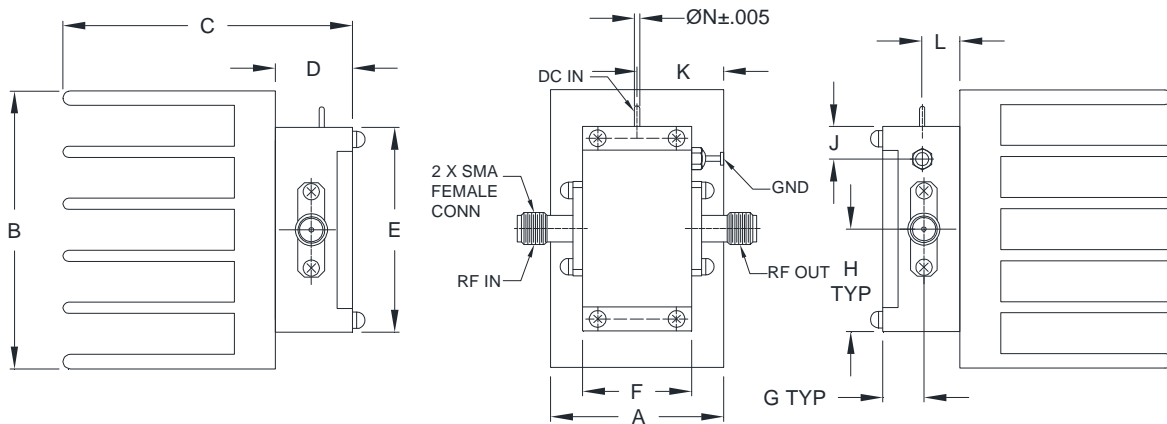


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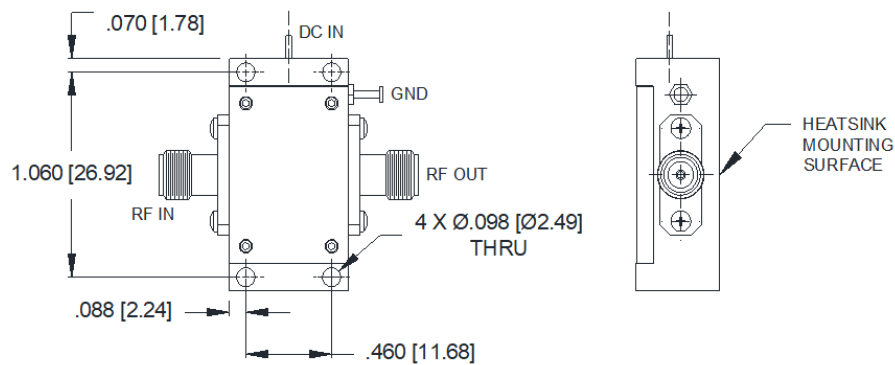
Typical Performance Curves



Outline Dimensions



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



| CASE# | A | B | C | D | E | F | G | H | J | K | L | M | N | WT. GRAM |
|--------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|---------------|----------------|---------------|---------------|---------------|----|--------------|----------|
| AV1280 | 1.01 (25.65) | 1.63 (41.40) | 1.74 (44.20) | .45 (11.43) | 1.20 (30.48) | .64 (16.26) | .24 (6.10) | .60 (15.24) | .19 (4.83) | .32 (8.08) | .27 (6.86) | -- | .03 (.76) | 58 |

| CASE# | WT. WITHOUT HEATSINK GRAM |
|--------|---------------------------|
| AV1280 | 17 |

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

Notes:

1. Case material: Aluminum alloy.
2. Case finish: Nickel plate.
3. Heat sink finish: Black anodize.

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RF/IF MICROWAVE COMPONENTS

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 | -55° to 85°C base plate temp | Individual Model Data Sheet |
| Storage Temperature | -65° to 150°C | Individual Model Data Sheet |
| Thermal Shock | -55° to 100°C, 100 cycles | MIL-STD-202, Method 107 |
| Vibration (High Frequency) | Category 24, Exposure level figures 514C-17 General use, random, 20-2000Hz, 1 hr per axis | MIL-STD-810, Method 514.5 |
| Mechanical Shock | 40Gs, 11ms, 18 shocks: 3 each direction), each axis | MIL-STD-810, Method 516-5-II |