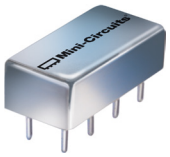
NON-CATALOG

Plug-In

Amplifier

MAN-2

50Ω Low Power 0.5 to 1000 MHz



CASE STYLE: A05

Features

- wideband, 0.5 to 1000 MHz
- low noise figure 6 dB typ.
- hermetic, metal case
- protected by US Patent, 6,943,629

Applications

- military, hi-rel applications
- VHF/UHF
- communication systems
- cellular
- instrumentation
- lab use

Amplifier Electrical Specifications

MODEL NO.	FREQUENCY (MHz)		GAIN (dB)		MAXIMUM POWER (dBm)			DYNAMIC RANGE		VSWR (:1) Typ.		DC POWER	
					Output (1 dB Compr.)		Input	NF	IP3			Volt	Current
	f_L	f_U	Min.	Flatness Max.	L	U	(no damage)	(dB) Typ.	(dBm) Typ.	In	Out	(V) Nom.	(mA) Max.
MAN-2	0.5	1000	18	±1.5	+9	+7	+15	6.0	+19	1.8	1.8	12	85

Open load is not recommended, potentially can cause damage.
With no load derate max input power by 20 dB

L= low range (f_L to $f_U/2$) U= upper range ($f_U/2$ to f_U)

Pin Connections

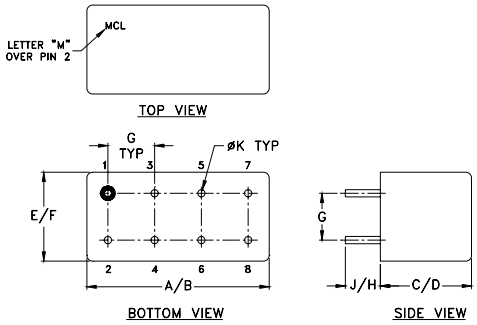
RF IN	1
RF OUT	8
DC	5
GROUND	2,3,4,6
CASE GROUND	2,3,4,6
NOT USED	7

Maximum Ratings

Operating Temperature	-54°C to 85°C
Storage Temperature	-55°C to 100°C
DC Voltage	+12.5V Max.

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

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K	wt
.770	.800	.240	.250	.370	.400	.200	.20	.14	.031	grams
19.558	20.32	6.096	6.35	9.398	10.16	5.08	5.08	3.556	0.7874	3.7

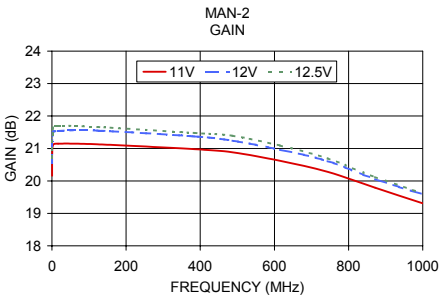
Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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 therein. 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

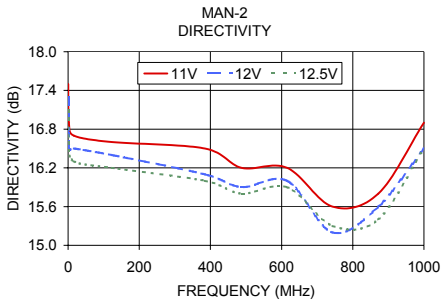
NON-CATALOG

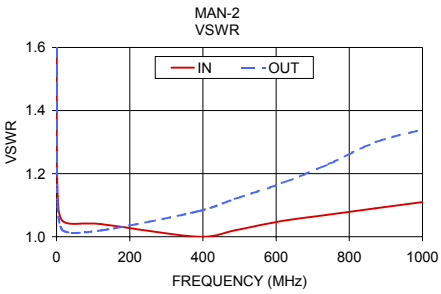
Typical Performance Data/Curves

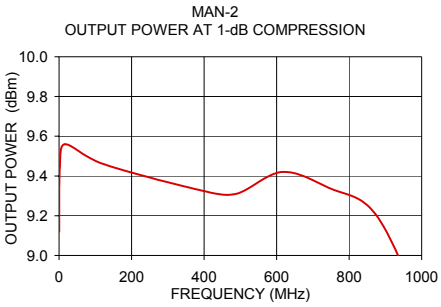
MAN-2

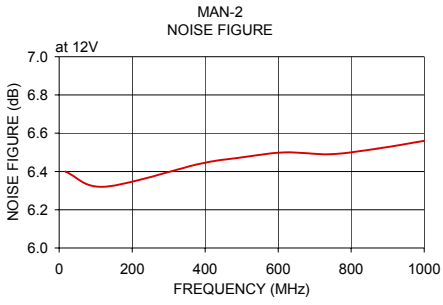
FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR (:1)		NOISE FIGURE (dB)	POUT at 1 dB COMPR. (dBm)
	11V	12V	12.5V	11V	12V	12.5V	IN	OUT	12V	12V
0.50	20.16	20.56	20.71	17.50	17.30	17.10	1.61	1.77	—	9.12
2.20	21.09	21.48	21.63	16.90	16.50	16.60	1.16	1.11	—	9.45
16.60	21.15	21.54	21.70	16.70	16.50	16.30	1.05	1.02	6.40	9.56
122.70	21.13	21.55	21.66	16.60	16.40	16.20	1.04	1.02	6.32	9.46
384.90	20.98	21.37	21.48	16.50	16.10	16.00	1.00	1.08	6.44	9.33
487.40	20.88	21.24	21.39	16.20	15.90	15.80	1.02	1.12	6.47	9.31
615.60	20.62	20.96	21.09	16.20	16.00	15.90	1.05	1.17	6.50	9.42
743.70	20.28	20.61	20.69	15.60	15.20	15.30	1.07	1.23	6.49	9.34
871.90	19.79	20.05	20.12	15.80	15.60	15.40	1.09	1.30	6.52	9.21
1000.00	19.31	19.59	19.62	16.90	16.50	16.50	1.11	1.34	6.56	8.74











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Typical Performance Data

FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR IN (:1)	VSWR OUT (:1)	NOISE FIGURE (dB)	Pout at 1dB Comp. (dBm)
	11V	12V	12.5V	11V	12V	12.5V	12V	12V	12V	12V
0.5	20.16	20.56	20.71	17.50	17.30	17.10	1.61	1.77		9.12
2.2	21.09	21.48	21.63	16.90	16.50	16.60	1.16	1.11		9.45
16.6	21.15	21.54	21.70	16.70	16.50	16.30	1.05	1.02	6.40	9.56
122.7	21.13	21.55	21.66	16.60	16.40	16.20	1.04	1.02	6.32	9.46
384.9	20.98	21.37	21.48	16.50	16.10	16.00	1.00	1.08	6.44	9.33
487.4	20.88	21.24	21.39	16.20	15.90	15.80	1.02	1.12	6.47	9.31
615.6	20.62	20.96	21.09	16.20	16.00	15.90	1.05	1.17	6.50	9.42
743.7	20.28	20.61	20.69	15.60	15.20	15.30	1.07	1.23	6.49	9.34

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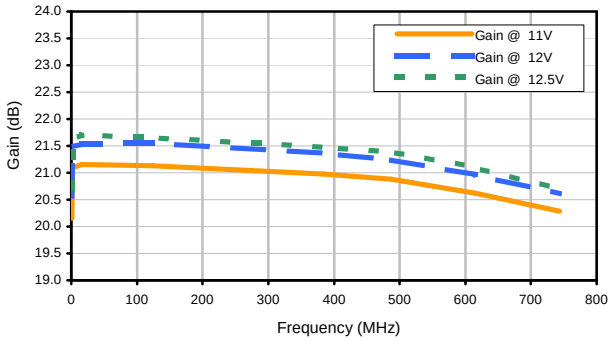
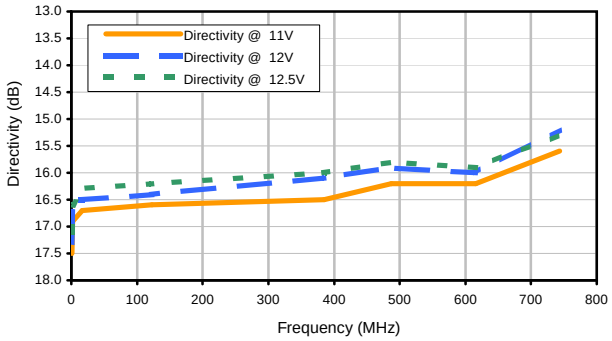
Typical Performance Curves

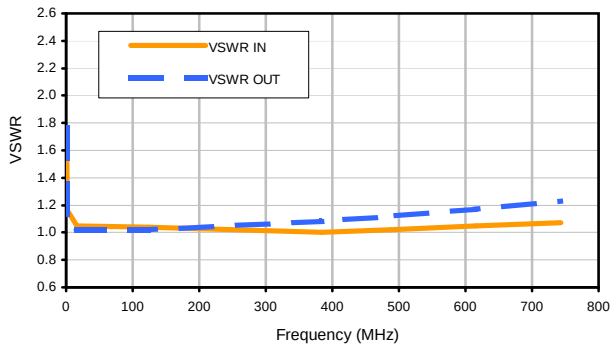
Gain



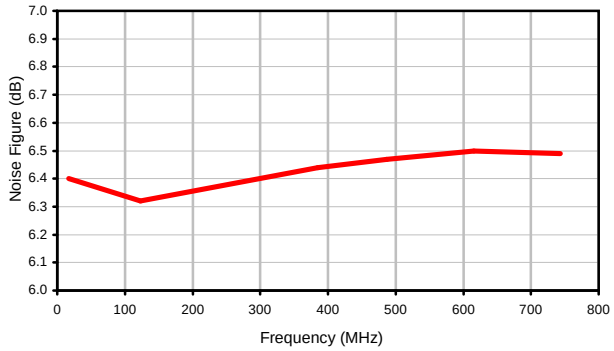
Directivity



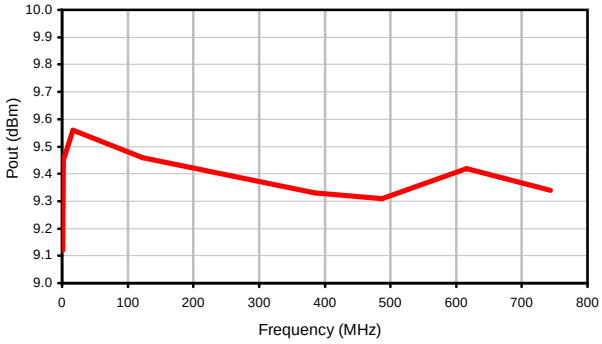
VSWR @ 12V



Noise Figure @ 12V



Pout at 1dB Compression @ 12V



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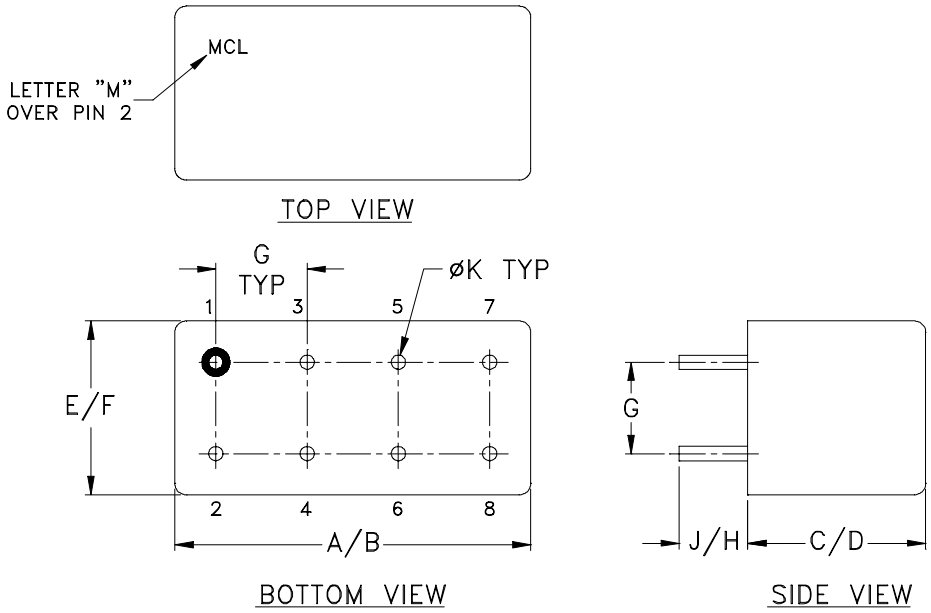
Case Style A

A01
A04
A05
A06

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT, GRAM
A01	.770 (19.56)	.800 (20.32)	.385 (9.78)	.400 (10.16)	.370 (9.40)	.400 (10.16)	.200 (5.08)	.20 (5.08)	.14 (3.56)	.031 (.79)	5.2
A04			.200 (5.08)	.210 (5.33)							3.7
A05			.240 (6.10)	.250 (6.35)							3.7
A06			.285 (7.24)	.310 (7.87)							5.2

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

Notes:

1. Header material: C.R.S.
   Pin material: #52 alloy.
   Cover material: Cupro-Nickel.
2. Pin finish: Electro Tin-Silver.
3. Insulated spacer available. Request P/N B14-045-01.
4. Tolerance on pin diameter +/-.005 inch.
5. Glass meniscus 0.015 inch max.
6. Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.

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Mini-Circuits

Environmental Specifications ENV01

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 100° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
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
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A

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Specification	Test/Inspection Condition	Reference/Spec
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D

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