Plug-In

Low Noise Amplifier

AMP-15

50Ω 5 MHz to 1000 MHz

Generic photo used for illustration purposes only

CASE STYLE: PP120

Features

- very low noise, 2.8 dB typ.
- wideband, 5 to 1000 MHz
- hermetic, TO-8 can

Applications

- military, hi-rel applications
- small signal amplifier
- buffer amplifier
- printed circuit design
- VHF/UHF
- cellular

Low Noise Amplifier Electrical Specifications

MODEL NO.	FREQUENCY (MHz)		NOISE FIGURE (dB)	GAIN (dB)			MAXIMUM POWER (dBm)		INTERCEPT POINT (dBm)	VSWR (:1) Typ.		DC POWER	
					Flatness Max.							Volt (V)	Current (mA)
	f_L	f_U	Typ.	Min.	m	Total Range	Output (1 dB Compr.)	Input (no damage)	IP3 Typ.	In	Out	Nom.	Max.
AMP-15	5	1000	2.8	13	±0.6	±1.2	+8	+13	+22	2.0	2.0	15	29

m = mid range [2 fL to fU/2]

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

Pin Connections

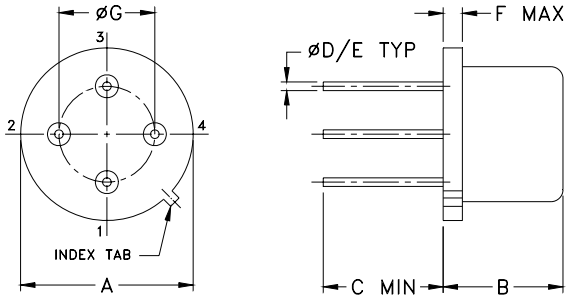
RF IN	2
RF OUT	4
DC	1
GROUND	3
CASE GROUND	3

Maximum Ratings

Operating Temperature	-54°C to 85°C
Storage Temperature	-55°C to 100°C
DC Voltage	+17V 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	wt
.50	.21	.15	.016	.020	.04	.300	grams
12.70	5.33	3.81	0.41	0.51	1.02	7.62	1.5

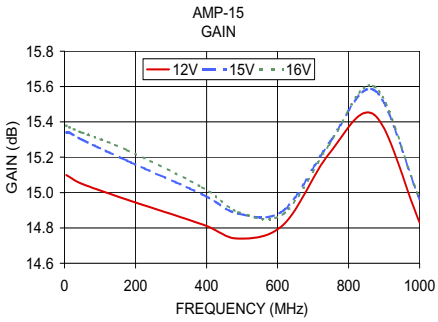
Notes

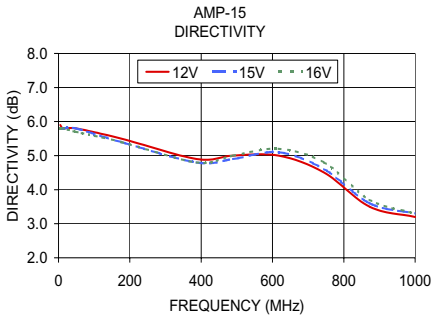
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

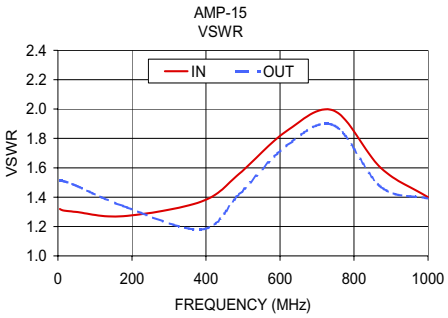
Typical Performance Data/Curves

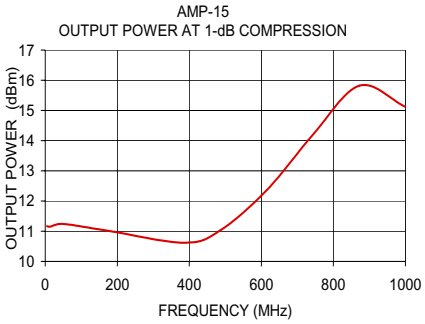
AMP-15

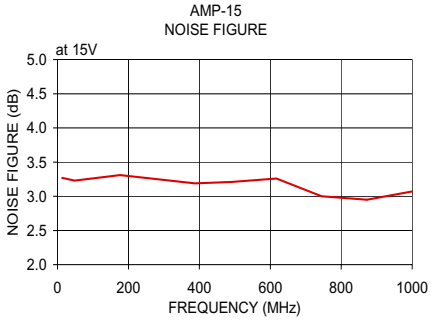
FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR (:1)		NOISE FIGURE (dB)	POUT at 1 dB COMPR. (dBm)
	12V	15V	16V	12V	15V	16V	IN	OUT	15V	15V
5.00	15.10	15.34	15.38	5.90	5.80	5.80	1.32	1.51	—	11.17
13.20	15.09	15.34	15.37	5.80	5.80	5.80	1.31	1.51	3.27	11.15
48.20	15.05	15.30	15.34	5.80	5.80	5.70	1.30	1.48	3.23	11.24
176.20	14.96	15.18	15.24	5.50	5.40	5.40	1.27	1.34	3.31	11.01
387.70	14.82	14.99	15.03	4.90	4.80	4.80	1.37	1.18	3.19	10.62
489.70	14.74	14.88	14.89	5.00	4.90	5.00	1.56	1.42	3.21	11.06
617.30	14.82	14.90	14.88	5.00	5.10	5.20	1.85	1.75	3.26	12.39
744.90	15.22	15.28	15.27	4.50	4.60	4.80	1.99	1.89	3.00	14.22
872.40	15.44	15.58	15.60	3.50	3.60	3.70	1.60	1.47	2.95	15.82
1000.00	14.83	14.96	14.96	3.20	3.30	3.30	1.40	1.39	3.07	15.12











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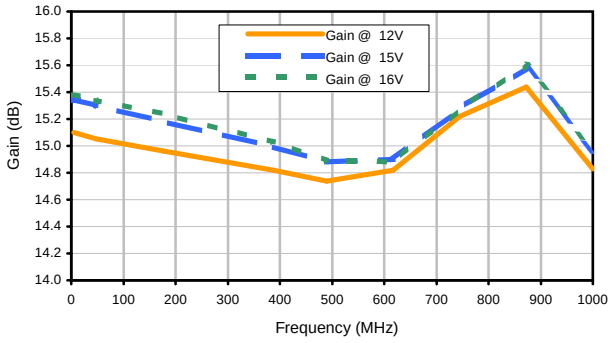
Amplifier AMP-15

Typical Performance Data

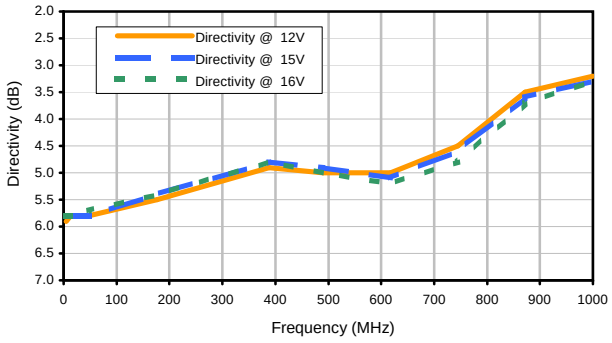
FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR IN (:1)	VSWR OUT (:1)	NOISE FIGURE (dB)	Pout at 1dB Comp. (dBm)
	12V	15V	16V	12V	15V	16V	15V	15V	15V	15V
5.0	15.10	15.34	15.38	5.90	5.80	5.80	1.32	1.51		11.17
13.2	15.09	15.34	15.37	5.80	5.80	5.80	1.31	1.51	3.27	11.15
48.2	15.05	15.30	15.34	5.80	5.80	5.70	1.30	1.48	3.23	11.24
176.2	14.96	15.18	15.24	5.50	5.40	5.40	1.27	1.34	3.31	11.01
387.7	14.82	14.99	15.03	4.90	4.80	4.80	1.37	1.18	3.19	10.62
489.7	14.74	14.88	14.89	5.00	4.90	5.00	1.56	1.42	3.21	11.06
617.3	14.82	14.90	14.88	5.00	5.10	5.20	1.85	1.75	3.26	12.39
744.9	15.22	15.28	15.27	4.50	4.60	4.80	1.99	1.89	3.00	14.22
872.4	15.44	15.58	15.60	3.50	3.60	3.70	1.60	1.47	2.95	15.82
1000.0	14.83	14.96	14.96	3.20	3.30	3.30	1.40	1.19	3.07	15.12

Typical Performance Curves

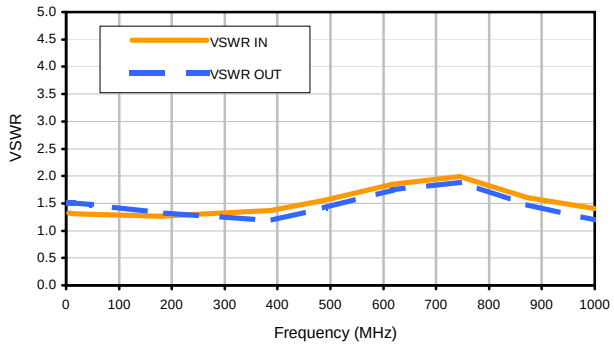
Gain



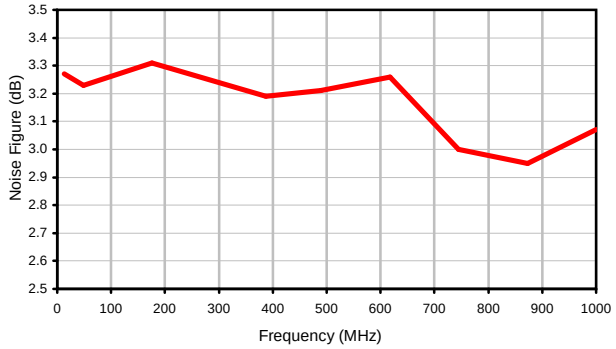
Directivity



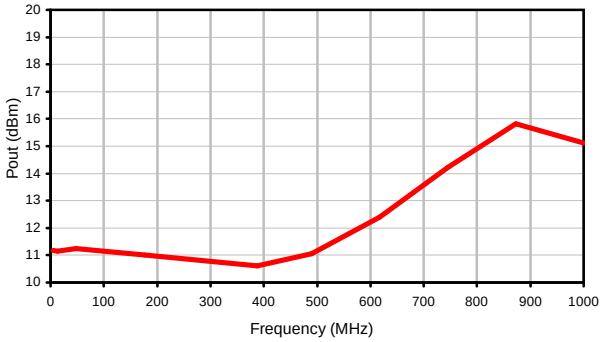
VSWR @ 15V



Noise Figure @ 15V



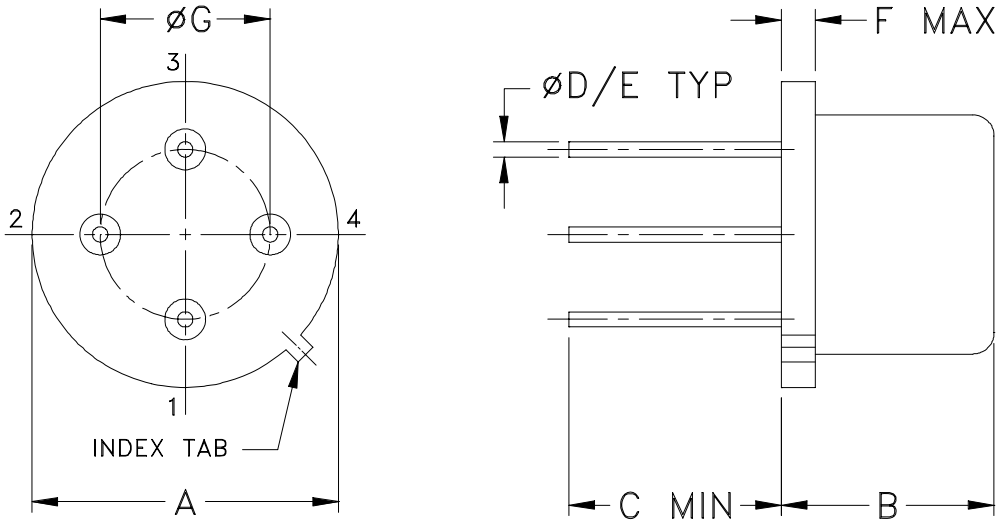
Pout at 1dB Compression @ 15V



Case Style PP

Outline Dimensions

PP120
PP230



CASE#	A	B	C	D	E	F	G	WT, GRAM
PP120	.50 (12.70)	.21 (5.33)	.15 (3.81)	.016 (.41)	.020 (.51)	.04 (1.02)	.300 (7.62)	1.5
PP230		.250 (6.35)	.24 (6.10)					1.8

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

Notes:

1. Header material: C.R.S. or kovar.
   Pin material: # 52 alloy or kovar.
   Cover material: Nickel.
2. Pin finish: Gold plate 25 µinches (.64 microns) min.
4. For pin designations see specifications data sheet.
5. Pin numbers do not appear on unit, for reference only.

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Environmental Specifications ENV36

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	-54° to 85°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, 10 cycles	MIL-STD-202, Method 107, Condition A, except +100°C & 10 cycles
Constant Acceleration	5000g, Y1 axis	MIL-STD-883, Method 2001, Condition A, except Y1 axis only
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
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D