Coaxial

Amplifier

ZJL-4HG+

50Ω Medium Power 20 to 4000 MHz

Generic photo used for illustration purposes only

CASE STYLE: BW459

Connectors	Model
SMA	ZJL-4HG+

+RoHS Compliant

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

Features

- wideband, 20 to 4000 MHz
- high IP3, +30 dBm typ.
- rugged, compact case 1.07”x0.61”(including mounting bracket)
- protected by US Patent, 6,943,629

Applications

- radar
- 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	Typ.	Min.[2]	Flatness[1] Typ.	L_W	U	(no damage)	(dB) Typ.	(dBm) Typ.	In	Out	(V) Nom.	(mA) Max.
ZJL-4HG+	20	4000	17.0	13.0	±1.5	+15	+10	+13	4.5	+30	1.5	1.4	12	75

1. Flatness specified to 0.75 f_U, dynamic range at 2 GHz.
2. 12.8dB Min. above 3600 MHz

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

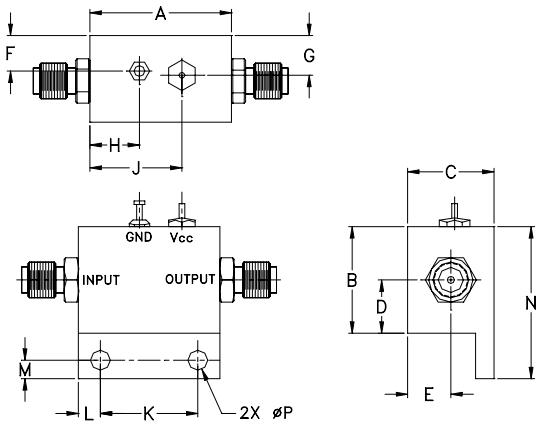
L_W= low range (f_L to f_U/2) U= upper range (f_U/2 to f_U)

Maximum Ratings

Operating Temperature	-40°C to 75°C
Storage Temperature	-55°C to 100°C
DC Voltage	+13V Max.

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

Outline Drawing



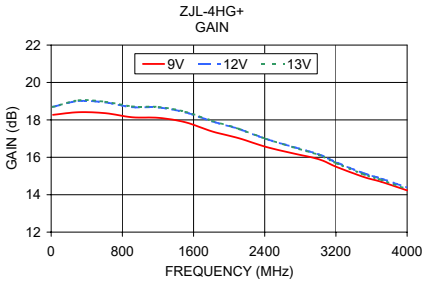
Outline Dimensions (inch / mm)

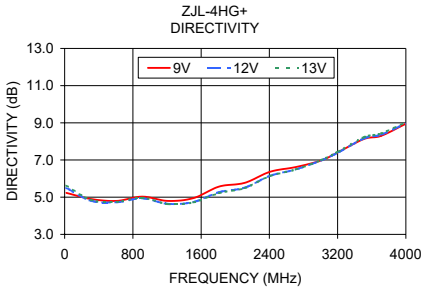
A	B	C	D	E	F	G	H	J	K	L	M	N	P	wt
1.00	.75	.61	.38	.29	.25	.26	.35	.65	.688	.156	.13	1.07	.140	grams
25.40	19.05	15.49	9.65	7.37	6.35	6.60	8.89	16.51	17.48	3.96	3.30	27.18	3.56	25

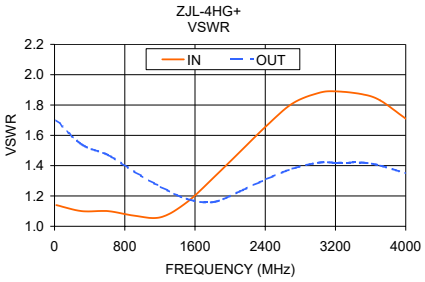
Notes

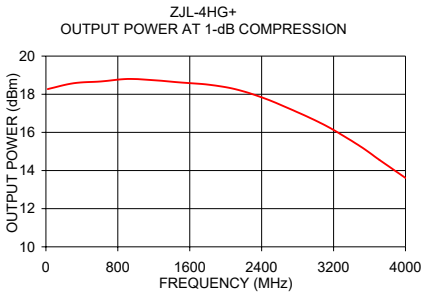
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit’s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

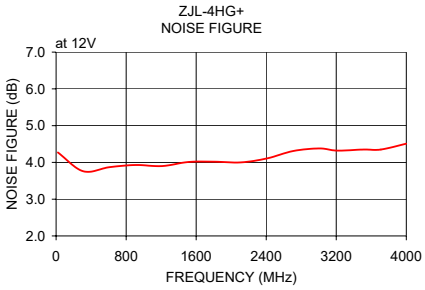
FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR (:1)		NOISE FIGURE (dB)	POUT at 1 dB COMPR. (dBm)
	9V	12V	13V	9V	12V	13V	IN	OUT	12V	12V
20.00	18.27	18.70	18.69	5.23	5.50	5.63	1.14	1.70	4.27	18.27
310.00	18.41	19.01	19.05	4.90	4.81	4.85	1.10	1.54	3.76	18.58
610.00	18.36	18.93	18.97	4.80	4.73	4.75	1.10	1.47	3.87	18.67
910.00	18.14	18.68	18.72	5.03	4.94	4.97	1.07	1.36	3.93	18.80
1210.00	18.11	18.66	18.69	4.80	4.64	4.63	1.06	1.26	3.90	18.73
1510.00	17.87	18.40	18.43	4.95	4.74	4.72	1.16	1.18	4.01	18.61
1810.00	17.38	17.92	17.95	5.57	5.27	5.22	1.32	1.16	4.02	18.50
2110.00	17.02	17.51	17.52	5.77	5.51	5.49	1.49	1.23	4.00	18.26
2410.00	16.56	16.99	17.00	6.37	6.15	6.14	1.66	1.31	4.11	17.82
2710.00	16.22	16.57	16.55	6.62	6.49	6.49	1.81	1.38	4.31	17.24
3010.00	15.89	16.15	16.12	6.98	6.98	7.00	1.88	1.42	4.38	16.60
3210.00	15.48	15.72	15.67	7.43	7.41	7.46	1.89	1.42	4.32	16.10
3510.00	14.95	15.15	15.09	8.13	8.16	8.23	1.87	1.42	4.35	15.23
3710.00	14.69	14.86	14.79	8.30	8.36	8.43	1.83	1.40	4.35	14.56
4000.00	14.23	14.38	14.30	8.95	8.97	9.03	1.71	1.35	4.51	13.61











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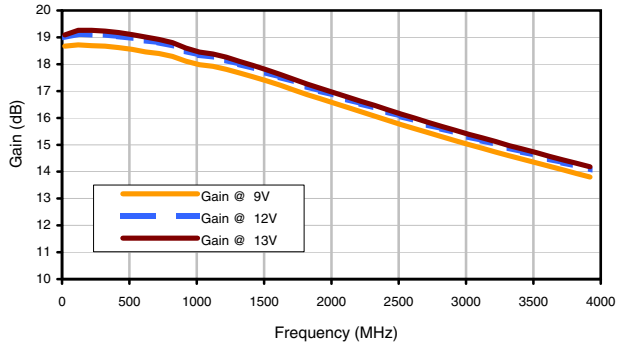
Amplifier ZJL-4HG+

Typical Performance Data

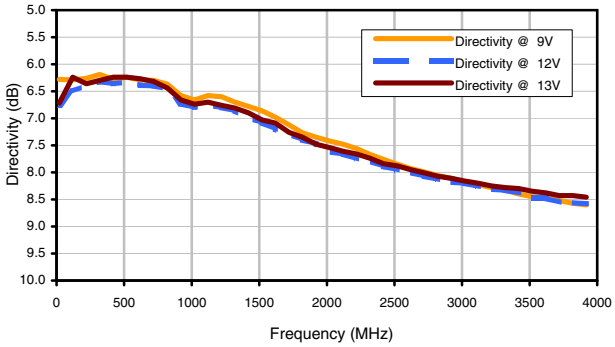
FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR IN (:1)	VSWR OUT (:1)	NOISE FIGURE (dB)	Pout at 1dB Comp. (dBm)
	9V	12V	13V	9V	12V	13V				
20	18.67	18.99	19.09	6.28	6.76	6.72	1.50	1.33	3.26	16.70
300	18.67	19.10	19.23	6.24	6.28	6.25	1.46	1.24	3.11	16.85
600	18.47	18.88	19.01	6.28	6.42	6.31	1.45	1.24	3.18	16.83
900	18.15	18.53	18.65	6.51	6.65	6.59	1.44	1.26	3.16	16.75
1200	17.83	18.17	18.28	6.60	6.80	6.73	1.47	1.30	3.15	16.76
1500	17.41	17.71	17.82	6.84	7.07	6.97	1.48	1.34	3.36	16.68
1800	16.90	17.19	17.30	7.20	7.40	7.37	1.50	1.38	3.28	16.48
2100	16.42	16.71	16.81	7.47	7.65	7.59	1.51	1.42	3.34	16.01
2400	15.94	16.24	16.32	7.77	7.89	7.81	1.52	1.45	3.43	15.18
2700	15.48	15.77	15.86	8.00	8.02	7.99	1.52	1.49	3.46	14.71
3000	15.04	15.32	15.42	8.14	8.21	8.14	1.51	1.53	3.53	13.96
3200	14.76	15.04	15.14	8.27	8.33	8.23	1.49	1.56	3.53	13.34
3500	14.36	14.63	14.74	8.41	8.44	8.34	1.47	1.62	3.44	12.39
3700	14.09	14.36	14.47	8.53	8.51	8.41	1.44	1.65	3.53	12.22
4000	13.69	13.95	14.07	8.63	8.62	8.51	1.40	1.74	3.62	11.58

Typical Performance Curves

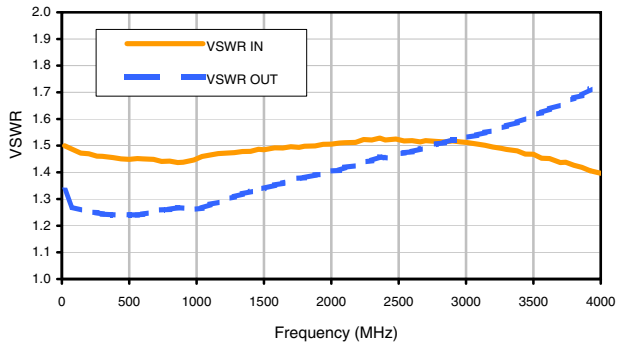
Gain



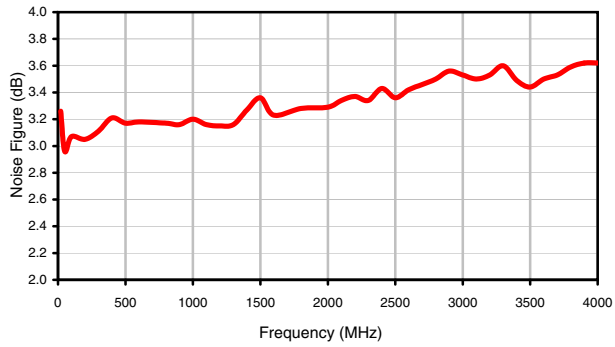
Directivity



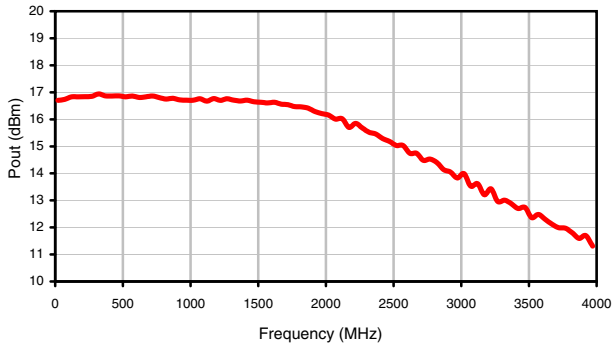
VSWR



Noise Figure



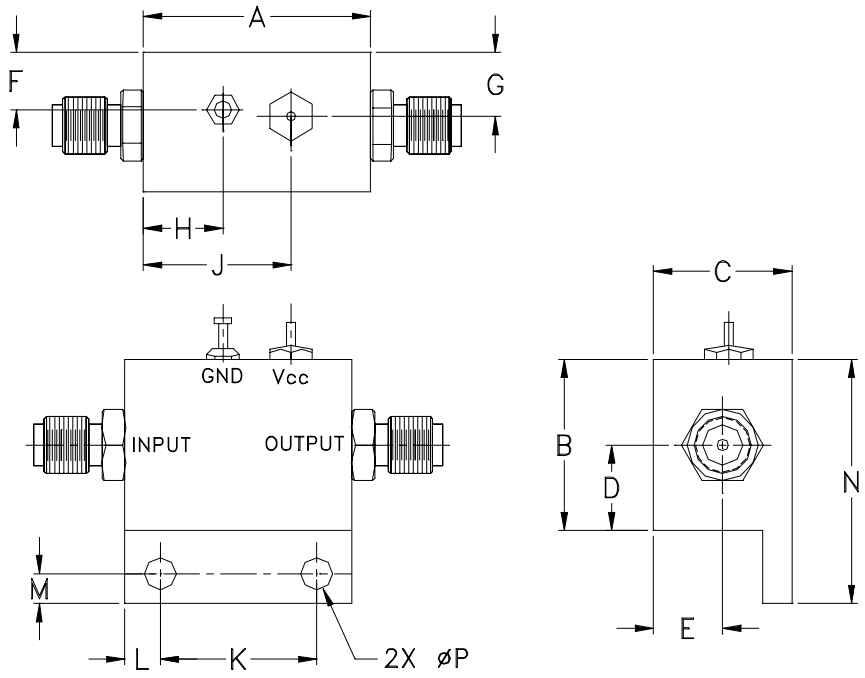
Pout at 1dB Compression



Case Style BW

BW459

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
BW459	1.00 (25.40)	.75 (19.05)	.61 (15.49)	.38 (9.65)	.29 (7.37)	.25 (6.35)	.26 (6.60)	.35 (8.89)	.65 (16.51)	.688 (17.48)	.156 (3.96)	.13 (3.30)	1.07 (27.18)

CASE#	P	WT. GRAMS
BW459	.140 (3.56)	25

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

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.

Mini-Circuits®
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Environmental Specifications ENV23T6

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 75°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Stabilization Bake	(non-operating) 125°C, 24 hours	- - -
Burn-in at Elevated Temp.	(DC on) 160 hours at 85° C	MIL-STD-202, Method 108
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition A, except 100°C