

High IP3

Low Noise Amplifier

ZRL-2150+

50Ω

950 to 2150 MHz

Features

- High IP3, +33 dBm typ.
- Low Noise figure, 1.5 dB typ.
- Broadband flat gain response
- Excellent return loss, 20 dB typ.
- Internal voltage regulated
- Over-voltage and transient protected

Applications

- PCS, UMTS
- Mobile satellite service
- Baseband amp, fiber optic driver
- Aeronautical and defense communications



Generic photo used for illustration purposes only

Case Style: FJ893

Connectors	Model
SMA	ZRL-2150+

+RoHS Compliant

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

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		950		2150	MHz
Noise Figure	950 - 2150	—	1.5	2.2	dB
	1500 - 2000	—	1.3	2.0	
Gain	950 - 2150	22.5	25	—	dB
	1500 - 2000	23	25	—	
Gain Flatness	950 - 2150	—	±1.1	±1.8	dB
	1500 - 2000	—	±0.9	±1.5	
Output Power at 1dB compression	950 - 2150	16.3	22	—	dBm
	1500 - 2000	21.3	24	—	
Output Power at 3dB compression	950 - 2150	—	22.5	—	dBm
	1500 - 2000	—	25.2	—	
Output third order intercept point ¹	950 - 2150	—	+33	—	dBm
	1500 - 2000	—	+34	—	
Input VSWR	950 - 2150	—	1.3	—	:1
	1500 - 2000	—	1.3	—	
Output VSWR	950 - 2150	—	1.2	—	:1
	1500 - 2000	—	1.2	—	
Active Directivity	950 - 2150	—	26	—	dB
	1500 - 2000	—	21	—	
DC Supply Voltage ²		—	12	—	V
Supply Current		—	255	300	mA

1. 1 MHz tone spacing.

2. Unit is internally voltage regulated for 6.5 to 17VDC input voltage range.

Maximum Ratings

Parameter	Ratings
Operating Temperature	-40°C to 80°C case -40°C to 60° ambient
Storage Temperature	-55°C to 100°C
DC Voltage	+17V
Input RF Power (no damage)	+10 dBm

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

Notes

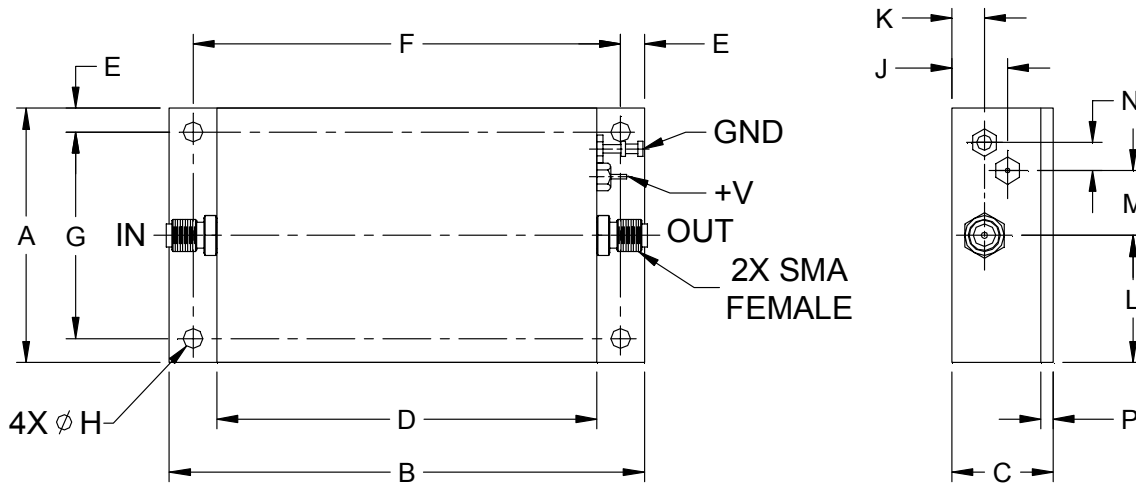
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.

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



Outline Drawing



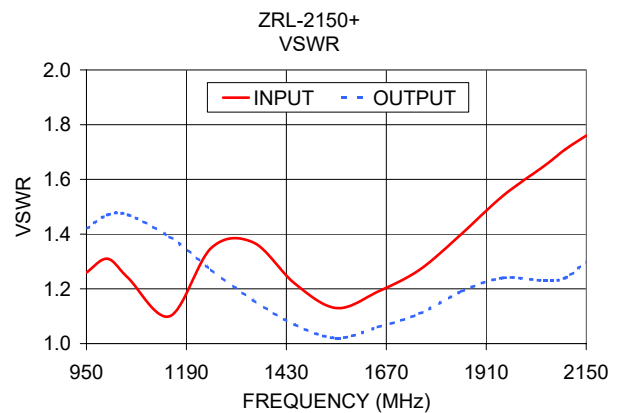
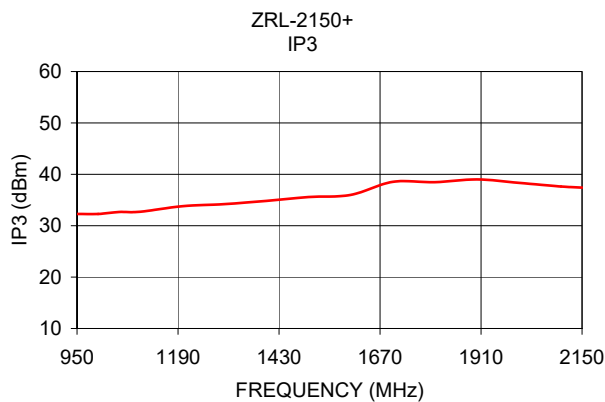
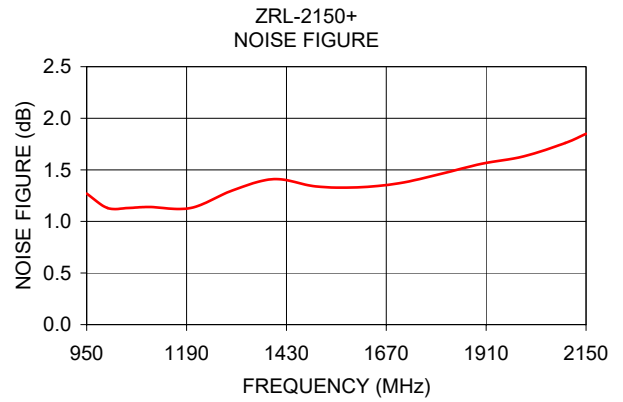
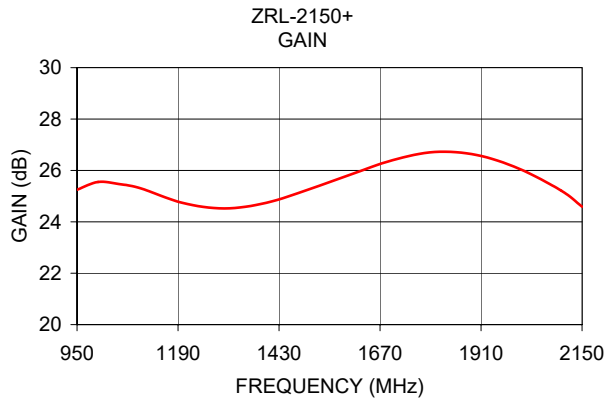
Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	wt
2.00	3.75	0.80	3.00	0.19	3.374	1.624	0.156	0.44	0.26	1.00	0.51	0.22	0.10	grams
50.80	95.25	20.32	76.20	4.83	85.70	41.25	3.96	11.18	6.60	25.40	12.95	5.59	2.54	135

Notes

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Low Noise Amplifier

ZRL-2150+

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
950.0	24.74	32.89	1.23	1.67	1.20	18.74
980.0	24.98	32.33	1.35	1.67	1.14	18.74
1010.0	25.09	35.20	1.40	1.65	1.09	18.78
1040.0	25.09	32.35	1.38	1.61	1.05	19.08
1070.0	25.06	30.66	1.32	1.57	1.02	19.61
1100.0	25.04	31.73	1.25	1.53	1.02	20.32
1130.0	25.05	29.43	1.20	1.48	1.02	20.70
1160.0	25.04	30.06	1.21	1.43	1.04	20.99
1190.0	24.88	34.40	1.26	1.39	1.06	21.60
1220.0	24.72	30.29	1.31	1.34	1.08	21.87
1250.0	24.68	30.02	1.36	1.30	1.11	22.09
1280.0	24.67	29.08	1.38	1.25	1.14	22.45
1310.0	24.66	29.59	1.39	1.22	1.14	22.63
1340.0	24.69	27.60	1.38	1.18	1.15	22.77
1370.0	24.70	29.99	1.35	1.15	1.18	22.93
1400.0	24.74	29.24	1.31	1.11	1.16	23.06
1430.0	24.80	25.68	1.26	1.08	1.18	23.24
1460.0	24.88	26.93	1.22	1.05	1.19	23.45
1490.0	24.96	26.18	1.17	1.02	1.20	23.77
1520.0	25.05	25.50	1.14	1.02	1.20	24.40
1550.0	25.16	24.54	1.11	1.05	1.21	25.21
1580.0	25.23	26.34	1.10	1.07	1.22	25.62
1610.0	25.30	22.43	1.12	1.09	1.24	25.07
1640.0	25.38	23.24	1.15	1.12	1.24	24.55
1670.0	25.43	21.21	1.17	1.14	1.25	24.40
1700.0	25.47	22.24	1.20	1.16	1.27	24.29
1730.0	25.53	22.68	1.22	1.18	1.28	24.24
1760.0	25.58	22.09	1.25	1.20	1.30	24.24
1790.0	25.53	21.00	1.28	1.22	1.30	24.31
1820.0	25.42	20.47	1.32	1.24	1.32	24.34
1850.0	25.43	21.73	1.36	1.26	1.32	24.38
1880.0	25.45	19.74	1.39	1.28	1.33	24.41
1910.0	25.36	19.26	1.42	1.30	1.34	24.46
1940.0	25.21	19.53	1.45	1.32	1.35	24.55
1970.0	25.15	20.11	1.48	1.32	1.37	24.63
2000.0	25.01	18.28	1.50	1.32	1.41	24.66
2030.0	24.79	19.92	1.50	1.28	1.43	24.67
2060.0	24.69	19.61	1.50	1.25	1.48	24.67
2090.0	24.54	19.38	1.50	1.22	1.55	24.62
2120.0	24.27	19.25	1.52	1.22	1.63	24.54
2150.0	23.95	19.52	1.55	1.25	1.74	24.41

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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant

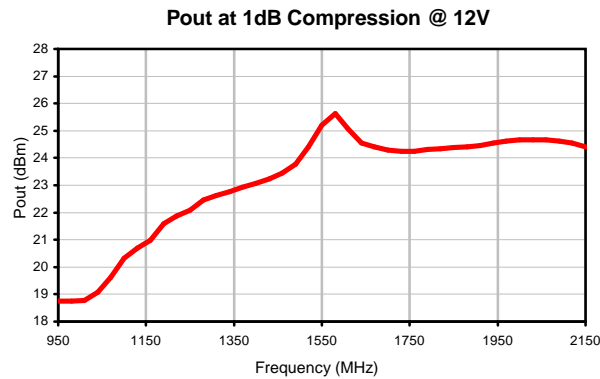
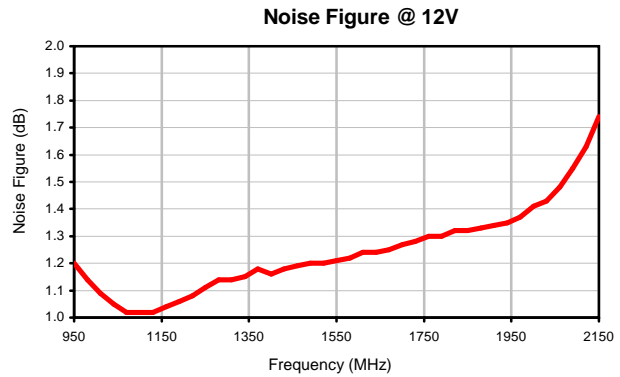
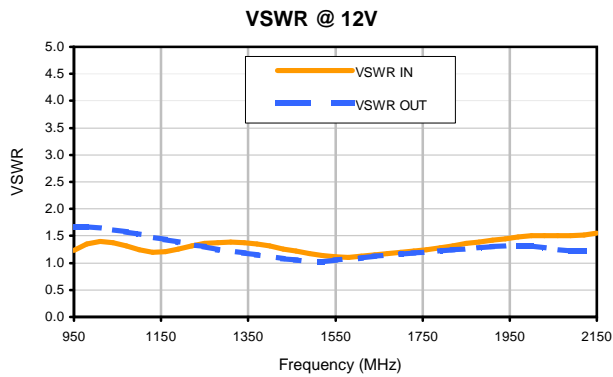
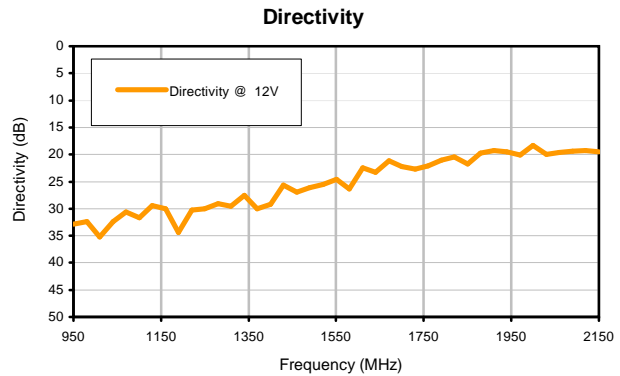
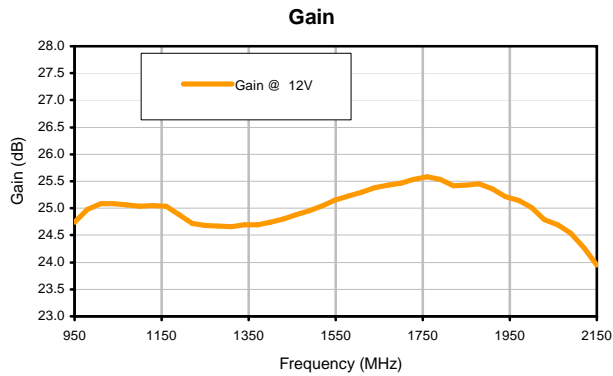
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Typical Performance Curves

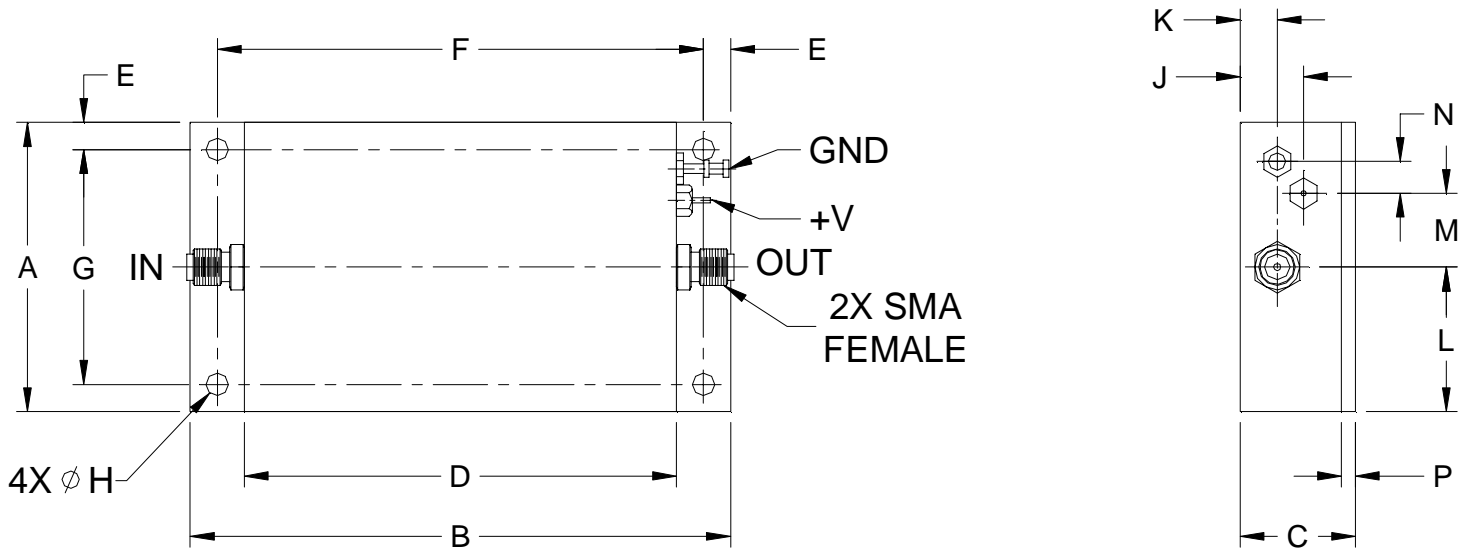


Case Style

FJ

Outline Dimensions

FJ893



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT. GRAMS
FJ893	2.00 (50.80)	3.75 (95.25)	.80 (20.32)	3.00 (76.20)	.19 (4.83)	3.374 (85.70)	1.624 (41.25)	.156 (3.96)	.44 (11.18)	.26 (6.60)	1.00 (25.40)	.51 (12.95)	.22 (5.59)	.10 (2.54)	135

Dimensions are in inches (mm). Tolerances: 2PL. +/- .03; 3PL. +/- .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®

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

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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 60° C Ambient Environment	Individual Model Data Sheet
Operating Temperature	-40° to 80° C Case Temperature	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