

High IP3

# Low Noise Amplifier

## ZRL-1200+

50Ω

650 to 1200 MHz

### Features

- High IP3, +46 dBm typ.
- Low Noise figure, 2.0 dB typ.
- Broadband flat gain response
- Internal voltage regulated
- Over-voltage and transient protected

### Applications

- Low noise, high dynamic range
- Analog/digital cellular
- PCS, GSM, TDMA, CDMA
- UHF television
- Driver amplifier



Generic photo used for illustration purposes only

Case Style: FJ893

Connectors	Model
SMA	ZRL-1200+

**+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		650		1200	MHz
Noise Figure	650 - 1200	—	1.8	3.0	dB
	800 - 950	—	1.8	3.0	
Gain	650 - 1200	24	29	—	dB
	800 - 950	25	30	—	
Gain Flatness	650 - 1200	—	±0.8	±1.2	dB
	800 - 950	—	±0.4	±0.8	
Output Power at 1dB compression	650 - 1200	23.5	25	—	dBm
	800 - 950	23.5	25	—	
Output Power at 3dB compression	650 - 1200	—	25.7	—	dBm
	800 - 950	—	25.8	—	
Output third order intercept point <sup>1</sup>	650 - 1200	—	+46	—	dBm
	800 - 950	—	+46	—	
Input VSWR	650 - 1200	—	1.25	—	:1
	800 - 950	—	1.20	—	
Output VSWR	650 - 1200	—	1.25	—	:1
	800 - 950	—	1.20	—	
Active Directivity	650 - 1200	—	15	—	dB
	800 - 950	—	15	—	
DC Supply Voltage <sup>2</sup>		—	12	—	V
Supply Current		—	540	575	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

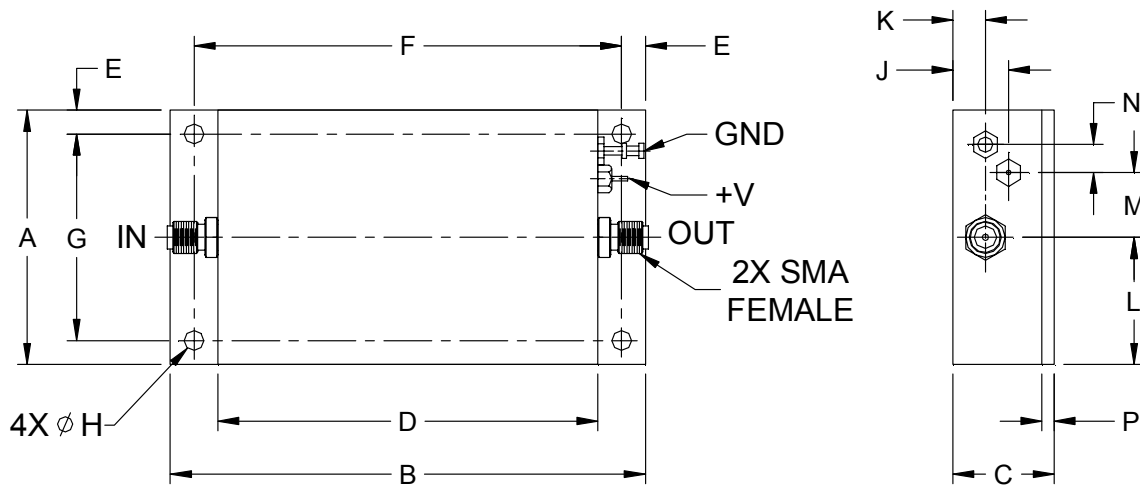
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## Outline Drawing



## Outline Dimensions (inch/mm)

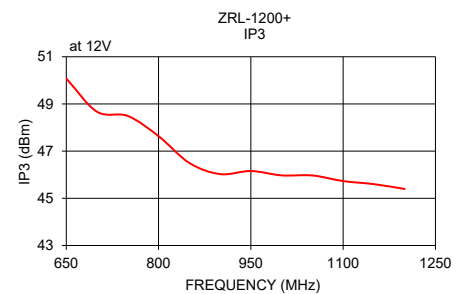
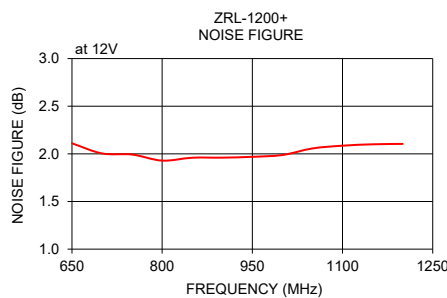
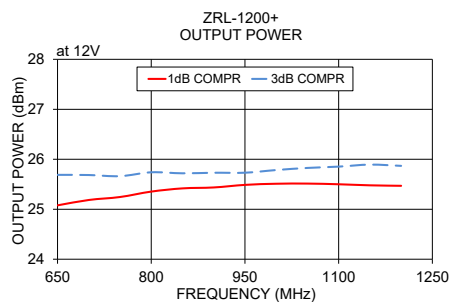
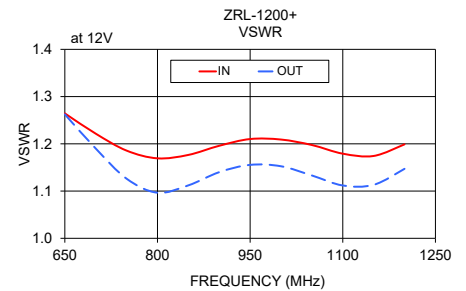
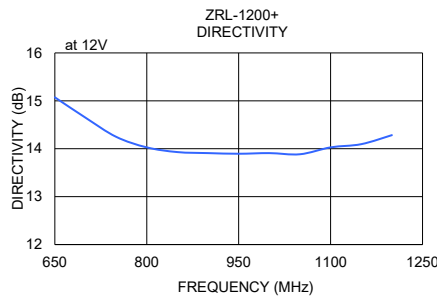
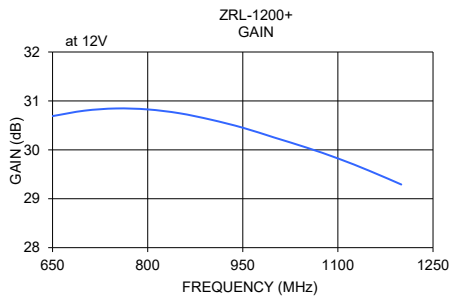
A	B	C	D	E	F	G	H	J	K	L	M	N	P	wt
2.00	3.75	0.80	3.00	0.19	3.374	1.624	0.156	0.44	0.26	1.00	0.51	0.22	0.10	grams
50.80	95.25	20.32	76.20	4.83	85.70	41.25	3.96	11.18	6.60	25.40	12.95	5.59	2.54	135

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FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		POUT at 1dB COMPR. (dBm)	NOISE FIGURE (dB)	OUTPUT IP3 (dBm)
	12V	12V	IN	OUT	12V	12V	12V
650	30.69	15.07	1.26	1.26	25.08	2.11	50.08
700	30.80	14.65	1.22	1.19	25.19	2.00	48.67
750	30.85	14.25	1.19	1.13	25.24	1.99	48.49
800	30.83	14.03	1.17	1.10	25.35	1.93	47.63
850	30.75	13.93	1.18	1.11	25.42	1.96	46.50
900	30.62	13.91	1.20	1.14	25.44	1.96	46.03
950	30.45	13.90	1.21	1.16	25.49	1.97	46.16
1000	30.25	13.91	1.21	1.15	25.51	1.99	45.97
1050	30.05	13.88	1.20	1.13	25.51	2.06	45.97
1100	29.82	14.03	1.18	1.11	25.50	2.09	45.73
1150	29.57	14.09	1.17	1.11	25.48	2.10	45.60
1200	29.29	14.28	1.20	1.15	25.47	2.10	45.40



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# Low Noise Amplifier

# ZRL-1200+

## 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	Pout at 3dB Comp. (dBm) 12V	Output IP3 (dBm) 12V
650	30.69	15.07	1.26	1.26	2.11	25.08	25.69	50.08
700	30.80	14.65	1.22	1.19	2.00	25.19	25.68	48.67
750	30.85	14.25	1.19	1.13	1.99	25.24	25.66	48.49
800	30.83	14.03	1.17	1.10	1.93	25.35	25.74	47.63
850	30.75	13.93	1.18	1.11	1.96	25.42	25.72	46.50
900	30.62	13.91	1.20	1.14	1.96	25.44	25.73	46.03
950	30.45	13.90	1.21	1.16	1.97	25.49	25.73	46.16
1000	30.25	13.91	1.21	1.15	1.99	25.51	25.78	45.97
1050	30.05	13.88	1.20	1.13	2.06	25.51	25.83	45.97
1100	29.82	14.03	1.18	1.11	2.09	25.50	25.85	45.73
1150	29.57	14.09	1.17	1.11	2.10	25.48	25.89	45.60
1200	29.29	14.28	1.20	1.15	2.10	25.47	25.87	45.40



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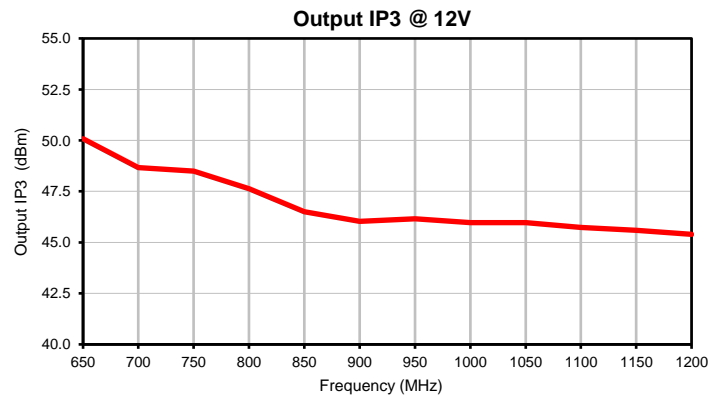
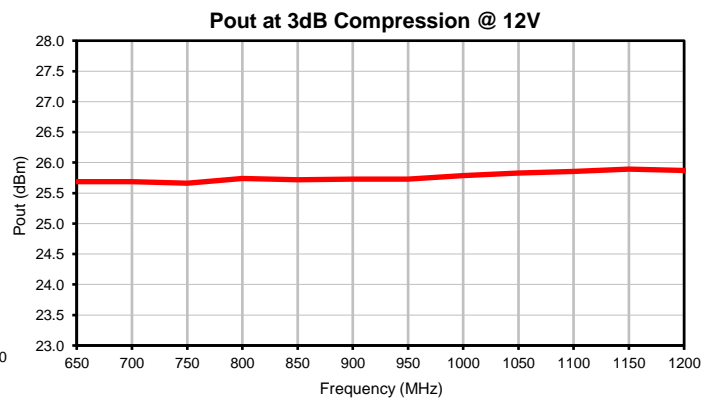
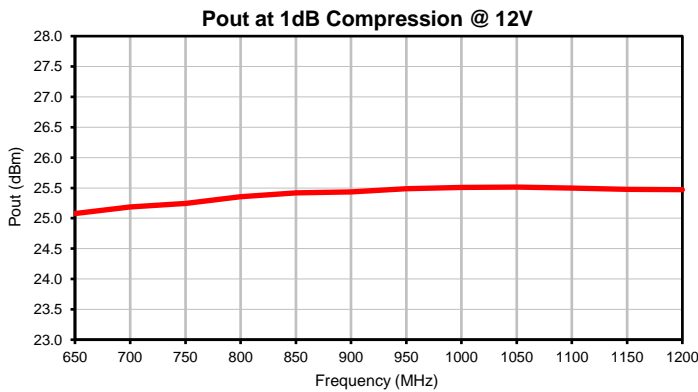
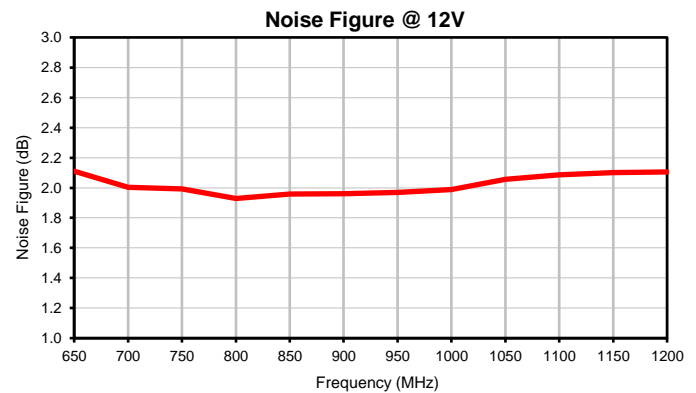
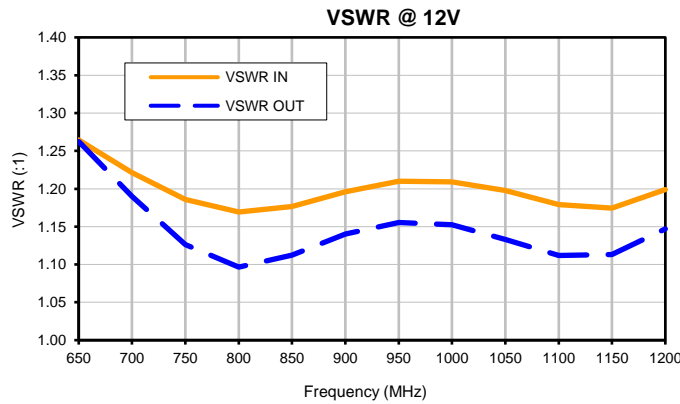
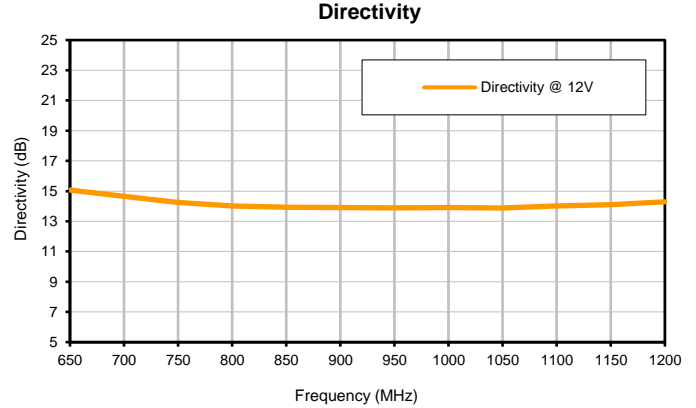
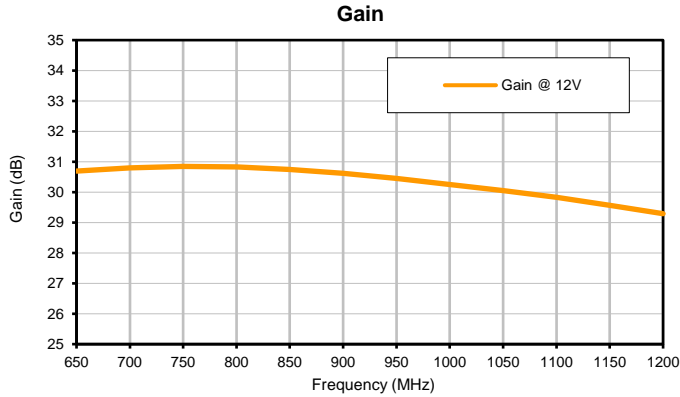


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IF/RF MICROWAVE COMPONENTS

REV. OR  
ZRL-1200+  
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## Typical Performance Curves

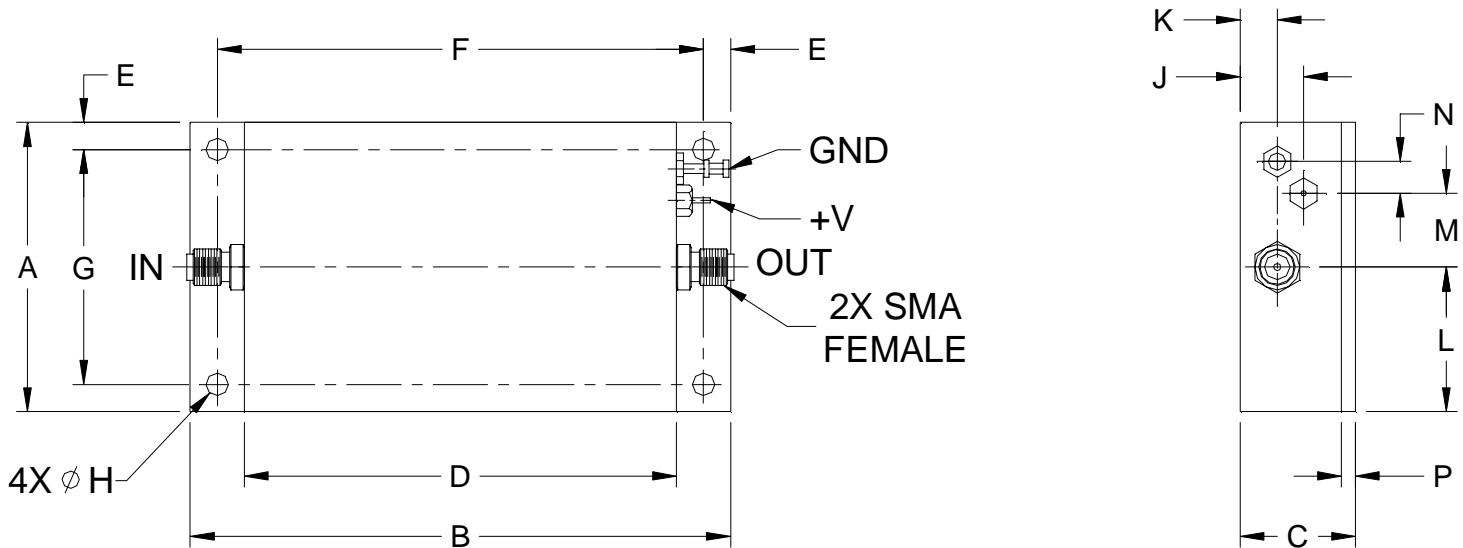


# Case Style

# 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.

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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