

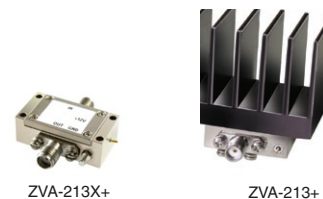
# Super Ultra Wideband Amplifier

## ZVA-213+

50Ω 800 MHz to 21 GHz

### Features

- super ultra-wideband, 800 MHz to 21 GHz
- high output IP3, +33 dBm typ.
- rugged, compact case (including heat sink)
- unconditionally stable
- good matching at input and output
- withstands open/short load at 1dB compression point output power
- very good isolation, 75 dB typ.



CASE STYLE: AV1280			
Connectors	Model	Price	Qty.
SMA	ZVA-213-S+	\$995.00	(1-9)
SMA	ZVA-213X-S+	\$945.00	(1-9)

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

*The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.*

### Applications

- radar
- very wideband test instrumentation
- lab use
- wideband isolator, directivity 50 dB typ.

### Electrical Specifications T<sub>AMB</sub>=25°C

MODEL NO.	FREQUENCY (GHz)		GAIN (dB)			MAXIMUM POWER (dBm)		DYNAMIC RANGE			VSWR (∓1) Typ.		DC POWER	
	f <sub>L</sub>	f <sub>U</sub>	Typ.	Min.	Flatness Typ.	Output (1 dB Compr.) Typ.	CW Input (no damage)	NF (dB) Typ.	Max.	Output IP3 (dBm) Typ.	In	Out	Volt (V) Nom.	Current (mA) Max.
ZVA-213+	0.8	21	26	20	±2.0	+24	+4	3.0	5.5	+33	1.35	1.25	12	400
ZVA-213X+	0.8	21	26	20	±2.0	+24	+4	3.0	5.5	+33	1.35	1.25	12	400

\*Heat sink not included

To order without heat sink add suffix X to model number. Alternative heat sink and heat removal must be provided by the user to limit maximum base-plate temperature to 85°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 4°C/W Max.

### Maximum Ratings

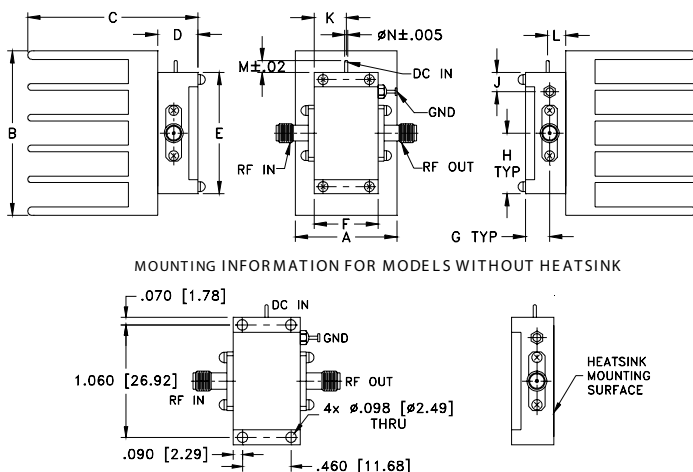
Operating Temperature -55°C to 85°C base plate temp.

Storage Temperature -65°C to 150°C

DC Voltage +15V Max.

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

### Outline Drawing



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	wt
1.01	1.63	1.69	.40	1.20	.64	.24	.60	.19	.32	.22	.12	.03	grams*
25.65	41.40	42.93	10.16	30.48	16.26	6.10	15.24	4.83	8.13	5.59	3.05	0.76	58

\*17 grams without heatsink

**Mini-Circuits®**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shopping online see web site

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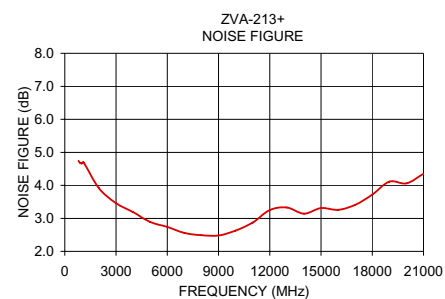
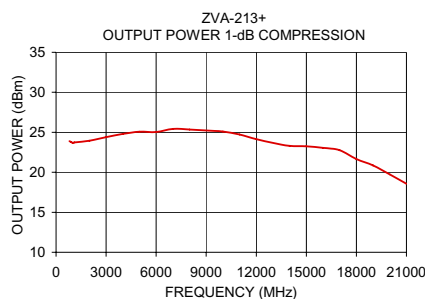
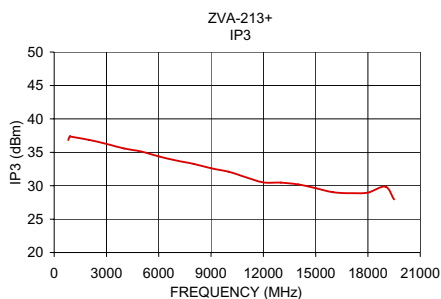
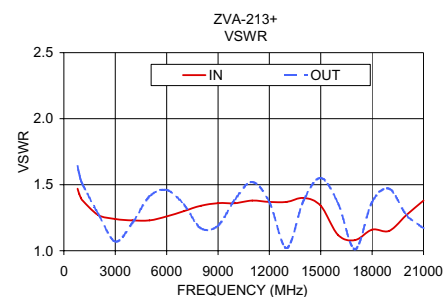
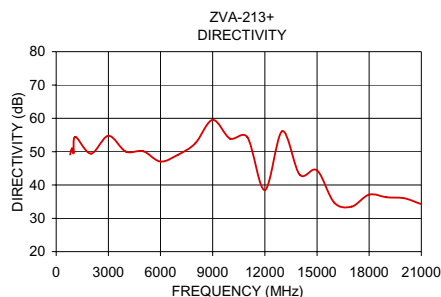
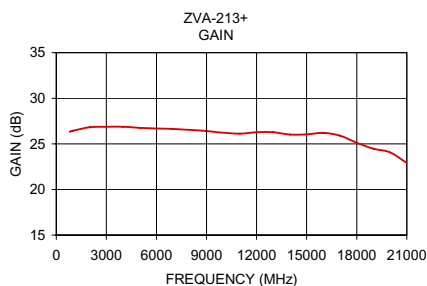
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Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuits' applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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](http://www.minicircuits.com/MCLStore/terms.jsp).

# Typical Performance Data/Curves

# ZVA-213+

FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		NOISE FIGURE (dB)	P <sub>OUT</sub> at 1 dB COMPR. (dBm)	FREQUENCY (MHz)	IP <sub>3</sub> (dBm)
	12V		IN	OUT				
800.00	26.32	49.16	1.47	1.64	4.74	23.89	800.00	36.82
900.00	26.40	50.96	1.43	1.58	4.68	23.80	900.00	37.38
1000.00	26.45	49.60	1.40	1.53	4.66	23.67	1000.00	37.33
1100.00	26.49	54.43	1.38	1.50	4.7	23.73	2000.00	36.86
2000.00	26.83	49.44	1.27	1.28	3.91	23.95	3000.00	36.24
3000.00	26.88	54.76	1.24	1.07	3.46	24.39	4000.00	35.58
4000.00	26.87	50.02	1.23	1.21	3.19	24.80	5000.00	35.1
5000.00	26.75	50.10	1.23	1.41	2.89	25.08	6000.00	34.38
6000.00	26.68	47.03	1.26	1.46	2.74	25.04	7000.00	33.78
7000.00	26.64	49.03	1.30	1.35	2.56	25.43	8000.00	33.26
8000.00	26.53	52.49	1.34	1.17	2.49	25.34	9000.00	32.62
9000.00	26.42	59.55	1.36	1.19	2.48	25.23	10000.00	32.09
10000.00	26.23	53.89	1.36	1.39	2.63	25.09	11000.00	31.27
11000.00	26.12	54.33	1.38	1.52	2.87	24.73	12000.00	30.49
12000.00	26.28	38.47	1.37	1.37	3.25	24.14	13000.00	30.47
13000.00	26.27	56.13	1.37	1.02	3.33	23.68	14000.00	30.19
14000.00	26.03	43.11	1.40	1.38	3.14	23.31	15000.00	29.63
15000.00	26.04	44.40	1.34	1.55	3.31	23.24	16000.00	29.01
16000.00	26.21	34.69	1.12	1.36	3.26	23.06	17000.00	28.88
17000.00	25.90	33.52	1.08	1.01	3.41	22.76	18000.00	28.98
18000.00	25.12	37.12	1.16	1.37	3.72	21.65	19000.00	29.87
19000.00	24.47	36.33	1.15	1.47	4.11	20.85	19500.00	27.95
20000.00	24.06	36.02	1.27	1.27	4.06	19.74		
21000.00	22.91	34.26	1.38	1.17	4.35	18.57		



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