



SUPER ULTRA

# Wideband Amplifier

## ZVA-213-S+ ZVA-213X-S+▲

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.

### APPLICATIONS

- Radar
- Very wideband test instrumentation
- Lab use
- Wideband isolaton, directivity 50 dB typ.



Generic photo used for illustration purposes only

<b>Model No.</b>	ZVA-213-S+	ZVA-213X-S+▲
<b>Case Style</b>	AV1280	
<b>Connectors</b>	SMA	

#### +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)	ZVA-213-S+ ZVA-213X-S+▲			Units
		Min.	Typ.	Max.	
Frequency Range		800	—	21000	MHz
Gain	800 - 21000	20	26	—	dB
Gain Flatness	800 - 21000	—	±2.0	—	dB
Output Power at 1dB compression	800 - 21000	—	24	—	dBm
Noise Figure	800 - 21000	—	3.0	5.5	dB
Output third order intercept point	800 - 21000	—	+33	—	dBm
Input VSWR	800 - 21000	—	1.35	—	:1
Output VSWR	800 - 21000	—	1.25	—	:1
DC Supply Voltage		—	12*	—	V
Supply Current		—	—	400	mA

\*Recommended Operating Voltage.

▲ Heat sink not included. Alternative heat sinking 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

Parameter	Ratings
Operating Temperature	-55°C to 85°C base plate temp.
Storage Temperature	-65°C to 150°C
DC Voltage	15V
CW Input RF Power (no damage)	+4 dBm

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



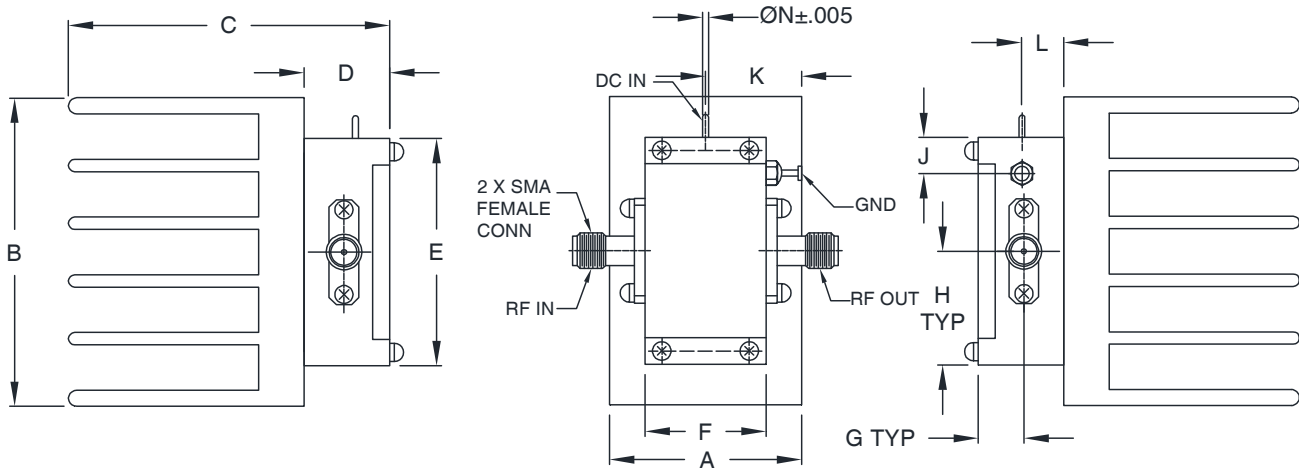


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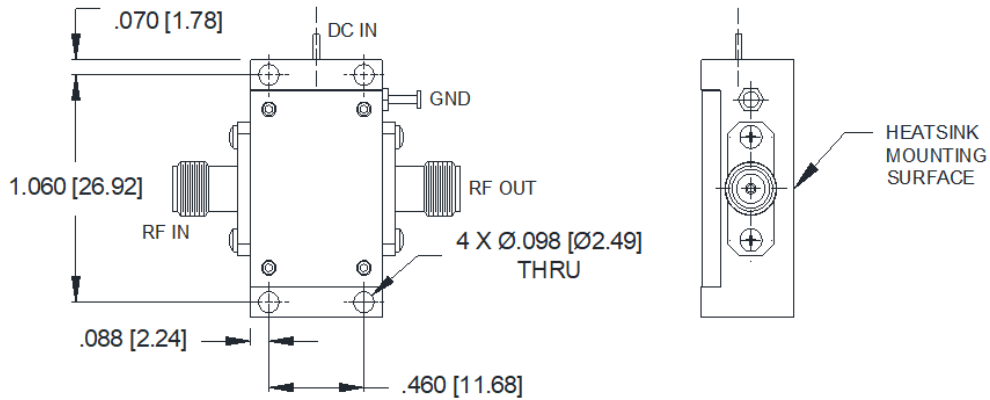
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### OUTLINE DRAWING FOR MODELS WITH HEATSINK



### OUTLINE DRAWING FOR MODELS WITHOUT HEATSINK



### OUTLINE DIMENSIONS (MM/INCH)

A	B	C	D	E	F	G	H	J	K	L	M	N	wt
1.01	1.63	1.74	.45	1.20	.64	.24	.60	.19	.32	.22	-	.03	grams*
25.65	41.40	44.20	11.43	30.48	16.26	6.10	15.24	4.83	8.13	5.59	-	0.76	58

\*17 grams without heatsink



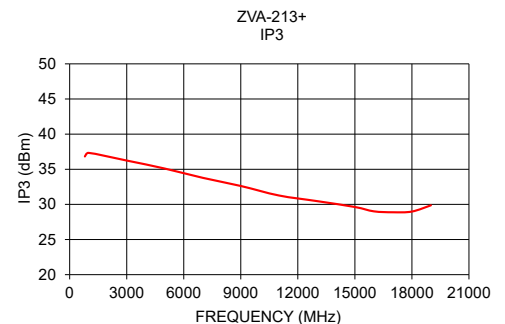
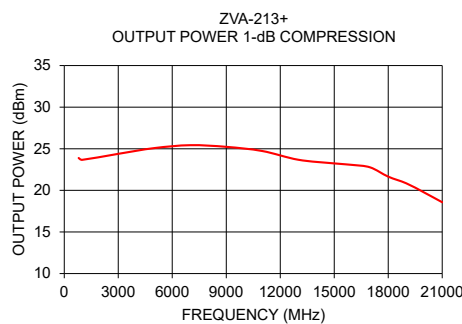
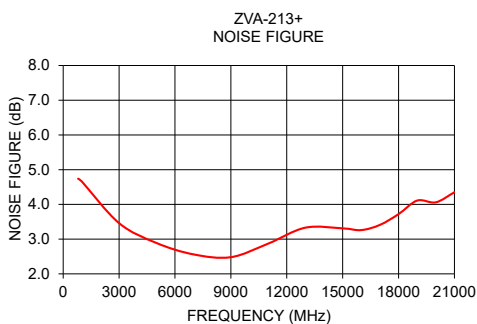
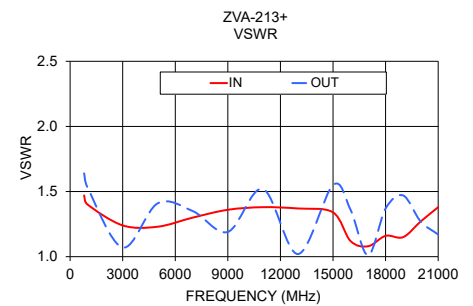
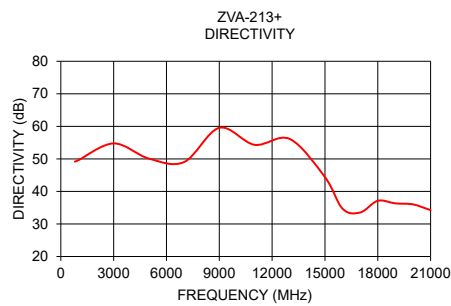
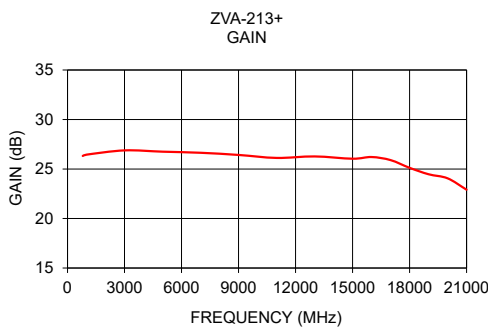
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### TYPICAL PERFORMANCE DATA/CURVES

Frequency (MHz)	Gain (dB)	Directivity (dB)	VSWR (:1)		Noise Figure (dB)	Pout at 1 dB Compr. (dBm)	IP3 (dBm)
			IN	OUT			
800	26.32	49.16	1.47	1.64	4.74	23.89	36.82
1000	26.45	49.60	1.40	1.53	4.66	23.67	37.33
3000	26.88	54.76	1.24	1.07	3.46	24.39	36.24
5000	26.75	50.10	1.23	1.41	2.89	25.08	35.10
7000	26.64	49.03	1.30	1.35	2.56	25.43	33.78
9000	26.42	59.55	1.36	1.19	2.48	25.23	32.62
11000	26.12	54.33	1.38	1.52	2.87	24.73	31.27
13000	26.27	56.13	1.37	1.02	3.33	23.68	30.47
15000	26.04	44.40	1.34	1.55	3.31	23.24	29.63
16000	26.21	34.69	1.12	1.36	3.26	23.06	29.01
17000	25.90	33.52	1.08	1.01	3.41	22.76	28.88
18000	25.12	37.12	1.16	1.37	3.72	21.65	28.98
19000	24.47	36.33	1.15	1.47	4.11	20.85	29.87
20000	24.06	36.02	1.27	1.27	4.06	19.74	
21000	22.91	34.26	1.38	1.17	4.35	18.57	



#### 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 there in. 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)

