

# Coaxial High Power Amplifier

LZY-22+

50Ω 30W 0.1 to 200 MHz

## The Big Deal

- High Power Output, 30W typ., from 100 KHz to 200 MHz
- Digitally controlled blanking, isolation 70 dB typ.
- Designed to withstand open or short output load at full rated power



LZY-22+



LZY-22X+

## Product Overview

This ruggedized High Power Amplifier is capable of delivering 30W output signals across its entire operating bandwidth, from 0.1-200 MHz. Extensive safety features to prevent amplifier damage include over-temperature protection and the ability to handle short and open loads. The LZY-22+, including heat-sink and cooling fan, is designed for a 24V/5.5A DC power supply.

## Key Features

Feature	Advantages
30 W Output Power @ 3 dB compression across 0.1-200 MHz bandwidth	High power output across broad frequency range supports a wide array of applications, from avionics, broadcasting, medical, and high-power lab testing to marine band, public safety, and aircraft communications
High Gain, 43 dB typ.	High, consistent gain across entire operating range (flatness $\pm 1.36$ dB) for predictable performance and signal level strength
Blanking Isolation 70dB	Manual or TTL-controlled signal blanking (OFF 0.4 ms; ON 64 ms)
Internal open/short Protection Circuitry	Antenna mismatches or damaged output cables will not cause amplifier damage
Overheat Protection	Automatic shutdown at baseplate temperature of $+85 \pm 5^\circ\text{C}$ prevents thermal runaway, even during remote, unmonitored operation in difficult thermal environments.
Unconditionally Stable	No risk of damage to other components from impedance mismatch or internal oscillations

### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



Coaxial

# High Power Amplifier

LZY-22+

50Ω 30W 0.1 to 200 MHz

## Features

- Saturated Output Power, 30 W typ.
- High Gain, 43 dB typ.
- Excellent IP3, +52 dBm typ.
- Blanking isolation, 70 dB typ.
- Unconditionally stable
- Overheat-protection automatic shuts off when base plate temperature exceeds 85±5°C

## Applications

- Avionics
- Broadcast radio and TV
- Medical-MRI
- Lab Use - High Power Test



Model No.	LZY-22+	LZY-22X+▲
Case Style	BT1598	
Connectors	SMA Female	

### +RoHS Compliant

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

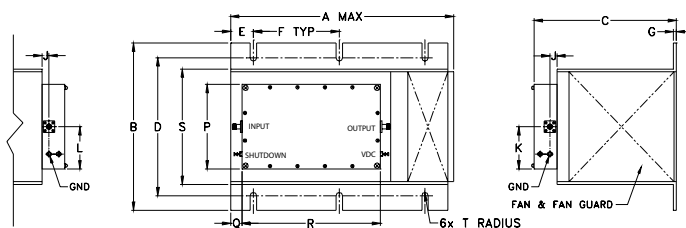
## Electrical Specifications<sup>1</sup> at 25°C

Parameter	Frequency (MHz)	LZY-22+ LZY-22X+ ▲			Units
		Min	Typ.	Max.	
Frequency Range		0.1	—	200	MHz
Gain	0.1 - 200	40	43	—	dB
Gain Flatness			±1.36	±1.6	dB
Output Power at 1dB compression	0.1	40	42	—	dBm
	100	40	42	—	
	200	40	41.5	—	
Saturated Output Power at 3dB compression (Pin=8 dBm)	0.1	42	44	—	dBm
	100	44	45	—	
	200	44	45	—	
Noise Figure	10 - 200	—	8.9	10	dB
Output third order intercept point <sup>2</sup>	0.1 - 200	—	+52	—	dBm
Input VSWR	0.1 - 200	—	1.4	2.0	:1
Output VSWR	0.1 - 200	—	4.0	—	:1
Blanking Isolation	0.1 - 50	—	60	—	dB
	50 - 200	—	70	—	
DC Supply Voltage			24	25	V
Supply Current <sup>3</sup>		—	5.3	6.0	A

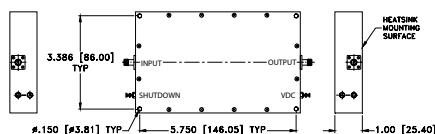
1. All specifications are for a single input CW signal.  
At nominal output load, 24V nominal supply voltage.
2. 2 Tones, 0.5W/line, 1MHz spacing
3. Addition of heat sink and fan to the LZY-22+ results in 0.2A additional current.

▲ Heat sink and fan not included. Alternative heat sinking and heat removal must be provided by the user to limit maximum base-plate temperature to 50°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 0.08°C/W max.

## Outline Drawing



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK.



## Outline Dimensions (inch)

A	B	C	D	E	F	G	J	K	L	P	Q	R	S	T	wt
9.85	7.3	6.3	6.00	.98	3.75	.13	.31	1.84	1.84	3.68	.5	6.05	5.1	.135	grams*
250.19	185.42	160.02	152.40	24.89	95.25	3.30	7.87	46.74	46.74	93.47	12.70	153.67	129.54	3.43	4185

\*500 grams without heatsink

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## Maximum Ratings

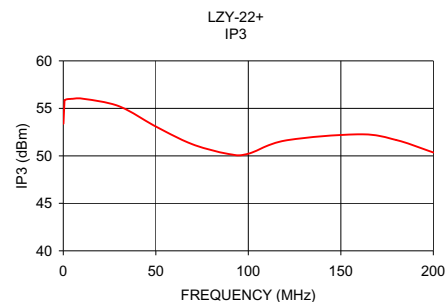
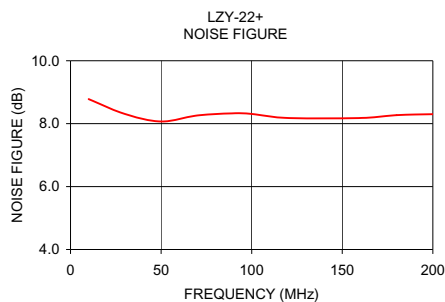
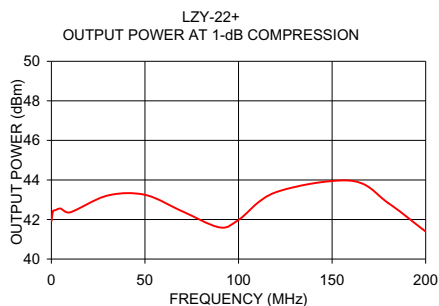
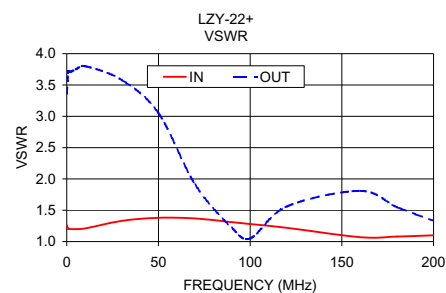
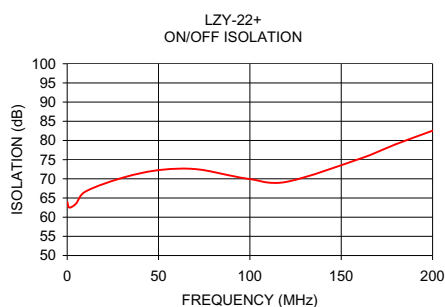
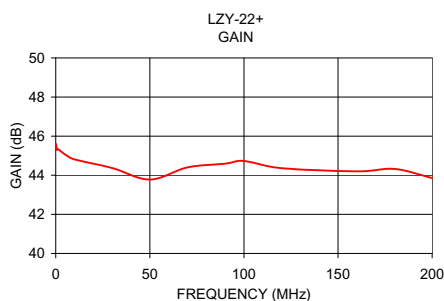
Parameter	Ratings
Operating Temperature	-10°C to 50°C
Storage Temperature	-30°C to 100°C
Base Plate Temperature	50°C
Input RF Power (no damage)	20 dBm
DC Supply Voltage	30V

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

Blanking Shutdown / Turn On	Min.	Typ.	Max.	Units
ON Voltage	0	—	0.8	V
OFF Voltage	4	—	5	V
Shutdown (90 to 10%)	—	0.4	—	ms
Turn ON (10 to 90%)	—	64	—	ms

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FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		ISOLATION (dB)	NOISE FIGURE (dB)	POUT at 1 dB COMPR. (dBm)	OUTPUT IP3 (dBm)
			IN	OUT				
0.10	45.61	22.22	1.26	3.36	64.0	--	41.93	53.37
0.70	45.30	21.72	1.20	3.72	62.6	--	42.38	55.84
1.00	45.34	21.74	1.21	3.72	62.5	--	42.45	55.89
2.00	45.28	22.68	1.20	3.71	62.5	--	42.47	55.96
5.00	45.06	25.54	1.20	3.75	63.6	--	42.55	56.00
10.00	44.81	23.79	1.21	3.80	66.7	8.78	42.36	56.03
30.00	44.37	24.74	1.33	3.58	70.2	8.31	43.21	55.23
50.00	43.78	25.79	1.38	3.05	72.3	8.07	43.25	53.09
70.00	44.40	24.81	1.37	1.91	72.5	8.26	42.41	51.20
90.00	44.59	24.14	1.31	1.22	70.8	8.33	41.60	50.17
100.00	44.73	24.08	1.28	1.05	69.9	8.31	41.98	50.22
120.00	44.36	25.25	1.22	1.56	69.2	8.18	43.38	51.61
160.00	44.20	26.43	1.07	1.81	75.2	8.18	43.96	52.27
180.00	44.32	26.07	1.08	1.55	79.0	8.27	42.83	51.66
200.00	43.86	28.10	1.10	1.33	82.5	8.30	41.39	50.36



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