860 MHz, 22 dB gain push-pull amplifier

MZF8622F

FEATURES

- Excellent linearity
- High reliability
- Extremely low noise
- Excellent return loss properties.

APPLICATIONS

Single module line extender in CATV systems operating over a frequency range of 40 to 860 MHz.

DESCRIPTION

Hybrid high dynamic range amplifier module operating with a voltage supply of 24 V in a SOT115J package. The high gain module consists of two cascaded stages both in cascode configuration.

PINNING SOT115J

PIN	DESCRIPTION
1	input
2, 3	common
5	$+V_B$
7, 8	common
9	output

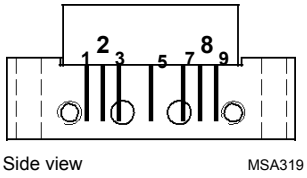

Fig.1 Simplified outline.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	f = 50 MHz	21.5	23	dB
		f = 860 MHz	22.5	-	dB
I_{tot}	total current consumption (DC)	V_B = 24 V	210	245	mA

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 0134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_B	Supply voltage	-	25	V
V_i	RF input voltage	-	46	dBmV
T_{stg}	storage temperature	-30	+100	℃
T_{mb}	operating mounting base temperature	-20	+100	℃

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CHARACTERISTICS

Bandwidth 40 to 860 MHz; V_B = 24 V; T_{case} = 30 ℃; $Z_S = Z_L$ = 75 Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 50 MHz	21.5	22.2	23	dB
		f = 860 MHz	22.5	23	-	dB
SL	slope cable equivalent	f = 40 to 860 MHz	1	1.5	2.0	dB
FL	flatness of frequency response	f = 40 to 860 MHz	-	±0.2	±0.5	dB
S_{11}	input return losses	f = 40 to 80 MHz	20	28	-	dB
		f = 80 to 160 MHz	18	28	-	dB
		f = 160 to 320 MHz	18	28	-	dB
		f = 320 to700 MHz	18	20	-	dB
		f = 700 to 860 MHz	16	18	-	dB
S_{22}	output return losses	f = 40 to 80 MHz	16	20	-	dB
		f = 80 to 160 MHz	16	26	-	dB
		f = 160 to 320 MHz	16	26	-	dB
		f = 320 to 700 MHz	16	26	-	dB
		f = 700 to 860 MHz	16	20	-	dB
S_{21}	phase response	f = 50 MHz	135	-	225	deg
CTB	composite triple beat	60 channels flat; V_o = 44 dBmV; measured at 543.25 MHz	-	-59	-57	dB
X_{mod}	cross modulation	60 channels flat; V_o = 44 dBmV; measured at 55.25 MHz	-	-60	-59	dB
CSO	composite second order distortion	60 channels flat; V_o = 44 dBmV; measured at 544.5 MHz	-	-60	-58	dB
d_2	second order distortion	note 1	-	-74	-65	dB
V_o	output voltage	d_{im} = -60 dB; note 2	58	60	-	dBmV
F	noise figure	f = 50 MHz	-	4	4.5	dB
		f = 550 MHz	-	-	5	dB
		f = 600 MHz	-	-	5	dB
		f = 650 MHz	-	-	5.5	dB
		f = 750 MHz	-	-	6	dB
		f = 860 MHz	-	5.5	7	dB
I_{tot}	total current consumption (DC)	note 3	-	210	245	mA

Notes

1. f_p = 55.25 MHz; V_p = 44 dBmV; f_q = 805.25 MHz; V_q = 44 dBmV; measured at $f_p + f_q$ = 860.5 MHz.
2. Measured according to DIN45004B: f_p = 851.25 MHz; $V_p = V_o$; f_q = 858.25 MHz; $V_q = V_o - 6$ dB; f_r = 860.25 MHz; $V_r = V_o - 6$ dB; measured at $f_p + f_q - f_r$ = 849.25 MHz.
3. The module normally operates at V_B = 24 V, but is able to withstand supply transients up to 29 V.

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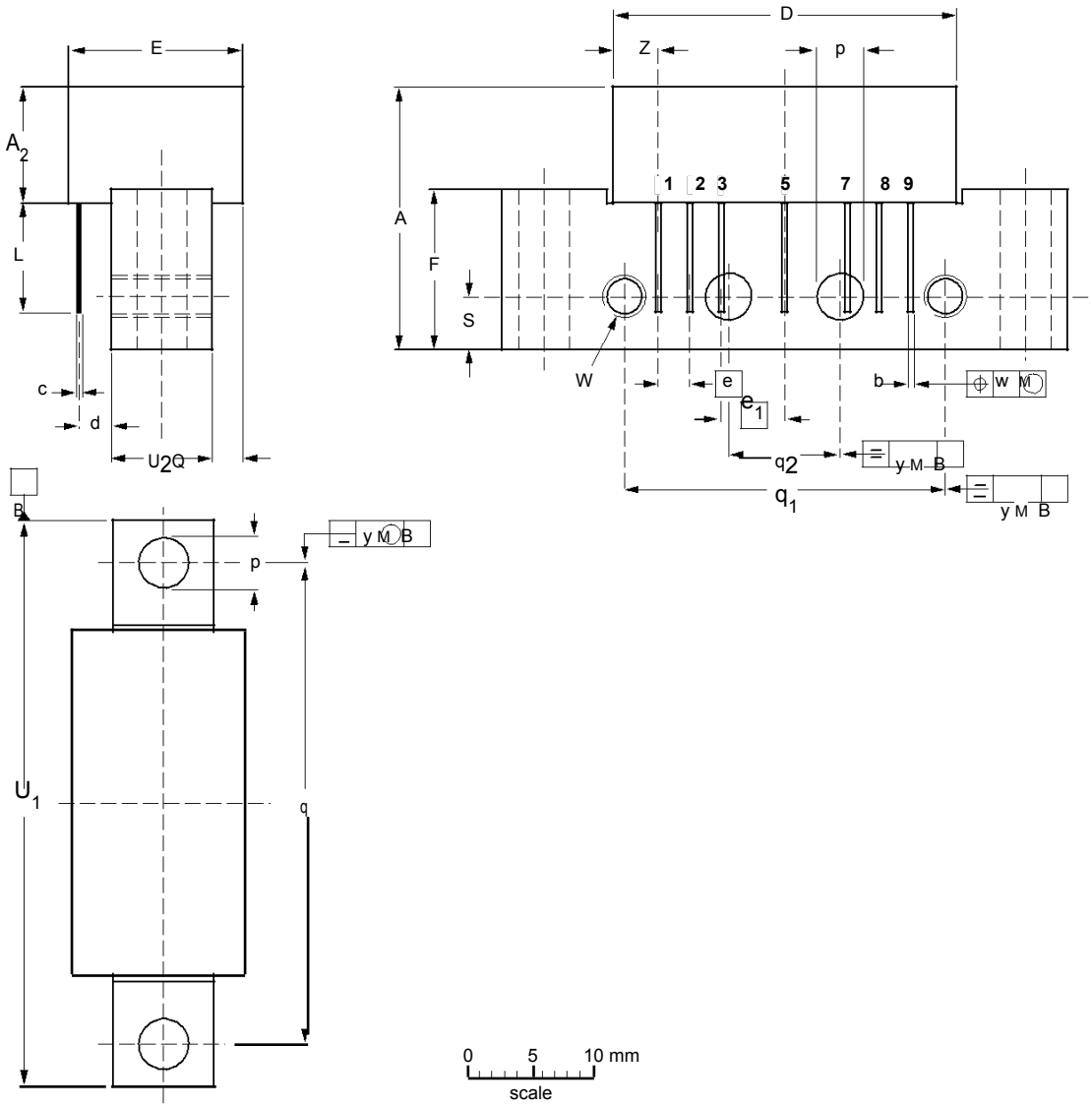
PACKAGE OUTLINE

Rectangular single-ended package; aluminium flange; 2 vertical mounting holes; 2 x 6-32 UNC and 2 extra horizontal mounting holes; 7 gold-plated in-line leads **SOT115J**



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A2 max.	b	c	D max.	d max.	E max.	e	e1	F	L min.	p	Q max.	q	q1	q2	S	U1 max.	U2	W	w	y	Z max.
mm	21	9.1	0.52 0.38	0.25	27.2	3.5	13.7 5	2.54	5.08	12.7	8.2	4.2 3.85	2.4	38.1	25.4	10.2	4.2	45.2	8	6-32 UNC	0.25	0.1	3.9

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT115J						

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