

750 MHz, 20 dB gain push-pull amplifier

MZC7520F

FEATURES

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

APPLICATIONS

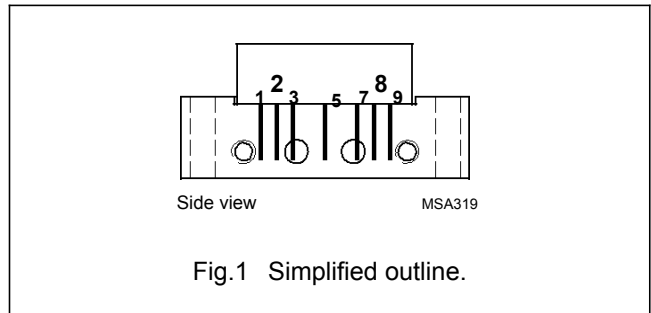
Single module line extender in CATV systems operating over a frequency range of 40 to 750 MHz.

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



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G _p	power gain	f = 50 MHz	20	21.5	dB
		f = 750 MHz	21	-	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	°C
T _{mb}	operating mounting base temperature	-20	+100	°C

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CHARACTERISTICS

Bandwidth 40 to 750 MHz; $V_B = 24\text{ V}$; $T_{\text{case}} = 30\text{ }^\circ\text{C}$; $Z_S = Z_L = 75\ \Omega$

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 50 MHz	20	20.8	21.5	dB
		f = 750 MHz	21	21.5	-	dB
SL	slope cable equivalent	f = 40 to 750 MHz	0.5	1.1	2.0	dB
FL	flatness of frequency response	f = 40 to 750 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 to 700 MHz	18	20	-	dB
		f = 700 to 750 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	20	-	dB
		f = 700 to 750 MHz	16	20	-	dB
S_{21}	phase response	f = 50 MHz	135	-	225	deg
CTB	composite triple beat	60 channels flat; $V_O = 44\text{ dBmV}$; measured at 543.25 MHz	-	-63	-61	dB
X_{mod}	cross modulation	60 channels flat; $V_O = 44\text{ dBmV}$; measured at 55.25 MHz	-	-62	-60	dB
CSO	composite second order distortion	60 channels flat; $V_O = 44\text{ dBmV}$; measured at 544.5 MHz	-	-64	-62	dB
d_2	second order distortion	note 1	-	-74	-65	dB
V_O	output voltage	$d_{\text{im}} = -60\text{ dB}$; note 2	58	60	-	dBmV
F	noise figure	f = 50 MHz	-	4	4.5	dB
		f = 450 MHz	-	-	5	dB
		f = 550 MHz	-	-	5	dB
		f = 600 MHz	-	-	5.5	dB
		f = 750 MHz	-	5.5	7	dB
I_{tot}	total current consumption (DC)	note 3	-	210	245	mA

Notes

- $f_p = 55.25\text{ MHz}$; $V_p = 44\text{ dBmV}$; $f_q = 691.25\text{ MHz}$; $V_q = 44\text{ dBmV}$;
measured at $f_p + f_q = 746.5\text{ MHz}$.
- Measured according to DIN45004B:
 $f_p = 740.25\text{ MHz}$; $V_p = V_O$;
 $f_q = 747.25\text{ MHz}$; $V_q = V_O - 6\text{ dB}$; $f_r = 749.25\text{ MHz}$; $V_r = V_O - 6\text{ dB}$; measured
at $f_p + f_q - f_r = 738.25\text{ MHz}$.
- The module normally operates at $V_B = 24\text{ V}$, but is able to withstand supply transients up to 29 V.

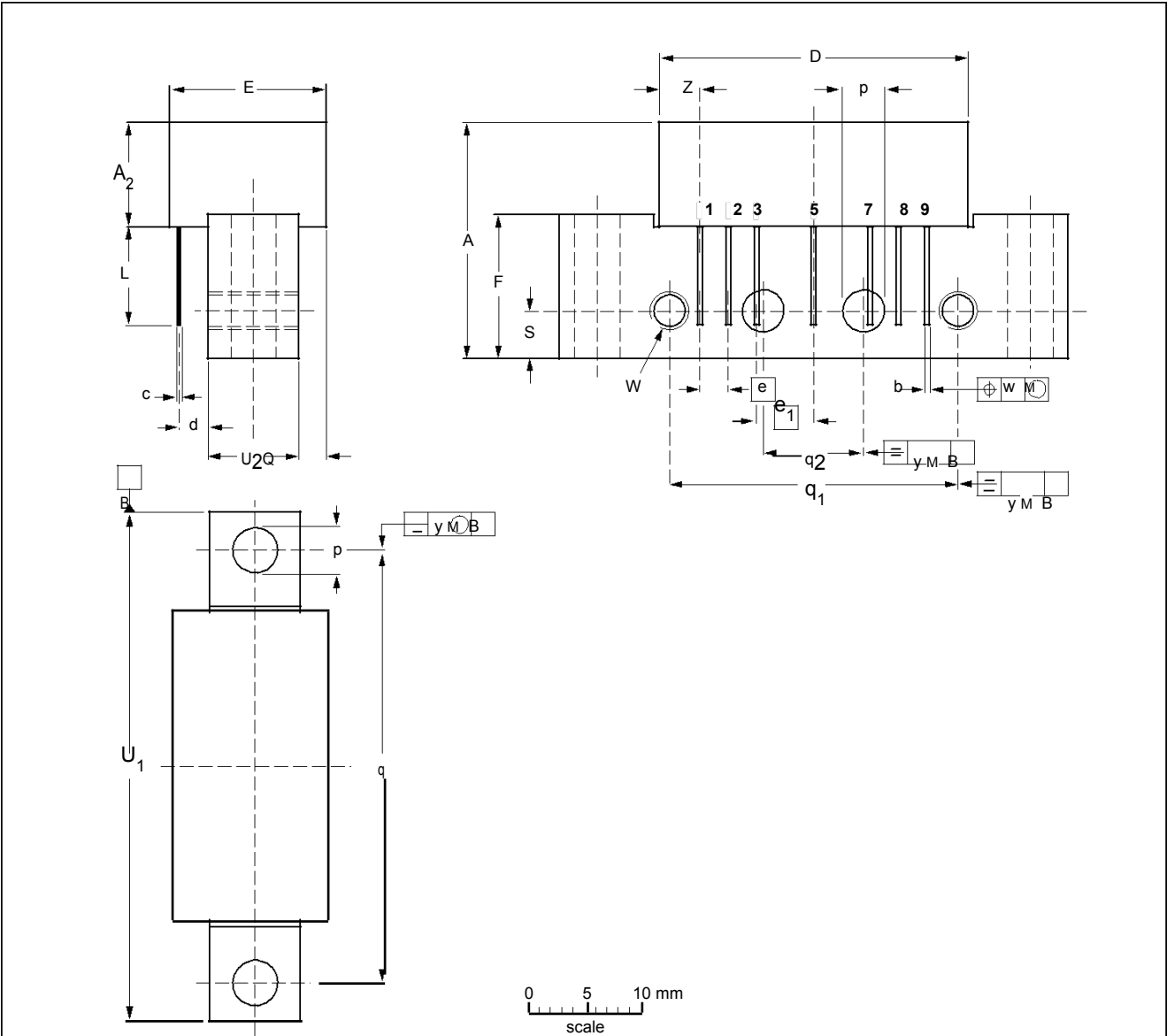
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PACKAGE OUTLINE

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)

	A	A ₂	b	c	D	d	E	e	e ₁	F	L	p	Q	q	q ₁	q ₂	s	u ₁	u ₂	W	w	y	Z
UNIT	max.	max.			max.	max.	max.				min.		max.					max.					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						