200 MHz CATV 30 dB REVERSE INTEGRATED CIRCUIT

1. Product profile

1.1 General description

Good performance amplifier in a SOT115J package, operating at a voltage supply of 24 V (DC). The Module consists of two cascaded stages both in cascode configuration.

CAUTION

This device is sensitive to Electro Static Discharge (ESD). Therefore care should be taken during transport and handling.

1.2 Features and benefits

- Excellent linearity
- Low noise
- Low return loss
- Rugged construction
- High reliability

1.3 Applications

Reverse integrated circuit in two-way CATV systems operating in the 5 to 200 MHz frequency range.

1.4 Quick reference data

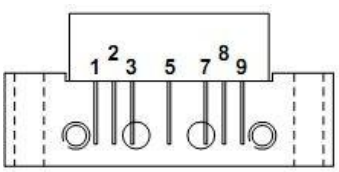
Bandwidth 5 MHz to 200 MHz; V_B = 24 V; T_{mb} = 30 °C; Z_S = Z_L = 75 Ω .

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	f = 10 MHz	29.4	30.0	31.0	dB
		f = 200 MHz	30.2	-	-	dB
I_{tot}	total current	V_B = 24 V	150	160		mA

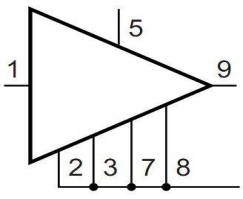
2. Pin information

Pin	Description
1	input
2	common
3	common
5	+V_B
7	common
8	common
9	output

Simplified Outline



Graphic Symbol



3. Operating conditions

3.1 Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134) (TA = +25°C)

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V_B	-	25	V
Input Voltage [1]	Vi	-	65	dBmV
Operating Case Temperature	Tc	–20	+80	°C
Storage Temperature	Tstg	–40	+100	°C

[1] In case of single tone

3.2 Recommended operating conditions ($Z_S = Z_L = 75\ \Omega$)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Supply Voltage	V_B		23.0	24.0	25.0	V
Operating Case Temperature	Tc		−20	+30	+80	°C

4. Electrical characteristics

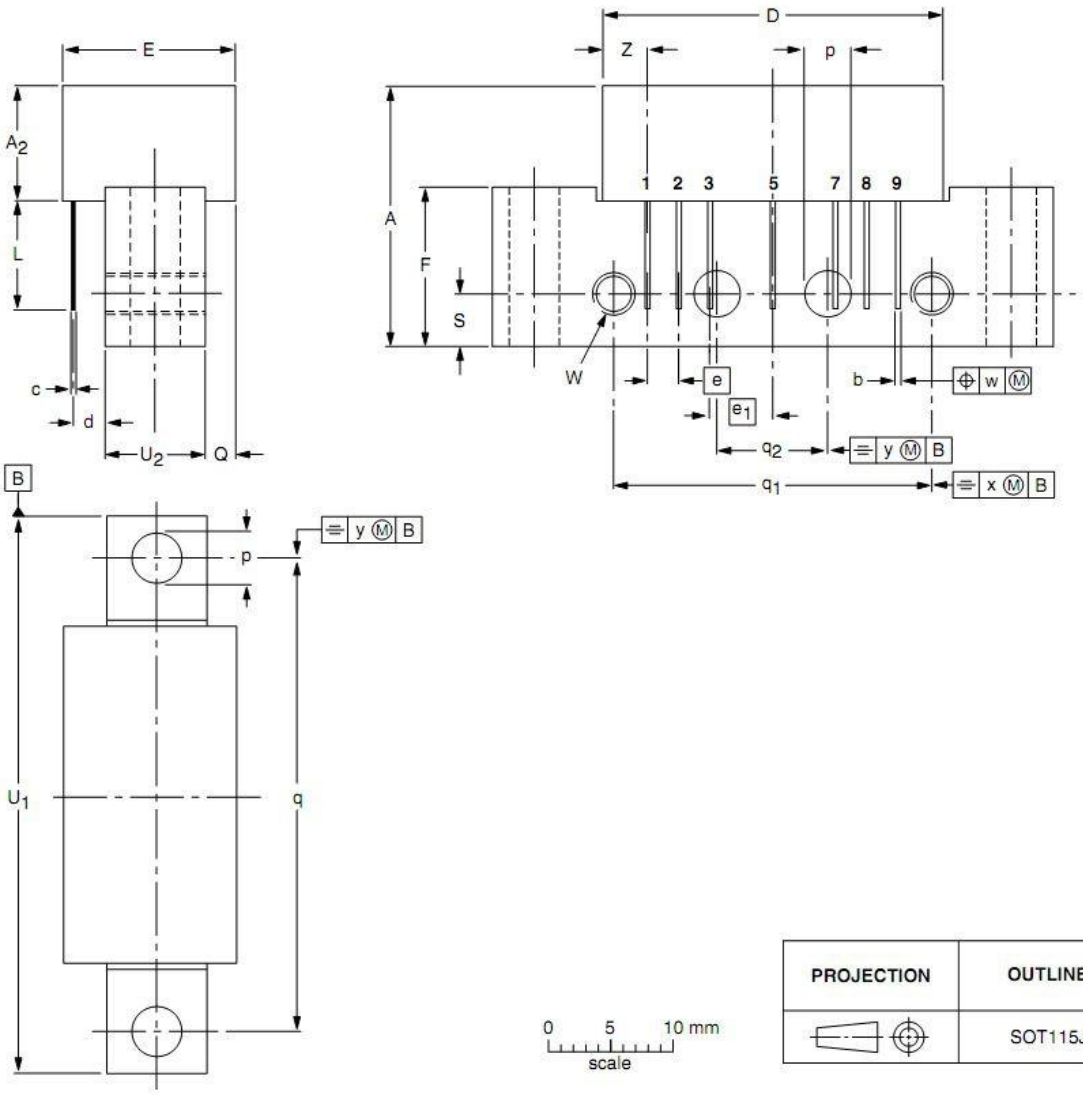
(T_C = 30±5°C, V_B = 24 V, $Z_S = Z_L$ = 75 Ω)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Power Gain	Gp	f = 10 MHz	29.4	30.0	31.0	dB
Gain Slope	S_L	f = 5 to 200 MHz	0.5	1.0	2.5	dB
Gain Flatness	FL	f = 5 to 200 MHz	–	–	±0.5	dB
Noise Figure	NF	f = 200 MHz	–	5.0		dB
Operating Current	I_B	V_B=24VDC，RF OFF	150	160		mA
Composite Triple Beat	CTB	17 channels, V_O = **50 dBmV** at 200.25 MHz, flat output level across the band	–	−65	–	dB
Cross Modulation	XM		–	−64	–	dB
Composite 2nd Order Beat	CSO		–	−67	–	dB
Input Return Loss	S11	f = 5 to 200 MHz	16	–	–	dB
Output Return Loss	S22	f = 5 to 200 MHz	16	–	–	dB

5. Package outline

Rectangular single-ended package; aluminum 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.	A_2 max.	b	c	D max.	d max.	E max.	e	e_1	F	L min.	p	Q max.	q	q_1	q_2	S	U_1	U_2	W	w	x	y	Z max.
mm	20.8	9.1	0.51 0.38	0.25	27.2	2.54	13.75	2.54	5.08	12.7	8.8	4.15 3.85	2.4	38.1	25.4	10.2	4.2	44.75 44.25	8.2 7.8	6-32 UNC	0.25	0.7	0.1	3.8

6. Appendix

6.1 Gain and return loss (S11, S22)