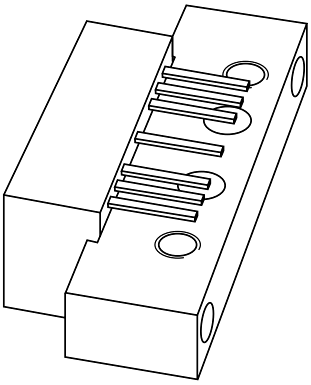
DISCRETE SEMICONDUCTORS

DATA SHEET



BGR269

200 MHz, 35 dB gain reverse amplifier

Product specification
Supersedes data of 2001 Oct 03

2002 Mar 05

Philips
Semiconductors

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200 MHz, 35 dB gain reverse amplifier BGR269

FEATURES

- Excellent linearity
- Silicon nitride passivation
- Rugged construction
- Gold metallization ensures excellent reliability
- 35 dB amplification up to 200 MHz.

APPLICATIONS

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

DESCRIPTION

High performance amplifier in a SOT115J package, operating at a voltage supply of 24 V (DC).

PINNING - SOT115J

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

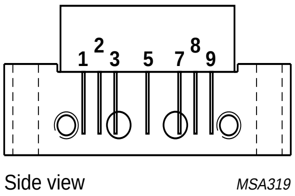


Fig.1 Simplified outline.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 5 MHz	34.5	35	35.5	dB
		f = 200 MHz	35	–	36	dB
I_{tot}	total current consumption (DC)	V_B = 24 V	145	160	175	mA

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_i	RF input voltage	–	50	dBmV
T_{mb}	operating mounting base temperature	–20	+100	°C
T_{stg}	storage temperature range	–40	+100	°C

CHARACTERISTICS

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

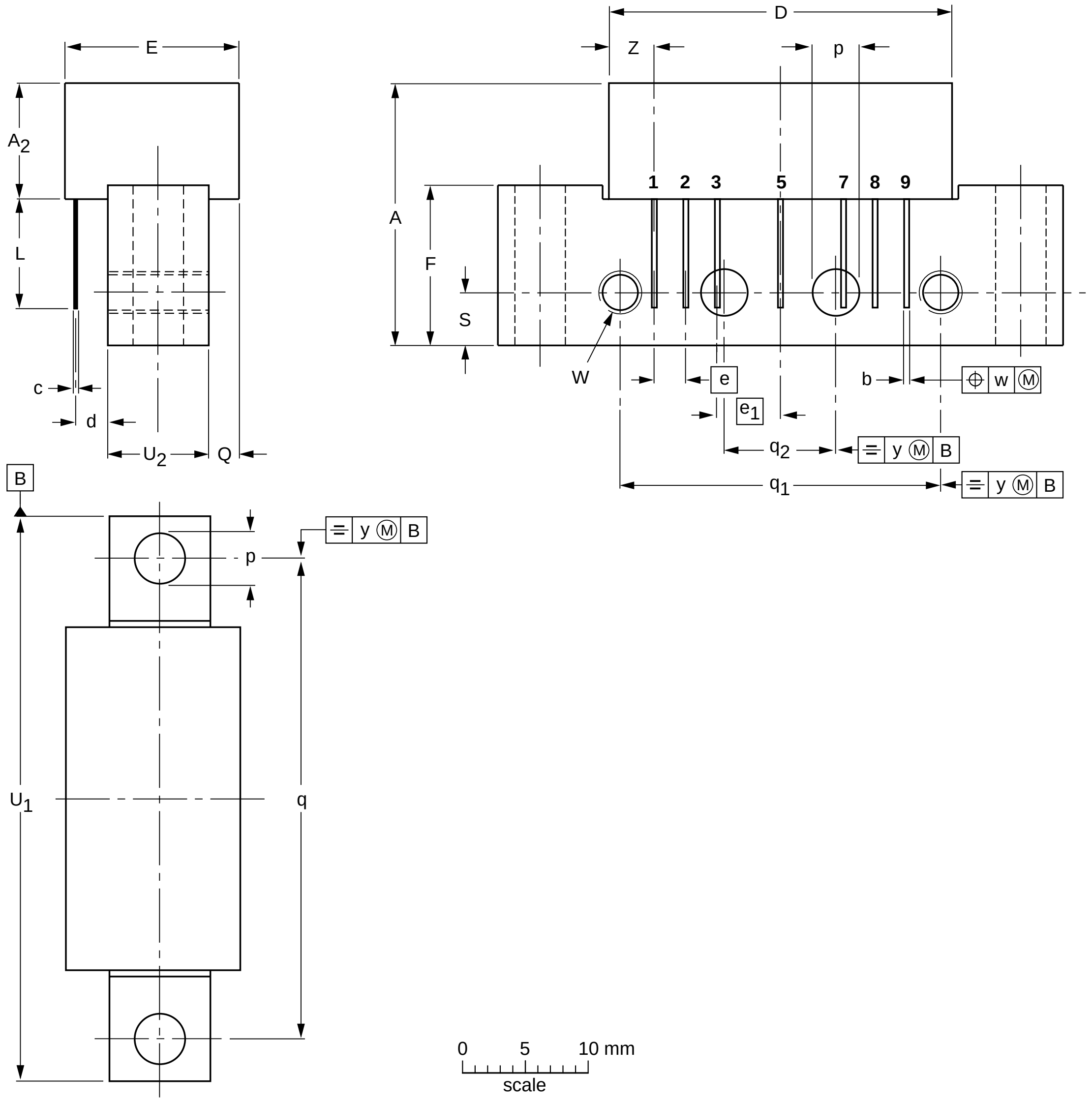
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 5 MHz	34.5	35	35.5	dB
		f = 200 MHz	35	–	36	dB
SL	slope straight line	f = 5 to 200 MHz	0	–	0.6	dB
FL	flatness of frequency response	f = 5 to 10 MHz	–0.1	–	0.4	dB
		f = 10 to 190 MHz	–0.1	–	0.5	dB
		f = 190 to 200 MHz	–0.1	–	0.4	dB
s_{11}	input return losses	f = 5 to 200 MHz	20	–	–	dB
s_{22}	output return losses	f = 5 to 200 MHz	20	–	–	dB
s_{21}	phase response	f = 5 MHz	–45	–	45	dB
s_{12}	reverse isolation	f = 5 to 200 MHz	–	–	–42	dB
CTB	composite triple beat	6 chs flat; V_o = 50 dBmV; measured at 37 MHz; note 1	–	–	–74	dB
		10 chs flat; V_o = 50 dBmV; measured at 67.25 MHz; note 2	–	–	–68	dB
		28 chs flat; V_o = 50 dBmV; measured at 199.25 MHz; note 3	–	–	–57	dB
X_{mod}	cross modulation	6 chs flat; V_o = 50 dBmV; measured at 37 MHz; note 1	–	–	–66	dB
		10 chs flat; V_o = 50 dBmV; measured at 25 MHz; note 2	–	–	–57	dB
		28 chs flat; V_o = 50 dBmV; measured at 25 MHz; note 3	–	–	–50	dB
CSO	composite second order distortion	6 chs flat; V_o = 50 dBmV; measured at 38 MHz; note 1	–	–	–74	dB
		10 chs flat; V_o = 50 dBmV; measured at 68.5 MHz; note 2	–	–	–74	dB
		28 chs flat; V_o = 50 dBmV; measured at 200.5 MHz; note 3	–	–	–66	dB
V_o	output voltage	d_{im} = –60 dB; note 4	62	–	–	dBmV
d_2	second order distortion	note 5	–	–	–70	dB
NF	noise figure	f = 70 MHz	–	–	5.3	dB
		f = 200 MHz	–	–	5.5	dB
I_{tot}	total current consumption	note 6	145	160	175	mA

Notes

1. From the following frequencies: 7.00, 13.00, 19.00, 25.00, 31.00 and 37.00 MHz.
2. From the following frequencies: 7.00, 13.00, 19.00, 25.00, 31.00, 37.00, 43.00, 55.25, 61.25 and 67.25 MHz.
3. From the following frequencies: 7.00, 13.00, 19.00, 25.00, 31.00, 37.00, 43.00, 55.25, 61.25, 67.25, 77.25, 83.25, 109.25, 115.25, 121.25, 127.25, 133.25, 139.25, 145.25, 151.25, 157.25, 163.25, 169.25, 175.25, 181.25, 187.25, 193.25 and 199.25 MHz.
4. Measured according to DIN45004B:
   f_p = 197.25 MHz; $V_p = V_o$;
   f_q = 204.25 MHz; $V_q = V_o$ –6 dB;
   f_r = 206.25 MHz; $V_r = V_o$ –6 dB;
   measured at $f_p + f_q - f_r$ = 195.25 MHz.
5. f_p = 83.25 MHz; V_p = 50 dBmV;
   f_q = 115.25 MHz; V_q = 50 dBmV;
   measured at $f_p + f_q$ = 198.5 MHz.
6. The module normally operates at V_B = 24 V, but is able to withstand supply transients up to V_B = 35 V.

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.	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 max.	U_2	W	w	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	8	6-32 UNC	0.25	0.1	3.8

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT115J						99-02-06

DATA SHEET STATUS

DATA SHEET STATUS(1)	PRODUCT STATUS(2)	DEFINITIONS
Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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Notes

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2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.

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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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CAUTION
This product is supplied in anti-static packing to prevent damage caused by electrostatic discharge during transport and handling. For further information, refer to Philips specs.: SNW-EQ-608, SNW-FQ-302A and SNW-FQ-302B.

NOTES

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Contact information

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