

# DATA SHEET

## **BGX881** CATV amplifier module

Product specification  
File under Discrete Semiconductors, SC16

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**Philips Semiconductors**



**PHILIPS**

## CATV amplifier module

## BGX881

## FEATURES

- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- Gold metallization ensures excellent reliability.

## DESCRIPTION

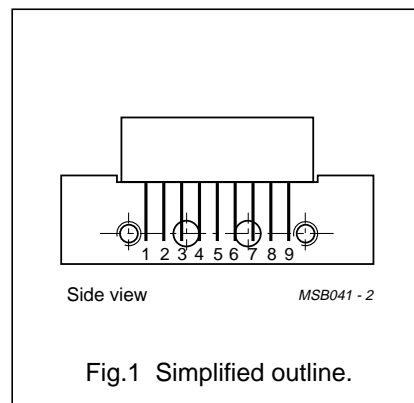
Hybrid amplifier module for CATV/MATV systems operating over a frequency range of 40 to 860 MHz at a voltage supply of 24 V (DC).

## PINNING - SOT115D

PIN	DESCRIPTION
1	input; note1
2	common
3	common
4	12 V, 60 mA supply terminal
5	common
6	common
7	common
8	+V <sub>B</sub>
9	output; note1

## Note

1. Pins 1 and 9 carry DC voltages.



## QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	12	13	dB
I <sub>tot</sub>	total current consumption (DC)	V <sub>B</sub> = 24 V	–	240	mA

## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V <sub>B</sub>	DC supply voltage	–	26	V
V <sub>i</sub>	RF input voltage	–	65	dBmV
T <sub>stg</sub>	storage temperature	–40	+100	°C
T <sub>mb</sub>	operating mounting base temperature	–20	+100	°C

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**CHARACTERISTICS**Bandwidth 40 to 860 MHz;  $V_B = 24\text{ V}$ ;  $T_{mb} = 30\text{ °C}$ ;  $Z_S = Z_L = 75\ \Omega$ .

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$G_p$	power gain	$f = 50\text{ MHz}$	12	13	dB
SL	slope cable equivalent	$f = 40\text{ to }860\text{ MHz}$	0.2	1.2	dB
FL	flatness of frequency response	$f = 40\text{ to }860\text{ MHz}$	–	$\pm 0.3$	dB
$S_{11}$	input return losses	$f = 40\text{ MHz}$ ; note 1	20	–	dB
		$f = 800\text{ to }860\text{ MHz}$	10	–	dB
$S_{22}$	output return losses	$f = 40\text{ MHz}$ ; note 1	20	–	dB
		$f = 640\text{ to }860\text{ MHz}$	15	–	dB
$d_2$	second order distortion	note 2	–	–53	dB
$V_o$	output voltage	$d_{im} = -60\text{ dB}$ ; note 3	60.5	–	dBmV
		$d_{im} = -60\text{ dB}$ ; note 4	59.5	–	dBmV
F	noise figure	$f = 350\text{ MHz}$	–	8.5	dB
		$f = 860\text{ MHz}$	–	9	dB
$I_{tot}$	total current consumption (DC)	note 5	–	240	mA

**Notes**

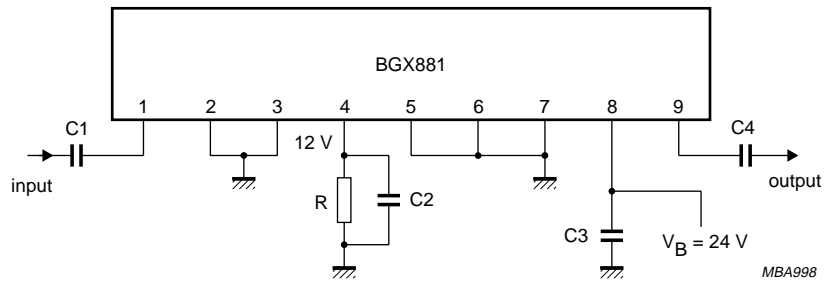
- Decreases 1.5 dB per octave.
- $f_p = 349.25\text{ MHz}$ ;  $V_p = 59\text{ dBmV}$ ;  
 $f_q = 403.25\text{ MHz}$ ;  $V_q = 59\text{ dBmV}$ ;  
measured at  $f_p + f_q = 752.5\text{ MHz}$ .
- Measured according to DIN45004B:  
 $f_p = 341.25\text{ MHz}$ ;  $V_p = V_o$ ;  
 $f_q = 348.25\text{ MHz}$ ;  $V_q = V_o - 6\text{ dB}$ ;  
 $f_r = 350.25\text{ MHz}$ ;  $V_r = V_o - 6\text{ dB}$ ;  
measured at  $f_p + f_q - f_r = 339.25\text{ MHz}$ .
- Measured according to DIN45004B:  
 $f_p = 851.25\text{ MHz}$ ;  $V_p = V_o$ ;  
 $f_q = 858.25\text{ MHz}$ ;  $V_q = V_o - 6\text{ dB}$ ;  
 $f_r = 860.25\text{ MHz}$ ;  $V_r = V_o - 6\text{ dB}$ ;  
measured at  $f_p + f_q - f_r = 849.25\text{ MHz}$ .
- The module normally operates at  $V_B = 24\text{ V}$ , but is able to withstand supply transients up to 30 V.

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List of components (see Fig.2)

COMPONENT	DESCRIPTION	VALUE
C1, C3, C4	ceramic multilayer capacitor	1 nF
C2	ceramic multilayer capacitor	1 nF (max.)
R	resistor	200 Ω, 1 W



Pins 1 and 9 carry DC voltages.

Fig.2 Test circuit.

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**DEFINITIONS**

<b>Data sheet status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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