

DATA SHEET

BGY82

CATV amplifier module

Product specification
Supersedes data of 1997 Apr 15
File under Discrete Semiconductors, SC16

1998 Mar 02

CATV amplifier module

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FEATURES

- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- Optimal reliability ensured by TiPtAu metallized crystals.

APPLICATIONS

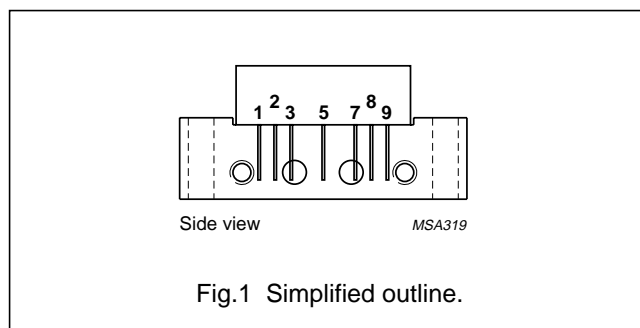
- CATV systems operating in the 40 to 450 MHz frequency range.

DESCRIPTION

Hybrid amplifier module in a SOT115J package operating with 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 |



QUICK REFERENCE DATA

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MIN. | MAX. | UNIT |
|------------------|--------------------------------|-----------------------|------|------|------|------|
| G _p | power gain | f = 50 MHz | 13.5 | – | 14.5 | dB |
| | | f = 450 MHz | 14.5 | – | – | dB |
| I _{tot} | total current consumption (DC) | V _B = 24 V | – | 180 | 200 | mA |

LIMITING VALUES

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

| SYMBOL | PARAMETER | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|------|------|------|
| V _i | RF input voltage | – | 65 | dBmV |
| T _{stg} | storage temperature | –40 | +100 | °C |
| T _{mb} | operating mounting base temperature | –20 | +100 | °C |

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CHARACTERISTICSBandwidth 40 to 450 MHz; $T_{mb} = 30\text{ °C}$; $Z_S = Z_L = 75\ \Omega$.

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|------------------|-----------------------------------|---|------|------|------|------|
| G _p | power gain | f = 50 MHz | 13.5 | – | 14.5 | dB |
| | | f = 450 MHz | 14.5 | – | – | dB |
| SL | slope cable equivalent | f = 40 to 450 MHz | 0.2 | – | 1.5 | dB |
| FL | flatness of frequency response | f = 40 to 450 MHz | – | – | ±0.2 | dB |
| S ₁₁ | input return losses | f = 40 to 80 MHz | 20 | – | – | dB |
| | | f = 80 to 160 MHz | 19 | – | – | dB |
| | | f = 160 to 450 MHz | 18 | – | – | dB |
| S ₂₂ | output return losses | f = 40 to 80 MHz | 20 | – | – | dB |
| | | f = 80 to 160 MHz | 19 | – | – | dB |
| | | f = 160 to 450 MHz | 18 | – | – | dB |
| CTB | composite triple beat | 60 channels flat; V _o = 46 dBmV; measured at 445.25 MHz | – | – | –55 | dB |
| X _{mod} | cross modulation | 60 channels flat; V _o = 46 dBmV; measured at 55.25 MHz | – | – | –56 | dB |
| CSO | composite second order distortion | 60 channels flat; V _o = 46 dBmV; measured at 446.25 MHz | – | – | –55 | dB |
| d ₂ | second order distortion | note 1 | – | – | –72 | dB |
| V _o | output voltage | d _{im} = –60 dB; note 2 | 61.5 | – | – | dBmV |
| F | noise figure | f = 450 MHz | – | – | 7 | dB |
| I _{tot} | total current consumption (DC) | note 3 | – | 180 | 200 | mA |

Notes

- f_p = 55.25 MHz; V_p = 46 dBmV;
f_q = 391.25 MHz; V_q = 46 dBmV;
measured at f_p + f_q = 446.5 MHz.
- Measured according to DIN45004B:
f_p = 440.25 MHz; V_p = V_o;
f_q = 447.25 MHz; V_q = V_o –6 dB;
f_r = 449.25 MHz; V_r = V_o –6 dB;
measured at f_p + f_q – f_r = 438.25 MHz.
- The module normally operates at V_B = 24 V, but is able to withstand supply transients up to 30 V.

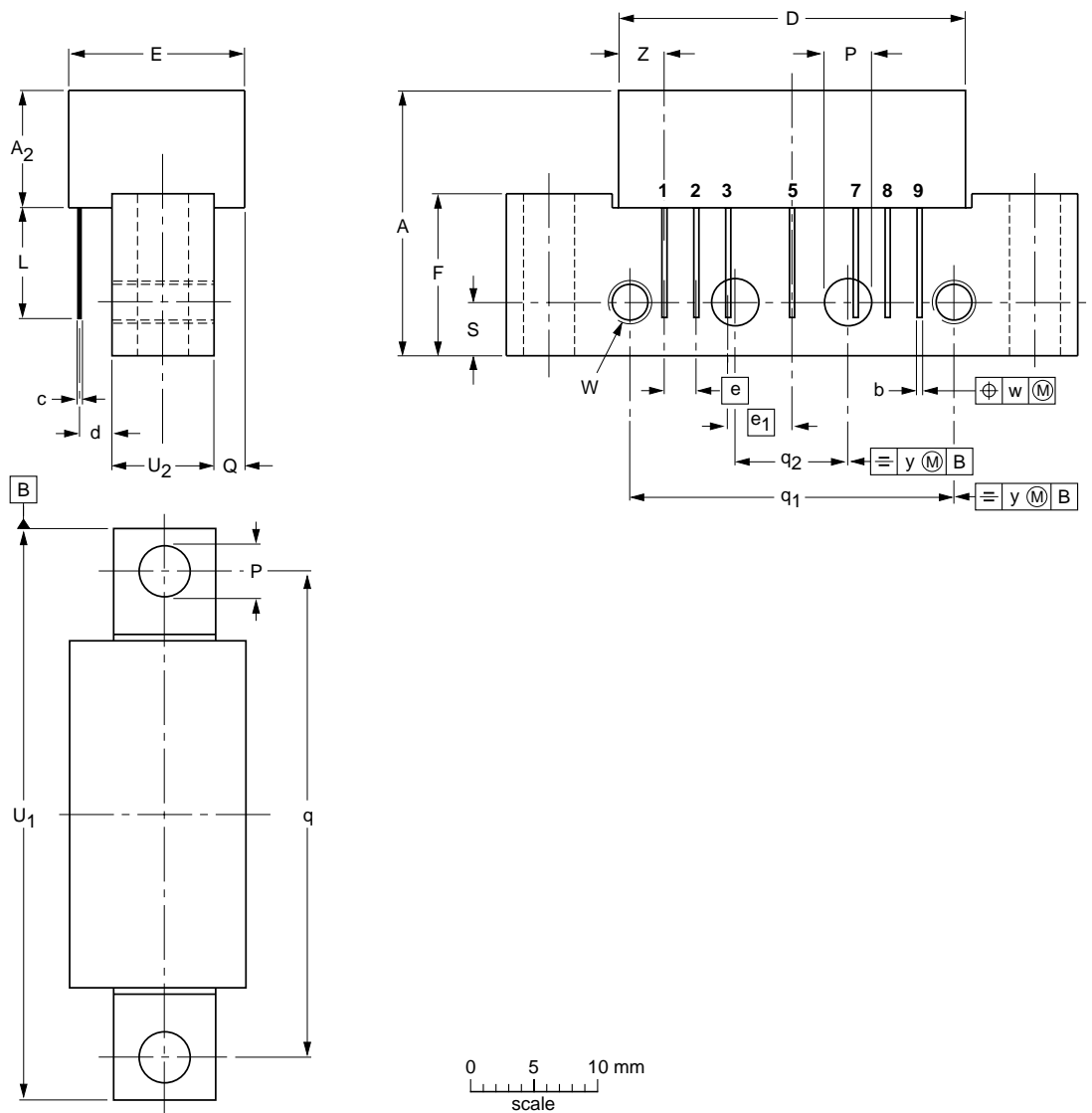
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PACKAGE OUTLINE

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. | 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 | | | | | | 97-04-10 |

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DEFINITIONS

| Data Sheet Status | |
|---|---|
| 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. |
| Limiting values | |
| 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. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

LIFE SUPPORT APPLICATIONS

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NOTES

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Printed in The Netherlands

125106/00/03/pp8

Date of release: 1998 Mar 02

Document order number: 9397 750 03346

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