

DATA SHEET

BGY87B

CATV amplifier module

Product specification
Supersedes data of February 1995
File under Discrete Semiconductors, SC16

1997 Apr 10

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FEATURES

- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- TiPtAu metallized crystals ensure optimal reliability.

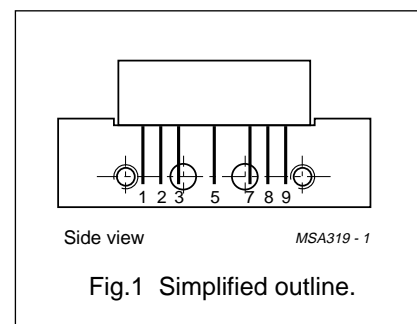
DESCRIPTION

Hybrid amplifier module for CATV systems operating over a frequency range of 40 to 450 MHz at a voltage supply of +24 V.

PINNING - SOT115J

| PIN | DESCRIPTION |
|-----|-----------------|
| 1 | input |
| 2 | common |
| 3 | common |
| 5 | +V _B |
| 7 | common |
| 8 | common |
| 9 | output |

PIN CONFIGURATION



QUICK REFERENCE DATA

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|--------------------------------|--------------------------------|------|------|------|
| G _p | power gain | f = 50 MHz | 26.2 | 27.8 | dB |
| I _{tot} | total current consumption (DC) | V _B = +24 V; note 1 | – | 340 | mA |

Note

1. The module normally operates at V_B = +24 V, but is able to withstand supply transients up to +30 V.

LIMITING VALUES

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

| SYMBOL | PARAMETER | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|------|------|------|
| V _i | RF input voltage | – | 55 | dBmV |
| T _{stg} | storage temperature | –40 | +100 | °C |
| T _{mb} | mounting base operating temperature | –20 | +100 | °C |

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CHARACTERISTICS

Table 1 Bandwidth 40 to 450 MHz; $T_{\text{case}} = 35\text{ }^{\circ}\text{C}$; $Z_S = Z_L = 75\ \Omega$

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|-----------------------------------|--|------|-----------|------|
| G_p | power gain | $f = 50\text{ MHz}$ | 26.2 | 27.8 | dB |
| | | $f = 450\text{ MHz}$ | 27.5 | – | dB |
| SL | slope cable equivalent | $f = 40\text{ to }450\text{ MHz}$ | 0.5 | 2.5 | dB |
| FL | flatness of frequency response | $f = 40\text{ to }450\text{ MHz}$ | – | ± 0.2 | dB |
| S_{11} | input return losses | $f = 40\text{ to }80\text{ MHz}$ | – | 20 | dB |
| | | $f = 80\text{ to }160\text{ MHz}$ | – | 19 | dB |
| | | $f = 160\text{ to }450\text{ MHz}$ | – | 18 | dB |
| S_{22} | output return losses | $f = 40\text{ to }80\text{ MHz}$ | – | 20 | dB |
| | | $f = 80\text{ to }160\text{ MHz}$ | – | 19 | dB |
| | | $f = 160\text{ to }450\text{ MHz}$ | – | 18 | dB |
| CTB | composite triple beat | 60 channels flat; $V_o = 46\text{ dBmV}$; measured at 445.25 MHz | – | –58 | dB |
| X_{mod} | cross modulation | 60 channels flat; $V_o = 46\text{ dBmV}$; measured at 55.25 MHz | – | –58 | dB |
| CSO | composite second order distortion | 60 channels flat; $V_o = 46\text{ dBmV}$; measured at 446.5 MHz | – | –60 | dB |
| d_2 | second order beat | $V_o = 46\text{ dBmV}$; note 1 | – | –70 | dB |
| V_o | output voltage | $d_{\text{im}} = -60\text{ dB}$; note 2 | 64 | – | dBmV |
| F | noise figure | $f = 450\text{ MHz}$ | – | 6 | dB |
| I_{tot} | total current consumption | DC value; $V_B = +24\text{ V}$ | – | 340 | mA |

Notes

- $f_p = 55.25\text{ MHz}$; $V_p = 46\text{ dBmV}$;
 $f_q = 391.25\text{ MHz}$; $V_q = 46\text{ dBmV}$;
measured at $f_p + f_q = 446.5\text{ MHz}$.
- Measured according to DIN45004B;
 $f_p = 440.25\text{ MHz}$; $V_p = V_o$;
 $f_q = 447.25\text{ MHz}$; $V_q = V_o - 6\text{ dB}$;
 $f_r = 449.25\text{ MHz}$; $V_r = V_o - 6\text{ dB}$;
measured at $f_p + f_q - f_r = 438.25\text{ MHz}$.

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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. | |

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NOTES

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