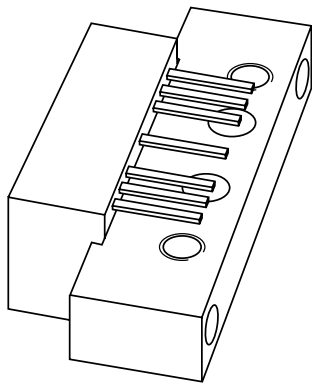


DATA SHEET



BGY86; BGY87 CATV amplifier modules

Product specification
Supersedes data of February 1994

1999 Mar 25

CATV amplifier modules

BGY86; BGY87

FEATURES

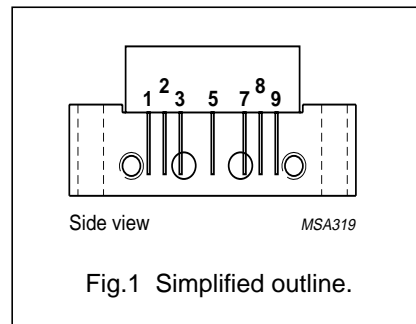
- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- TiPtAu metallized crystals ensure optimal reliability.

DESCRIPTION

Hybrid amplifier modules for CATV systems operating over a frequency range of 40 to 450 Mhz at a voltage supply of 24 V (DC). The BGY86 is intended for use as a pre-amplifier and the BGY87 as a final amplifier.

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. | TYP. | MAX. | UNIT |
|------------------|--|-----------------------|------|------|------|------|
| G _p | power gain | f = 50 MHz | 21.5 | – | 22.5 | dB |
| | | f = 450 MHz | 21.7 | – | 23.5 | dB |
| I _{tot} | total current consumption (DC) BGY86 BGY87 | V _B = 24 V | – | 180 | 200 | mA |
| | | | – | 220 | 240 | 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 |

CATV amplifier modules

BGY86; BGY87

CHARACTERISTICS

Bandwidth 40 to 450 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 = 50 MHz | 21.5 | – | 22.5 | dB |
| | | f = 450 MHz | 21.7 | – | 23.5 | dB |
| SL | slope cable equivalent | f = 40 to 450 MHz | 0 | – | 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 |
| S ₂₁ | phase response | f = 50 MHz | +135 | – | +225 | deg |
| CTB | composite triple beat BGY86 BGY87 | 60 channels flat; V _o = 46 dBmV; measured at 445.25 MHz | – | – | –54 | dB |
| | | | – | – | –58 | dB |
| X _{mod} | cross modulation BGY86 BGY87 | 60 channels flat; V _o = 46 dBmV; measured at 55.25 MHz | – | – | –51 | dB |
| | | | – | – | –55 | dB |
| CSO | composite second order distortion BGY86 BGY87 | 60 channels flat; V _o = 46 dBmV; measured at 446.5 MHz | – | – | – | – |
| | | | – | – | –53 | dB |
| | | | – | – | –57 | dB |
| d ₂ | second order distortion BGY86 BGY87 | note 1 | | | | |
| | | | – | – | –68 | dB |
| | | | – | – | –72 | dB |
| V _o | output voltage BGY86 BGY87 | d _{im} = –60 dB; note 2 | | | | |
| | | | 61.5 | – | – | dBmV |
| | | | 64 | – | – | dBmV |
| F | noise figure BGY86 BGY87 | f = 450 MHz | | | | |
| | | | – | – | 6 | dB |
| | | | – | – | 6.5 | dB |
| I _{tot} | total current consumption (DC) BGY86 BGY87 | note 3 | | | | |
| | | | – | 180 | 200 | mA |
| | | | – | 220 | 240 | 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 modules normally operate at V_B = 24 V, but are able to withstand supply transients up to 30 V.

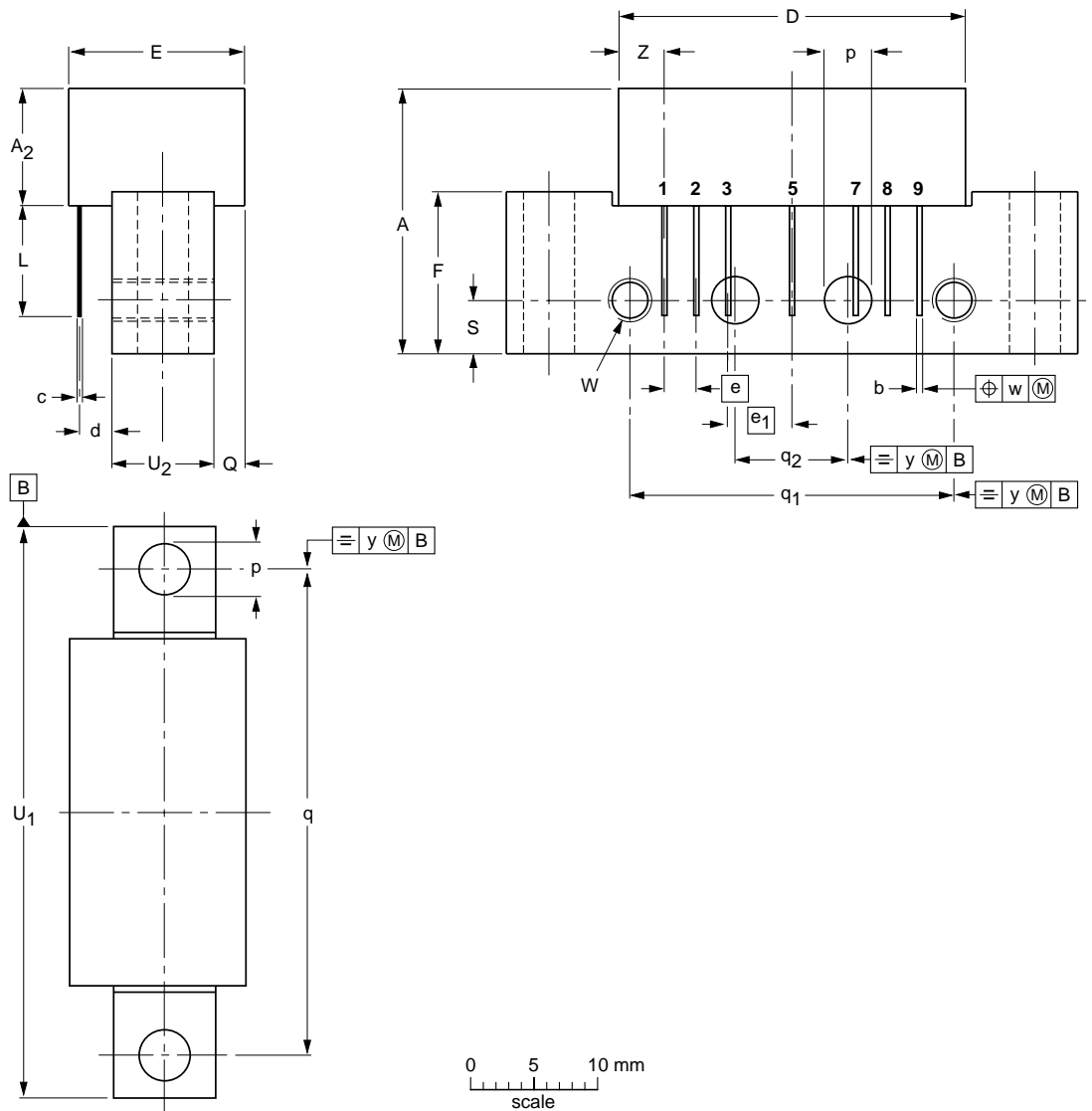
CATV amplifier modules

BGY86; BGY87

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 |

CATV amplifier modules

BGY86; BGY87

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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CATV amplifier modules

BGY86; BGY87

NOTES

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