

DATA SHEET

BGY580

CATV amplifier module

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

1998 Feb 25

CATV amplifier module

BGY580

FEATURES

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

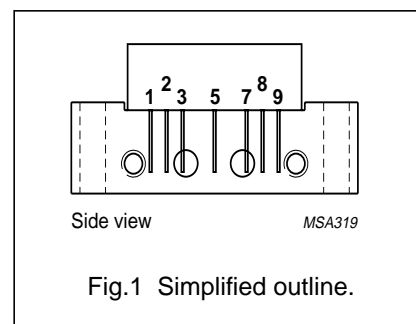
DESCRIPTION

Hybrid amplifier module for CATV systems operating over a frequency range of 40 to 550 MHz at a voltage supply of 24 V (DC). The BGY580 is intended for use as a pre-amplifier.

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. | TYP. | MAX. | UNIT |
|------------------|--------------------------------|-----------------------|------|------|------|------|
| G _p | power gain | f = 50 MHz | 12 | – | 13 | dB |
| | | f = 550 MHz | 12.5 | – | 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} | mounting base operating temperature | –20 | +100 | °C |

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CHARACTERISTICS

Bandwidth 40 to 550 MHz; $T_{mb} = 30\text{ °C}$; $Z_S = Z_L = 75\ \Omega$

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------|-----------------------------------|--|------|------|-----------|------|
| G_p | power gain | $f = 50\text{ MHz}$ | 12 | – | 13 | dB |
| | | $f = 550\text{ MHz}$ | 12.5 | – | 14.5 | dB |
| SL | slope cable equivalent | $f = 40\text{ to }550\text{ MHz}$ | 0.5 | – | 2 | dB |
| FL | flatness of frequency response | $f = 40\text{ to }550\text{ MHz}$ | – | – | ± 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 |
| | | $f = 160\text{ to }550\text{ MHz}$ | 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 |
| | | $f = 160\text{ to }550\text{ MHz}$ | 18 | – | – | dB |
| CTB | composite triple beat | 77 channels flat; $V_o = 44\text{ dBmV}$; measured at 547.25 MHz | – | – | –52 | dB |
| X_{mod} | cross modulation | 77 channels flat; $V_o = 44\text{ dBmV}$; measured at 55.25 MHz | – | – | –59 | dB |
| CSO | composite second order distortion | 77 channels flat; $V_o = 44\text{ dBmV}$; measured at 548.5 MHz | – | – | –56 | dB |
| d_2 | second order distortion | note 1 | – | – | –70 | dB |
| V_o | output voltage | $d_{im} = -60\text{ dB}$; note 2 | 59 | – | – | dBmV |
| F | noise figure | $f = 550\text{ MHz}$ | – | – | 8.5 | dB |
| I_{tot} | total current consumption (DC) | $V_B = 24\text{ V}$; note 3 | – | 180 | 200 | mA |

Notes

- $f_p = 55.25\text{ MHz}$; $V_p = 44\text{ dBmV}$; $f_q = 493.25\text{ MHz}$; $V_q = 44\text{ dBmV}$;
measured at $f_p + f_q = 548.5\text{ MHz}$.
- Measured according to DIN45004B;
 $f_p = 540.25\text{ MHz}$; $V_p = V_o$; $f_q = 547.25\text{ MHz}$; $V_q = V_p - 6\text{ dB}$; $f_r = 549.25\text{ MHz}$; $V_r = V_p - 6\text{ dB}$;
measured at $f_p + f_q - f_r = 538.25\text{ MHz}$.
- The module normally operates at $V_B = 24\text{ V}$, but is able to withstand supply transients up to 30 V.

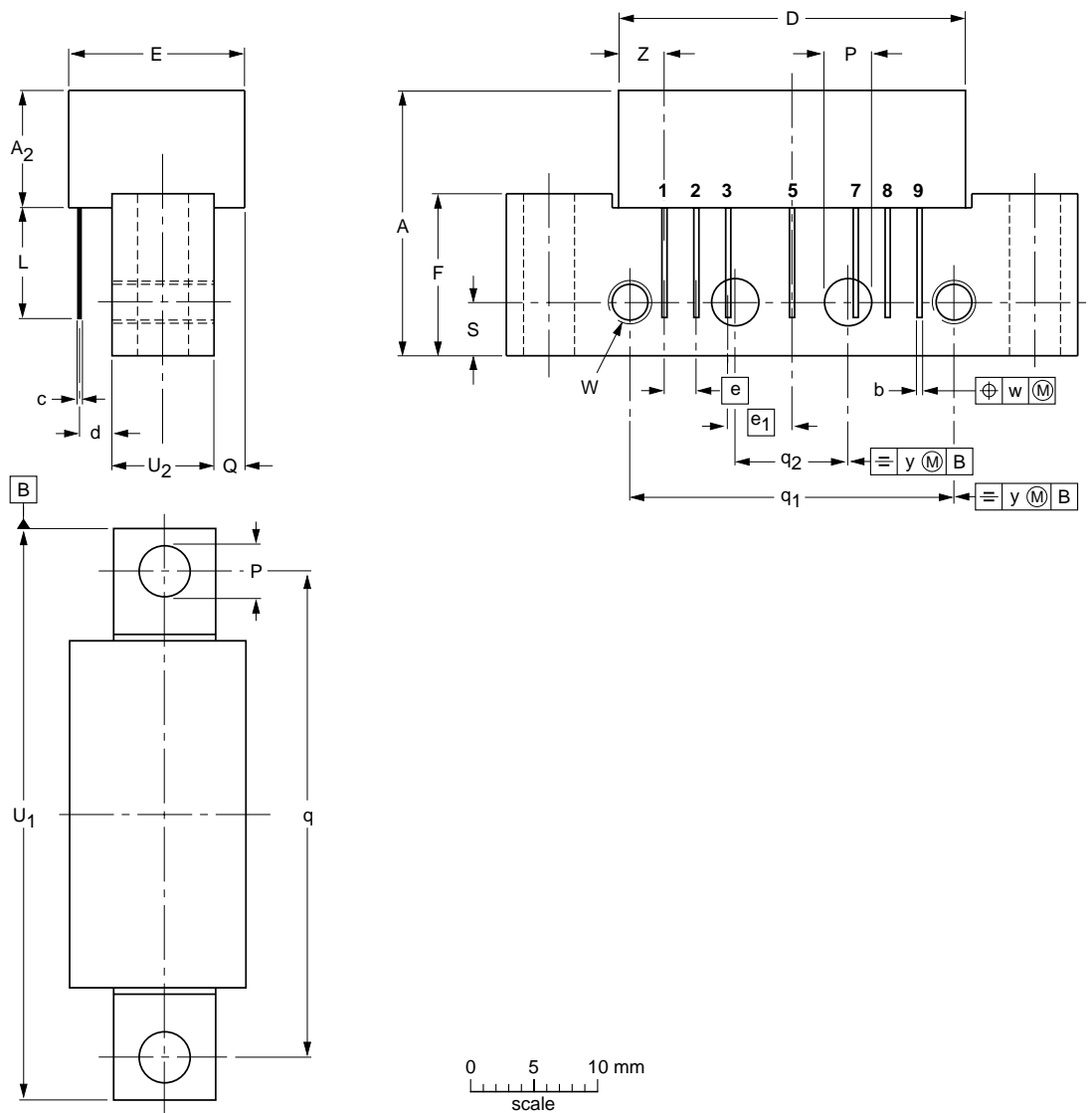
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PACKAGE OUTLINE

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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