**DISCRETE SEMICONDUCTORS**

# DATA SHEET

# BGY586; BGY587
# CATV amplifier modules

Product specification                                    February 1995

File under Discrete Semiconductors, SC16

## Philips Semiconductors

**PHILIPS**

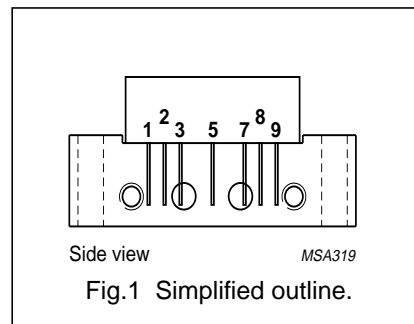## CATV amplifier modules

## BGY586; BGY587

### 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 550 MHz at a voltage supply of 24 V (DC). The BGY586 is intended for use as a pre-amplifier and BGY587 as a final amplifier.

### PINNING - SOT115J

| PIN | DESCRIPTION |
|---|---|
| 1 | input |
| 2 | common |
| 3 | common |
| 5 | $+V_B$ |
| 7 | common |
| 8 | common |
| 9 | output |



Side view  *MSA319*

Fig.1  Simplified outline.

### QUICK REFERENCE DATA

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| $G_p$ | power gain | f = 50 MHz | 21.5 | – | 22.5 | dB |
| | | f = 550 MHz | 22 | – | – | dB |
| $I_{tot}$ | total current consumption (DC) | $V_B$ = 24 V | | | | |
| | BGY586 | | – | 180 | 200 | mA |
| | BGY587 | | – | 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

## BGY586; BGY587

### CHARACTERISTICS

Bandwidth 40 to 550 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 = 550 MHz | 22 | – | – | dB |
| SL | slope cable equivalent | f = 40 to 550 MHz | 0.2 | – | 1.5 | dB |
| FL | flatness of frequency response | f = 40 to 550 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 550 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 550 MHz | 18 | – | – | dB |
| $S_{21}$ | phase response | f = 50 MHz | +135 | – | +225 | deg |
| CTB | composite triple beat<br>BGY586<br>BGY587 | 77 channels flat;<br>$V_o$ = 44 dBmV;<br>measured at 547.25 MHz | –<br>– | –<br>– | –53<br>–57 | dB<br>dB |
| $X_{mod}$ | cross modulation<br>BGY586<br>BGY587 | 77 channels flat;<br>$V_o$ = 44 dBmV;<br>measured at 55.25 MHz | –<br>– | –<br>– | –55<br>–58 | dB<br>dB |
| CSO | composite second order distortion<br>BGY586<br>BGY587 | 77 channels flat;<br>$V_o$ = 44 dBmV;<br>measured at 548.5 MHz | –<br>– | –<br>– | –50<br>–54 | dB<br>dB |
| $d_2$ | second order distortion<br>BGY586<br>BGY587 | note 1 | –<br>– | –<br>– | –62<br>–66 | dB<br>dB |
| $V_o$ | output voltage<br>BGY586<br>BGY587 | $d_{im}$ = –60 dB; note 2 | 58.5<br>61 | –<br>– | –<br>– | dBmV<br>dBmV |
| F | noise figure<br>BGY586<br>BGY587 | f = 550 MHz | –<br>– | –<br>– | 6.5<br>7 | dB<br>dB |
| $I_{tot}$ | total current consumption (DC)<br>BGY586<br>BGY587 | note 3 | –<br>– | 180<br>220 | 200<br>240 | mA<br>mA |

### Notes

1. $f_p$ = 55.25 MHz; $V_p$ = 44 dBmV; $f_q$ = 493.25 MHz; $V_q$ = 44 dBmV; measured at $f_p + f_q$ = 548.5 MHz.

2. Measured according to DIN45004B: $f_p$ = 540.25 MHz; $V_p = V_o$; $f_q$ = 547.25 MHz; $V_q = V_o$ –6 dB;
   $f_r$ = 549.25 MHz; $V_r = V_o$ –6 dB; measured at $f_p + f_q - f_r$ = 538.25 MHz.

3. The modules normally operate at $V_B$ = 24 V, but are able to withstand supply transients up to 30 V.