

DATA SHEET

BGY80; BGY81 CATV amplifier modules

Product specification
File under Discrete Semiconductors, SC16

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Philips Semiconductors



PHILIPS

CATV amplifier modules

BGY80; BGY81

FEATURES

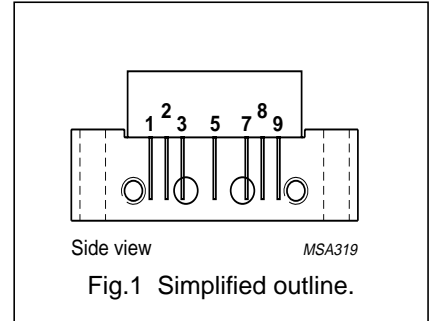
- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- TiPtAu metallized crystals ensure optimal reliability.

DESCRIPTION

Hybrid amplifier modules for CATV systems operating over a frequency range of 40 to 450 MHz at a voltage supply of (DC). The BGY80 is intended for use as a 12.5 dB pre-amplifier and the BGY81 as a 12.5 dB 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 | 12 | – | 13 | dB |
| | | f = 450 MHz | 12.5 | – | 14 | dB |
| I _{tot} | total current consumption (DC) | V _B = 24 V | | | | |
| | BGY80 | | – | 180 | 200 | mA |
| | BGY81 | – | 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

BGY80; BGY81

CHARACTERISTICSBandwidth 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 | 12 | – | 13 | dB |
| | | f = 450 MHz | 12.5 | – | 14 | 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 |
| S_{21} | phase response | f = 50 MHz | –45 | – | +45 | deg |
| CTB | composite triple beat BGY80 BGY81 | 60 channels flat; $V_o = 46$ dBmV; measured at 445.25 MHz | – | – | –54 | dB |
| | | | – | – | –58 | dB |
| X_{mod} | cross modulation BGY80 BGY81 | 60 channels flat; $V_o = 46$ dBmV; measured at 55.25 MHz | – | – | –59 | dB |
| | | | – | – | –62 | dB |
| CSO | composite second order distortion BGY80 BGY81 | 60 channels flat; $V_o = 46$ dBmV; measured at 446.5 MHz | – | – | –58 | dB |
| | | | – | – | –61 | dB |
| d_2 | second order distortion BGY80 BGY81 | note 1 | – | – | –72 | dB |
| | | | – | – | –74 | dB |
| V_o | output voltage BGY80 BGY81 | $d_{im} = -60$ dB; note 2 | 61.5 | – | – | dBmV |
| | | | 64 | – | – | dBmV |
| F | noise figure BGY80 BGY81 | f = 450 MHz | – | – | 7.5 | dB |
| | | | – | – | 8 | dB |
| I_{tot} | total current consumption (DC) BGY80 BGY81 | 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.