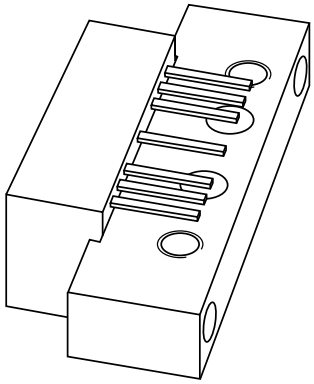
# DATA SHEET



# CGY887A

## 860 MHz, 25.5 dB gain push-pull amplifier

Product specification
Supersedes data of 2001 Oct 25

2002 Apr 18

# 860 MHz, 25.5 dB gain push-pull amplifier CGY887A

## FEATURES

- High gain
- Superior linearity
- Extremely low noise
- Rugged construction
- Gold metallization ensures excellent reliability.

## APPLICATIONS

- CATV systems operating in the 40 to 870 MHz frequency range.

## DESCRIPTION

Hybrid dynamic range amplifier module in a SOT115J package operating with a voltage supply of 24 V (DC), employing both GaAs and Si dies.

## PINNING - SOT115J

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

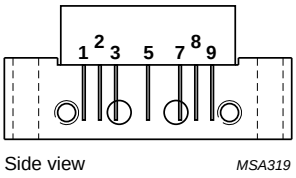



Fig.1 Simplified outline.

## QUICK REFERENCE DATA

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|---|---|---|---|---|---|
| $G_p$ | power gain | f = 50 MHz | 25.2 | 25.8 | dB |
| | | f = 870 MHz | 25.7 | 27 | dB |
| $I_{tot}$ | total current consumption (DC) | $V_B$ = 24 V | – | 240 | mA |

## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

| SYMBOL | PARAMETER | MIN. | MAX. | UNIT |
|---|---|---|---|---|
| $V_i$ | RF input voltage | – | 75 | dBmV |
| $T_{stg}$ | storage temperature | –40 | +100 | °C |
| $T_{mb}$ | operating mounting base temperature | –20 | +100 | °C |

## CHARACTERISTICS

Bandwidth 40 to 870 MHz; $V_B$ = 24 V; $T_{case}$ = 30 °C; $Z_S = Z_L$ = 75 Ω.

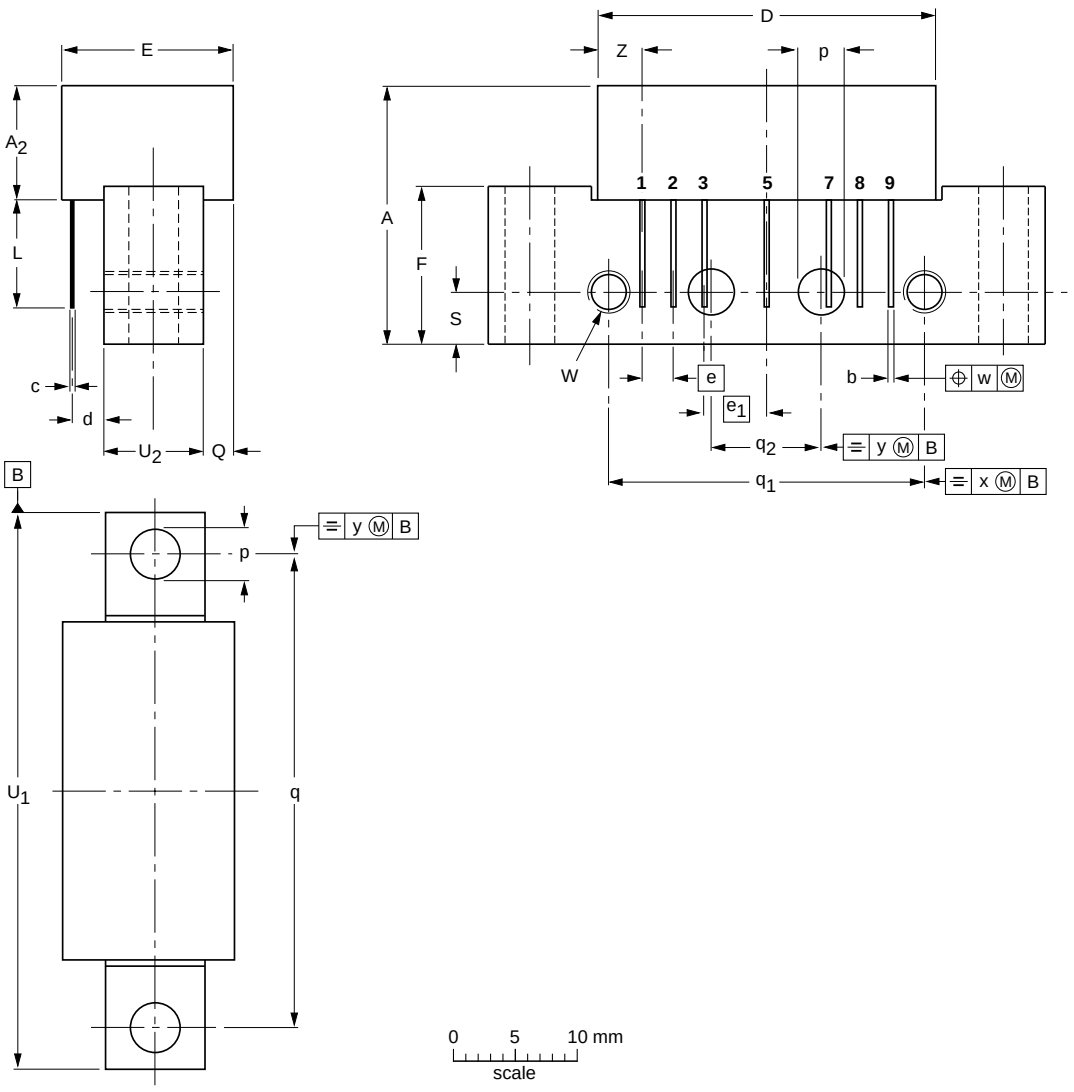
| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|---|---|---|---|---|---|
| $G_p$ | power gain | f = 50 MHz | 25.2 | 25.8 | dB |
| | | f = 870 MHz | 25.7 | 27 | dB |
| SL | straight line | f = 40 to 870 MHz | 0.5 | 1.4 | dB |
| FL | flatness of frequency response | f = 40 to 870 MHz | – | ±0.5 | dB |
| $s_{11}$ | input return losses | f = 40 to 80 MHz | 20 | – | dB |
| | | f = 80 to 160 MHz | 20 | – | dB |
| | | f = 160 to 320 MHz | 20 | – | dB |
| | | f = 320 to 550 MHz | 20 | – | dB |
| | | f = 550 to 640 MHz | 19 | – | dB |
| | | f = 640 to 750 MHz | 17 | – | dB |
| | | f = 750 to 870 MHz | 17 | – | dB |
| $s_{22}$ | output return losses | f = 40 to 80 MHz | 21 | – | dB |
| | | f = 80 to 160 MHz | 19 | – | dB |
| | | f = 160 to 320 MHz | 17 | – | dB |
| | | f = 320 to 550 MHz | 16 | – | dB |
| | | f = 550 to 640 MHz | 16 | – | dB |
| | | f = 640 to 750 MHz | 16 | – | dB |
| | | f = 750 to 870 MHz | 16 | – | dB |
| $s_{21}$ | phase response | f = 50 MHz | –45 | +45 | deg |
| CTB | composite triple beat | 129 channels flat; $V_o$ = 40 dBmV; measured at 745.25 MHz | – | –62 | dB |
| $X_{mod}$ | cross modulation | 129 channels flat; $V_o$ = 40 dBmV; measured at 55.25 MHz | – | –56 | dB |
| CSO | composite second order distortion | 129 channels flat; $V_o$ = 40 dBmV; measured at 860.5 MHz | – | –59 | dB |
| | | 129 channels flat; $V_o$ = 40 dBmV; measured at 150 MHz | – | –69 | dB |
| $d_2$ | second order distortion | note 1 | – | –67 | dB |
| $V_o$ | output voltage | $d_{im}$ = –60 dB; note 2 | 62 | – | dBmV |
| NF | noise figure | f = 50 MHz | – | 5.5 | dB |
| | | f = 100 to 870MHz | – | 5 | dB |
| $I_{tot}$ | total current consumption (DC) | note 3 | – | 240 | mA |

**Notes**

1. $f_p$ = 55.25 MHz; $V_p$ = 50 dBmV;
   $f_q$ = 805.25 MHz; $V_q$ = 50 dBmV;
   measured at $f_p + f_q$ = 860.5 MHz.
2. Measured according DIN45004B:
   $f_p$ = 851.25 MHz; $V_p = V_o$;
   $f_q$ = 858.25 MHz; $V_q = V_o - 6$ dB;
   $f_r$ = 860.25 MHz; $V_r = V_o - 6$ dB;
   measured at $f_p + f_q - f_r$ = 849.25 MHz.
3. The module normally operates at $V_B$ = 24 V, but is able to withstand supply transients up to 30 V.

## 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 | E max. | e | $e_1$ | F | L min. | p | Q max. | q | $q_1$ | $q_2$ | S | $U_1$ | $U_2$ | W | w | x | y | Z max. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 20.8 | 9.5 | 0.51<br>0.38 | 0.25 | 27.2 | 2.04<br>2.54 | 13.75 | 2.54 | 5.08 | 12.7 | 8.8 | 4.15<br>3.85 | 2.4 | 38.1 | 25.4 | 10.2 | 4.2 | 44.75<br>44.25 | 8.2<br>7.8 | 6-32<br>UNC | 0.25 | 0.7 | 0.1 | 3.8 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT115J | | | | | | ~~04-02-04~~<br>10-06-18 |

**DATA SHEET STATUS**

| DOCUMENT STATUS[1] | PRODUCT STATUS[2] | DEFINITION |
|---|---|---|
| Objective data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary data sheet | Qualification | This document contains data from the preliminary specification. |
| Product data sheet | Production | This document contains the product specification. |

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