



## ACA2782

1 GHz, 21 dB Gain

CATV Power Doubler Amplifier

ADVANCED PRODUCT INFORMATION - Rev 0.0

### FEATURES

- 21 dB Gain
- 40 MHz to 1 GHz Operating Range
- 0.4 dB Gain Flatness
- 24 V Supply
- Supply Current : 425 mA (Typ.)
- Very Low Distortion & Noise
- Robust Design and Insensitive to Voltage Transients
- GaAs Monolithic IC-Based
- Standard SOT115J Package

### APPLICATIONS

- Distribution Nodes and Line Extenders in CATV Systems

### PRODUCT DESCRIPTION

The ACA2782 is a GaAs Hybrid Amplifier for CATV HFC distribution systems. It consists of two pairs of parallel amplifiers that are optimized for exceptionally low distortion and noise figure. The ACA2782 is offered in a standard SOT115J package.

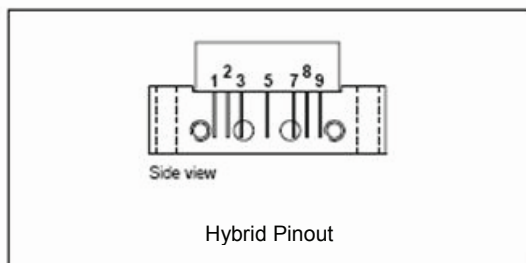
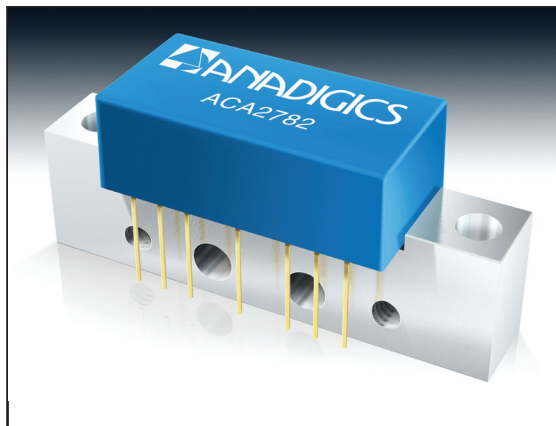


Figure 2: Hybrid Pinout

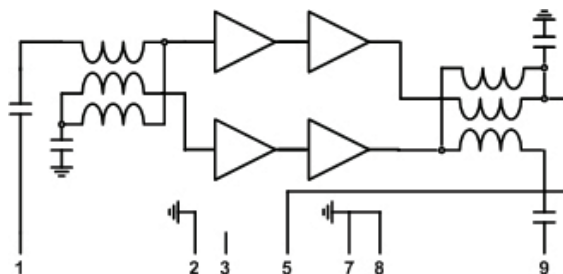


Figure 1: Simplified Hybrid Internal Arrangement

Table 1: SOJ115J Pinning

| PIN  | Description          |
|------|----------------------|
| 1    | RF Input             |
| 2    | GND                  |
| 3    | GND or No Connection |
| 5    | 24 V                 |
| 7, 8 | GND                  |
| 9    | RF Output            |

**Table 2: Absolute Minimum and Maximum Ratings**

|                                     | Symbol           | Min | Typ | Max  | Unit            | Conditions  |
|-------------------------------------|------------------|-----|-----|------|-----------------|-------------|
| Supply Voltage                      | V <sub>DD</sub>  | -   | +24 | +28  | V <sub>DC</sub> |             |
| RF Power at inputs                  | -                | -   | -   | +70  | dBmV            | single tone |
| Operating mounting Base temperature | T <sub>MB</sub>  | -20 | -   | +100 | °C              |             |
| Storage Temperature                 | T <sub>STG</sub> | -40 |     | +100 | °C              |             |

**Table 3: Operating Ranges**

|              | Symbol | Min | Typ | Max  | Unit | Conditions |
|--------------|--------|-----|-----|------|------|------------|
| RF Frequency | -      | 40  | -   | 1000 | MHz  |            |

**Table 4: Electrical Characteristics****(Test condition: 40 to 870 MHz, T<sub>MB</sub> = 30°C, 75  $\Omega$  loading, see note 1)**

|                        | Symbol          | Min | Typ  | Max | Unit | Conditions |
|------------------------|-----------------|-----|------|-----|------|------------|
| Power Gain             | G <sub>P</sub>  | -   | 20.8 | -   | dB   | 55 MHz     |
| Slope cable equivalent | SL              | -   | 0.2  | -   | dB   |            |
| Gain Flatness          | FL              | -   | 0.4  | -   | dB   |            |
| Input Return Loss      | S <sub>11</sub> | -   | -    | -18 | dB   |            |
| Output Return Loss     | S <sub>22</sub> | -   | -    | -18 | dB   |            |
| CTB                    | -               | -   | -75  | -   | dBc  | See Note 1 |
| CSO                    | -               | -   | -70  | -   | dBc  | See Note 1 |
| XMOD                   | -               | -   | -68  | -   | dBc  | See Note 1 |
| Noise Figure           | -               | -   | 3.5  | 5.0 | dB   |            |
| Supply Current         | -               | -   | 425  | -   | mA   |            |

*Note:*

1. 79 NTSC analog channels; 14 dB tilt referenced to 1 GHz; plus 75 digital channels with QAM at -6 dB offset above 550 MHz; +55 dBmV/CH output power at 1 GHz.

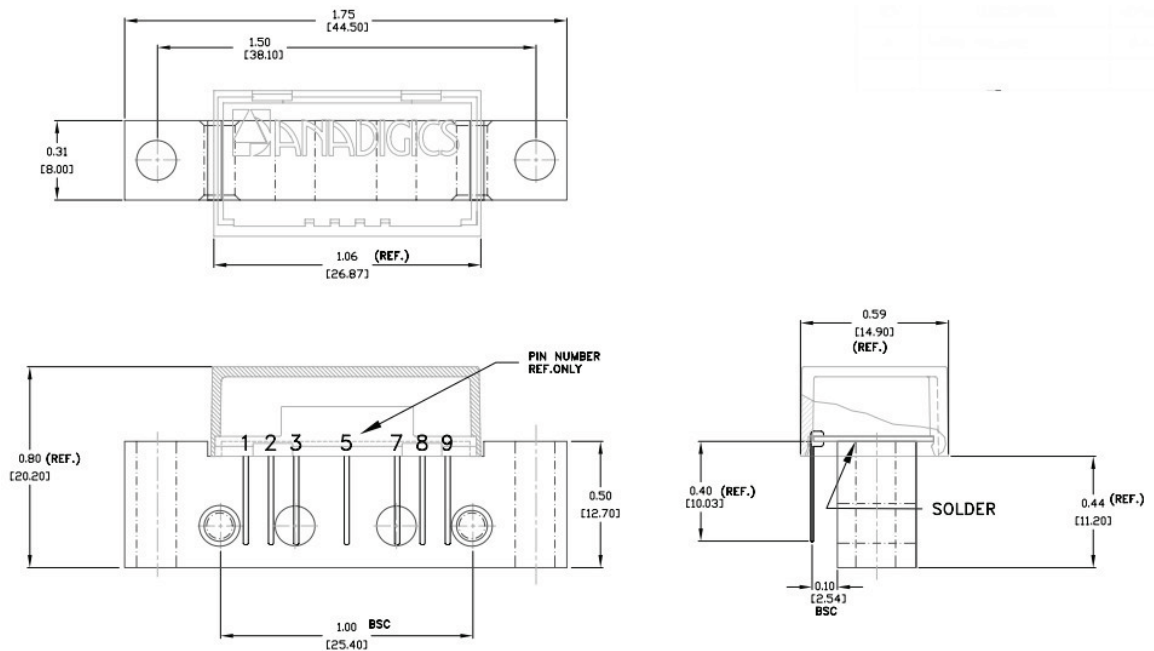


Figure 3: Hybrid Line Amp Physical Outline



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