



### Triple High Temperature, High Gain Amplifier for use in Down-Hole Seismic Applications

#### FEATURES

- Operation to 230 C°
- Three independent amplifiers
- Low Power : 6 mA / ch typical
- $\pm 5$  to  $\pm 12$  volt input supply range
- Wide bandwidth: 1600 Hz
- Customer specified gain (3 to 500)



#### APPLICATIONS

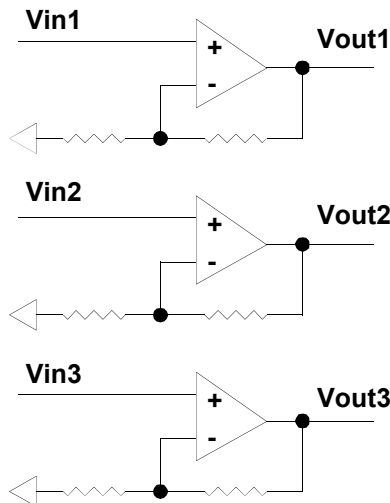
- High temperature electronics
- Petroleum reservoir monitoring
- Petroleum logging tools
- Petroleum LWD and MWD tools
- Vertical Seismic Profiling

#### DESCRIPTION

The TX5419 consists of three separate non-inverting, high-gain amplifiers packaged in a single, shielded package. The device is a triple high performance amplifier for high temperature applications and features low power, wide bandwidth and low noise. The outputs can swing within a volt of the supply rails and drive long lines without stability problems. The TX5419's low input bias current makes it a superior choice for geophone amplifiers.

The TX5419 operates over a temperature range of  $-20\text{C}^\circ$  to  $+230\text{C}^\circ$ .

#### TX5419 Block Diagram



All amplifiers are identical

## TX5419 Specifications

### Absolute Maximum Ratings

|  |          |
|--|----------|
| Supply Voltage                             | ±18 volt |
| Operating Temperature (T <sub>case</sub> ) | 230°C    |
| Storage Temperature                        | 230°C    |

Electrical Characteristics: V<sub>s</sub> = ±7.5 volts

| TX5419               |                       | 25°C |      |     | 230°C |      |     | Units |
|----------------------|-----------------------|------|------|-----|-------|------|-----|-------|
| Parameter            | Conditions            | Min  | Typ  | Max | Min   | Typ  | Max |       |
| Input offset voltage | (5)                   |      | ±30  |     |       | ±70  |     | μV    |
| Drift                |                       |      | ±1   |     |       | ±1   |     | μV/°C |
| PSRR                 | (1)                   |      | -95  |     |       | -95  |     | db    |
| Input bias current   | V <sub>in</sub> = 0V  |      | ±60  |     |       | ±60  |     | nA    |
| Noise                | (2)                   |      | 200  |     |       | 400  |     | nVrms |
| Distortion           | (3)                   |      | -104 |     |       | -87  |     | db    |
| Crosstalk            | (4)                   |      | -91  |     |       | -68  |     | db    |
| Frequency response   | Gain = 1              |      | 100K |     |       | 100K |     | Hz    |
|                      | Gain = -3db           |      | 1600 |     |       | 1600 |     | Hz    |
| Quiescent current    | I <sub>out</sub> = 0V |      | 12   |     |       | 18   |     | ma    |
| Gain                 |                       |      | 500  |     |       | 500  |     |       |

### Notes

1. PSRR is measured by modulating ±V<sub>s</sub> each with a 100 mVRMS sine wave from 10 to 1600 Hz.
2. Noise is measured with all inputs connected to GND through 160 ohm resistor.
3. Distortion is measured with a 31.25 Hz sine wave at 1 VRMS input through 500:1 attenuator.
4. Crosstalk is measured driving CH 1 OUT to 1 VRMS with CH 2 and CH 3 inputs connected to GND through 3KΩ resistors. The outputs drive a line simulator consisting of 1000nf output to output and 1600nf output to GND.
5. The optimum impedance presented to the non-inverting inputs to minimize offset and drift is 160 Ω.

### Misc.

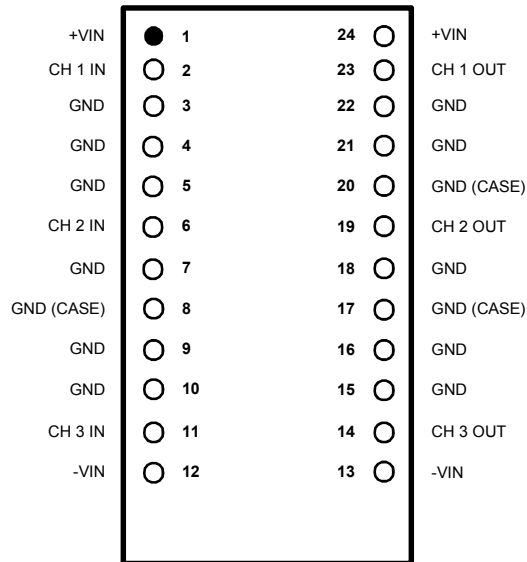
The TX5419 is housed in a 24 pin metal hermetic package. Pin spacing is 0.1" and row spacing is 0.6".

Free air thermal resistance is approximately 35 C° per watt.

## TX5419 Specifications

### Pin out - top view

24 Pin Metal Bathtub      Pins on 0.6" centers



#### MATERIALS:

- Housing: Kovar
- Contact pins: .012" minimum glass pin to case
- Lid: Kovar