

## FEATURES

- ±600 V common-mode voltage range**
- Rail-to-rail output**
- Fixed gain of 1**
- Wide power supply range of ±2.5 V to ±18 V**
- 550  $\mu$ A typical power supply current**
- Excellent ac specifications**
  - 90 dB minimum CMRR**
  - 310 kHz bandwidth**
- High accuracy dc performance**
  - ±5 ppm maximum gain nonlinearity**
  - ±10  $\mu$ V/°C maximum offset voltage drift**
  - ±5 ppm/°C maximum gain drift**

## APPLICATIONS

- High voltage current sensing**
- Battery cell voltage monitors**
- Power supply current monitors**
- Motor controls**
- Isolation**

## GENERAL DESCRIPTION

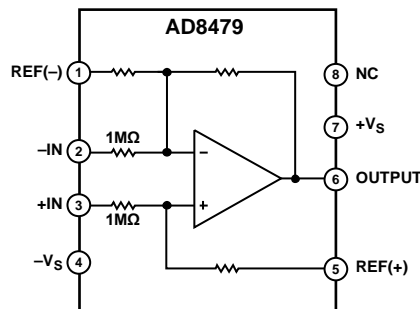
The AD8479 is a difference amplifier with a very high input common-mode voltage range. The AD8479 is a precision device that allows the user to accurately measure differential signals in the presence of high common-mode voltages up to ±600 V.

The AD8479 can replace costly isolation amplifiers in applications that do not require galvanic isolation. The device operates over a ±600 V common-mode voltage range and has inputs that are protected from common-mode or differential mode transients up to ±600 V.

The AD8479 has low offset voltage, low offset voltage drift, low gain drift, low common-mode rejection drift, and excellent common-mode rejection ratio (CMRR) over a wide frequency range.

The AD8479 is available in a space-saving 8-lead SOIC package and is operational over the -40°C to +125°C temperature range.

## FUNCTIONAL BLOCK DIAGRAM



NOTES  
1. NC = NO CONNECT. DO NOT CONNECT TO THIS PIN.

Figure 1.

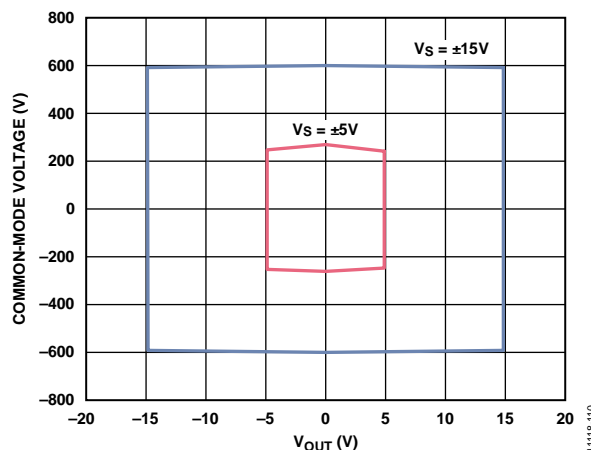


Figure 2. Input Common-Mode Voltage vs. Output Voltage

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## REVISION HISTORY

### 1/2021—Rev. B to Rev. C

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| Changes to Figure 3 Caption .....                   | 5  |
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### 8/2019—Rev. A to Rev. B

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### 9/2015—Rev. 0 to Rev. A

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### 4/2013—Revision 0: Initial Version

## SPECIFICATIONS

$V_S = \pm 15\text{ V}$ ,  $\text{REF}(-) = \text{REF}(+) = 0\text{ V}$ ,  $R_L = 2\text{ k}\Omega$ , common-mode voltage ( $V_{CM}$ ) =  $0\text{ V}$ , ambient temperature ( $T_A$ ) =  $25^\circ\text{C}$ , unless otherwise noted.

Table 1.

| Parameter                                       | Test Conditions/Comments  | A Grade      |          |              | B Grade      |          |              | Unit                           |
|---|---|--------------|----------|--------------|--------------|----------|--------------|--------------------------------|
|   |   | Min          | Typ      | Max          | Min          | Typ      | Max          |                                |
| GAIN  |   |              |          |              |              |          |              |                                |
| Nominal Gain                                    | $V_{OUT} = \pm 10\text{ V}$   |              | 1        |              |              | 1        |              | V/V                            |
| Gain Error <sup>1</sup>                         |   |              | 0.01     | $\pm 0.02$   |              | 0.005    | $\pm 0.01$   | %                              |
| Gain Nonlinearity                               |   |              | 4        | $\pm 10$     |              | 2        | $\pm 5$      | ppm                            |
| Gain Drift                                      | $T_A = T_{MIN}$ to $T_{MAX}$  |              | 3        | $\pm 5$      |              | 3        | $\pm 5$      | ppm/°C                         |
| OFFSET VOLTAGE                                  |   |              |          |              |              |          |              |                                |
| Offset Voltage                                  | $V_S = \pm 15\text{ V}$   |              | 0.5      | $\pm 3$      |              | 0.5      | $\pm 1$      | mV                             |
|   | $V_S = \pm 5\text{ V}$  |              | 0.5      | $\pm 3$      |              | 0.5      | $\pm 1$      | mV                             |
| Offset Voltage Drift                            | $T_A = T_{MIN}$ to $T_{MAX}$  |              | 3        | $\pm 15$     |              | 3        | $\pm 10$     | $\mu\text{V}/^\circ\text{C}$   |
| Power Supply Rejection Ratio (PSRR)             | $V_S = \pm 2.5\text{ V}$ to $\pm 18\text{ V}$                                     | 84           | 100      |              | 90           | 100      |              | dB                             |
| INPUT   |   |              |          |              |              |          |              |                                |
| Common-Mode Rejection Ratio (CMRR) <sup>2</sup> | $T_A = 25^\circ\text{C}$ , $V_{CM} = \pm 10\text{ V}$                             | 80           | 90       |              | 90           | 96       |              | dB                             |
|   | Junction temperature ( $T_J$ ) = $25^\circ\text{C}$ , $V_{CM} = \pm 600\text{ V}$ | 80           | 90       |              | 90           | 96       |              | dB                             |
|   | $T_J = 25^\circ\text{C}$ , $V_{CM} = 1200\text{ V p-p}$ , dc to 6 kHz             | 80           |          |              | 80           |          |              | dB                             |
| CMRR Drift <sup>2</sup>                         | $T_J = T_{MIN}$ to $T_{MAX}$  |              | -0.3     | $\pm 1.5$    |              | -0.25    | $\pm 1.3$    | ppm/°C                         |
| Operating Voltage Range                         | Common mode   |              |          | $\pm 600$    |              |          | $\pm 600$    | V                              |
|   | Differential  |              |          | $\pm 14.7$   |              |          | $\pm 14.7$   | V                              |
| Input Operating Impedance                       | Common mode   |              | 500      |              |              | 500      |              | k $\Omega$                     |
|   | Differential  |              | 2        |              |              | 2        |              | M $\Omega$                     |
| OUTPUT  |   |              |          |              |              |          |              |                                |
| Output Voltage Swing                            |   | $-V_S + 0.3$ |          | $+V_S - 0.3$ | $-V_S + 0.3$ |          | $+V_S - 0.3$ | V                              |
| Output Short-Circuit Current                    |   |              | $\pm 55$ |              |              | $\pm 55$ |              | mA                             |
| Capacitive Load                                 | Stable operation  |              | 500      |              |              | 500      |              | pF                             |
| DYNAMIC RESPONSE                                |   |              |          |              |              |          |              |                                |
| Small Signal -3 dB Bandwidth                    |   |              | 310      |              |              | 310      |              | kHz                            |
| Slew Rate                                       |   |              | 8.8      |              |              | 8.8      |              | V/ $\mu\text{s}$               |
| Full Power Bandwidth                            | $V_{OUT} = 20\text{ V p-p}$   |              | 140      |              |              | 140      |              | kHz                            |
| Settling Time                                   | 0.01%, $V_{OUT} = 10\text{ V step}$   |              | 5.9      |              |              | 5.9      |              | $\mu\text{s}$                  |
|   | 0.001%, $V_{OUT} = 10\text{ V step}$  |              | 8.7      |              |              | 8.7      |              | $\mu\text{s}$                  |
| OUTPUT VOLTAGE NOISE                            |   |              |          |              |              |          |              |                                |
| 0.1 Hz to 10 Hz                                 |   |              | 30       | 40           |              | 30       | 40           | $\mu\text{V p-p}$              |
| Noise Spectral Density                          | $100\text{ Hz} \leq f \leq 100\text{ kHz}$  |              | 1.6      |              |              | 1.6      |              | $\mu\text{V}/\sqrt{\text{Hz}}$ |

| Parameter               | Test Conditions/Comments                                      | A Grade   |     |          | B Grade   |     |          | Unit               |
|-------------------------|---|-----------|-----|----------|-----------|-----|----------|--------------------|
|                         |   | Min       | Typ | Max      | Min       | Typ | Max      |                    |
| POWER SUPPLY            |   |           |     |          |           |     |          |                    |
| Operating Voltage Range | $V_{OUT} = 0\text{ V}$<br>$T_A = T_{MIN} \text{ to } T_{MAX}$ | $\pm 2.5$ |     | $\pm 18$ | $\pm 2.5$ |     | $\pm 18$ | V                  |
| Supply Current          |   |           | 550 | 650      |           | 550 | 650      | $\mu\text{A}$      |
|                         |   |           | 850 |          |           | 850 |          | $\mu\text{A}$      |
| TEMPERATURE RANGE       |   |           |     |          |           |     |          |                    |
| Specified Performance   | $T_A = T_{MIN} \text{ to } T_{MAX}$                           | $-40$     |     | $+85$    | $-40$     |     | $+85$    | $^{\circ}\text{C}$ |
| Operational             |   | $-40$     |     | $+125$   | $-40$     |     | $+125$   | $^{\circ}\text{C}$ |

<sup>1</sup> See Figure 35 for gain error shift over lifetime.

<sup>2</sup>  $T_J$  is affected by  $V_{CM}$ . Use the values in Table 3 and the data shown in Figure 3 when estimating  $T_J$ . If  $T_J$  is required, use the derating curves in Figure 3.

## ABSOLUTE MAXIMUM RATINGS

Table 2.

| Parameter   | Rating                           |
|---|----------------------------------|
| Supply Voltage, $V_S$                             | $\pm 18$ V                       |
| Input Voltage Range, Common-Mode and Differential |                                  |
| Continuous  | 600 V (magnitude)                |
| 10 sec  | 900 V (magnitude)                |
| Output Short-Circuit Duration                     | Indefinite                       |
| REF(–) and REF(+)                                 | $-V_S - 0.3$ V to $+V_S + 0.3$ V |
| Maximum Junction Temperature                      | 150°C                            |
| Operating Temperature Range                       | –40°C to +125°C                  |
| Storage Temperature Range                         | –65°C to +150°C                  |
| Lead Temperature (Soldering, 60 sec)              | 300°C                            |

Stresses at or above those listed under Absolute Maximum Ratings may cause permanent damage to the product. This is a stress rating only; functional operation of the product at these or any other conditions above those indicated in the operational section of this specification is not implied. Operation beyond the maximum operating conditions for extended periods may affect product reliability.

### THERMAL RESISTANCE

Thermal performance is directly linked to printed circuit board (PCB) design and operating environment. Careful attention to PCB thermal design is required.

$\theta_{JA}$  is the natural convection junction-to-ambient thermal resistance measured in a one cubic foot sealed enclosure.  $\theta_{JA}$  is specified for the worst-case conditions, that is, a device soldered in a circuit board for surface-mount packages.  $\Psi_{JT}$  is the junction-to-top-of-package characterization parameter.

Table 3. Thermal Resistance

| Package Type <sup>1</sup> | $\theta_{JA}$ | $\Psi_{JT}$ | Unit |
|---------------------------|---------------|-------------|------|
| R-8                       | 151.4         | 2.5         | °C/W |

<sup>1</sup> Thermal impedance simulated values are based on a JEDEC 252P thermal test board for  $\theta_{JA}$  and  $\Psi_{JT}$ . See JEDEC JESD-51.

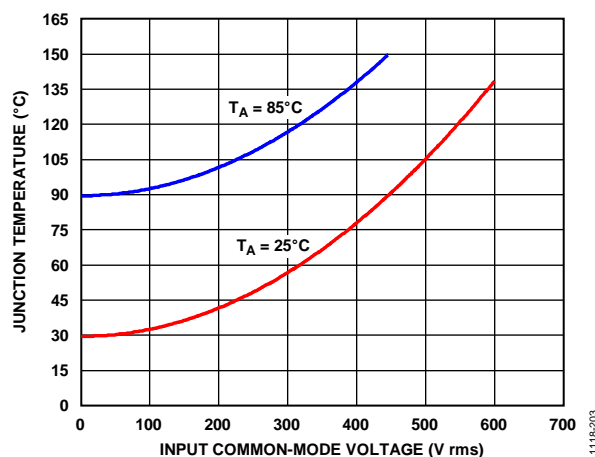


Figure 3. Junction Temperature ( $T_J$ ) vs. Input Common-Mode Voltage  
Derived from Table 3

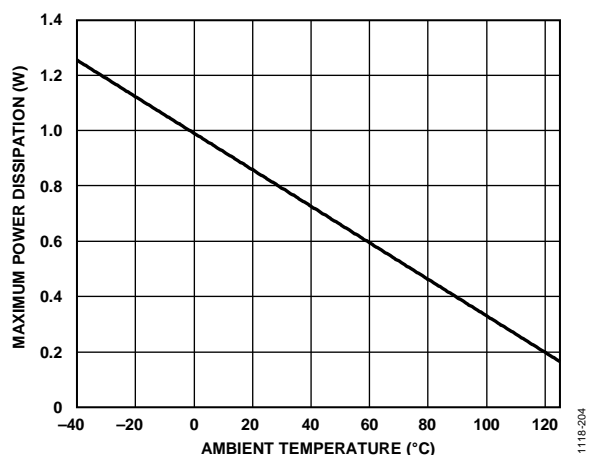


Figure 4. Maximum Power Dissipation vs. Ambient Temperature

### ESD CAUTION



**ESD (electrostatic discharge) sensitive device.** Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

PIN CONFIGURATION AND FUNCTION DESCRIPTIONS

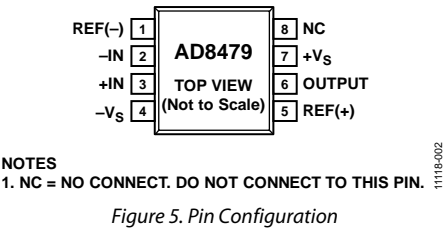


Table 4. Pin Function Descriptions

| Pin No. | Mnemonic | Description                             |
|---------|----------|---|
| 1       | REF(-)   | Negative Reference Voltage Input.       |
| 2       | -IN      | Inverting Input.                        |
| 3       | +IN      | Noninverting Input.                     |
| 4       | -Vs      | Negative Supply Voltage.                |
| 5       | REF(+)   | Positive Reference Voltage Input.       |
| 6       | OUTPUT   | Output.                                 |
| 7       | +Vs      | Positive Supply Voltage.                |
| 8       | NC       | No Connect. Do not connect to this pin. |

## TYPICAL PERFORMANCE CHARACTERISTICS

$V_S = \pm 15\text{ V}$ ,  $T_A = 25^\circ\text{C}$ , unless otherwise noted.

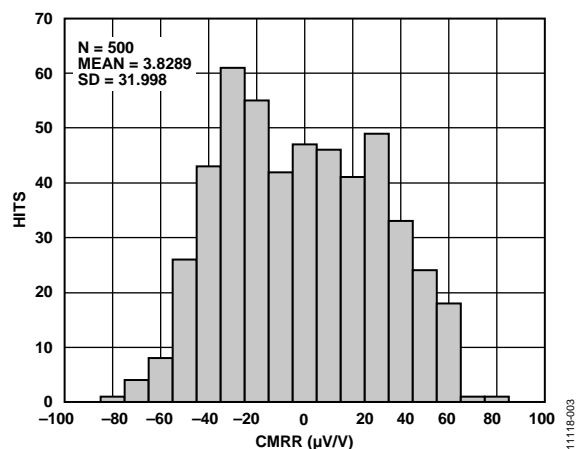


Figure 6. CMRR Distribution

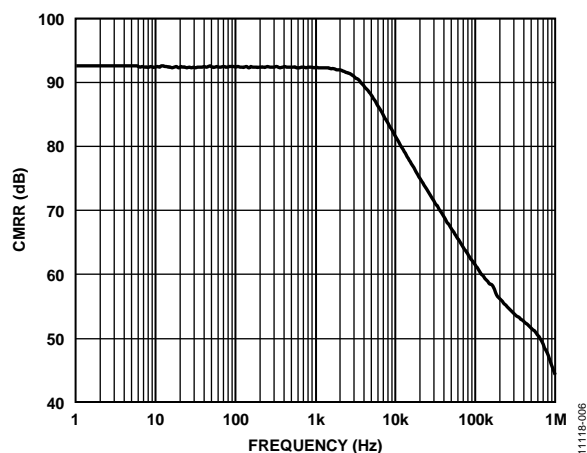


Figure 9. CMRR vs. Frequency

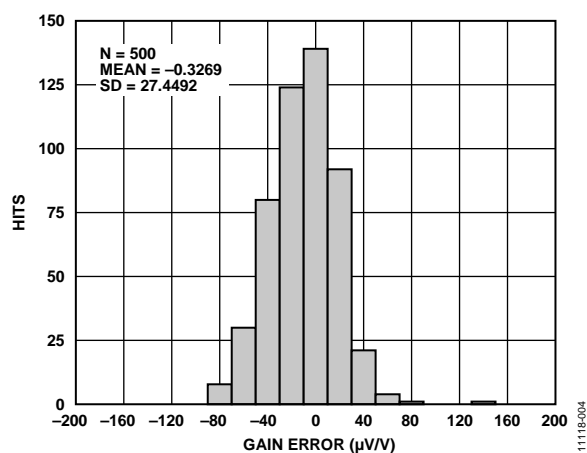


Figure 7. Gain Error Distribution

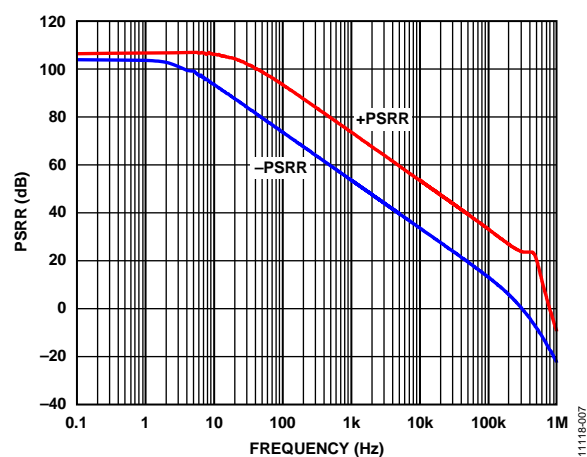


Figure 10. PSRR vs. Frequency

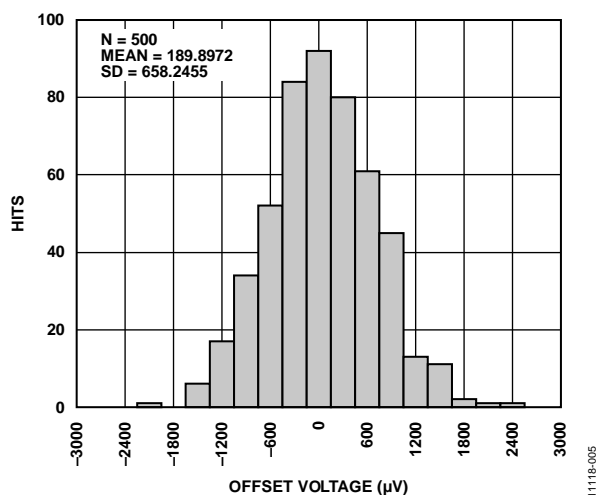


Figure 8. Offset Voltage Distribution

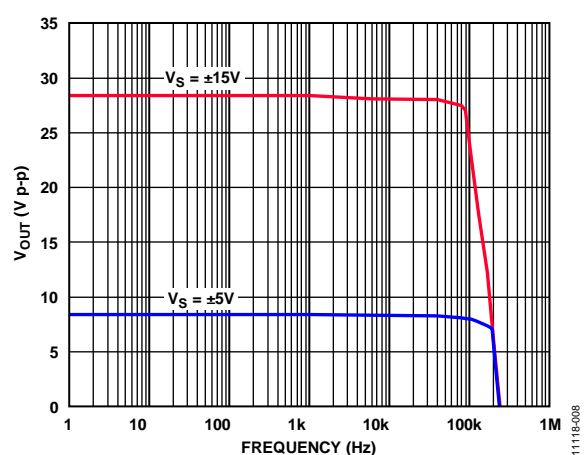


Figure 11. Large Signal Frequency Response

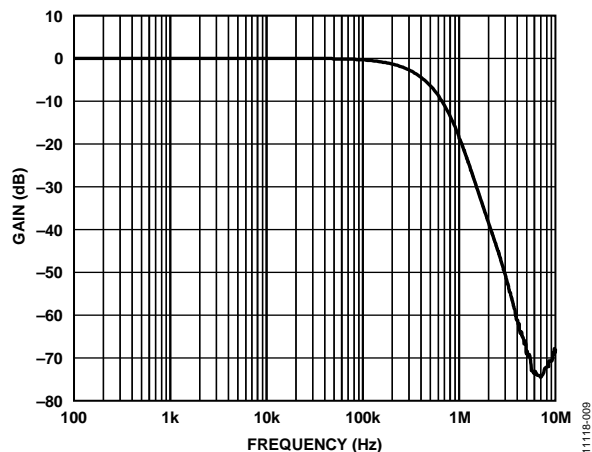


Figure 12. Small Signal Frequency Response

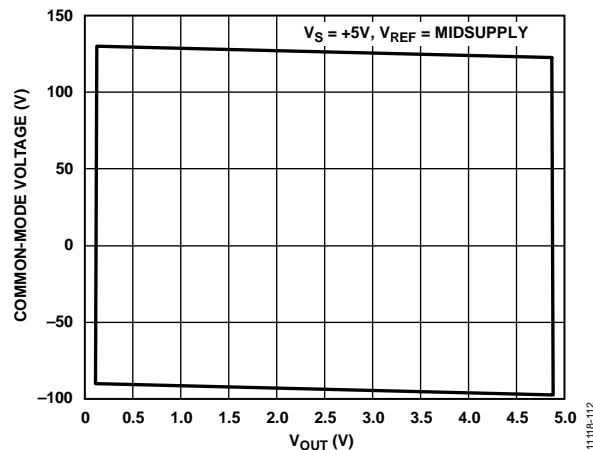
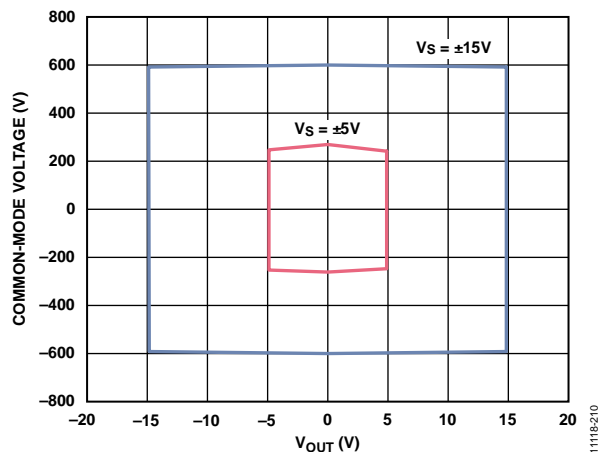
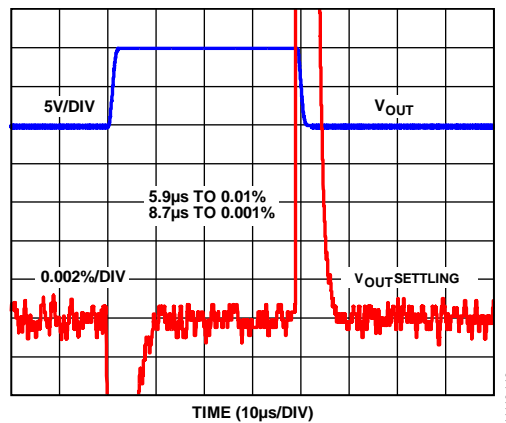
Figure 15. Input Common-Mode Voltage vs. Output Voltage, Single Supply,  $V_S = +5V$ ,  $V_{REF} = \text{Midsupply}$ Figure 13. Input Common-Mode Voltage vs. Output Voltage, Dual Supplies,  $V_S = \pm 15V$ ,  $\pm 5V$ 

Figure 16. Settling Time

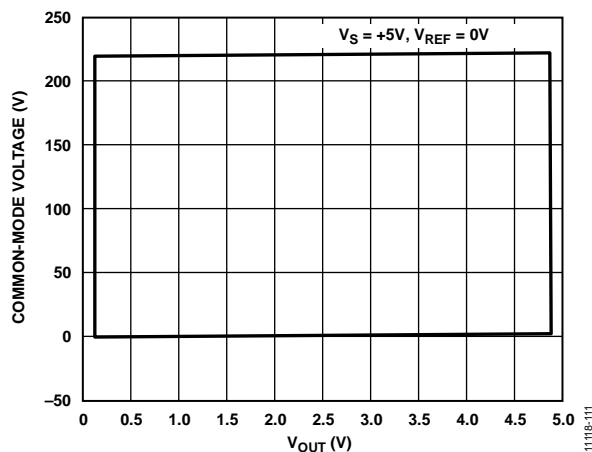
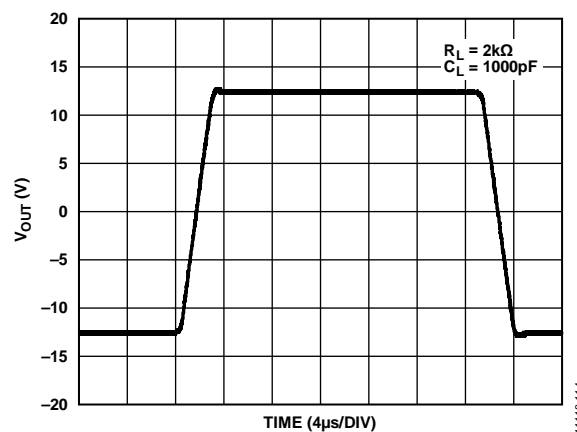
Figure 14. Input Common-Mode Voltage vs. Output Voltage, Single Supply,  $V_S = +5V$ ,  $V_{REF} = 0V$ 

Figure 17. Large Signal Pulse Response



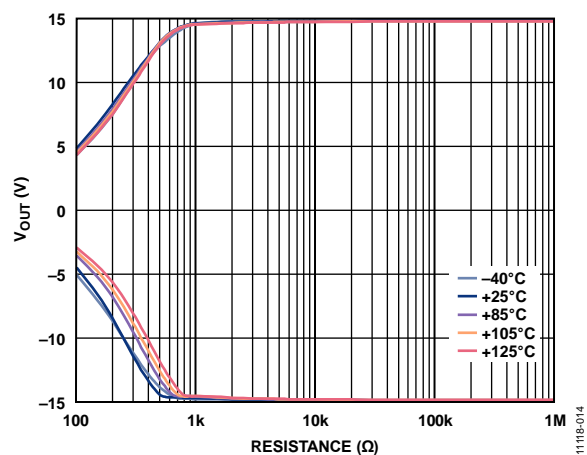


Figure 18. Output Voltage vs. Load over Temperature

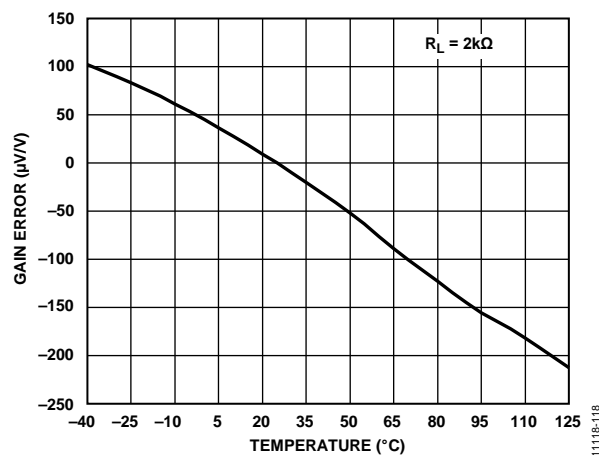


Figure 21. Gain Drift

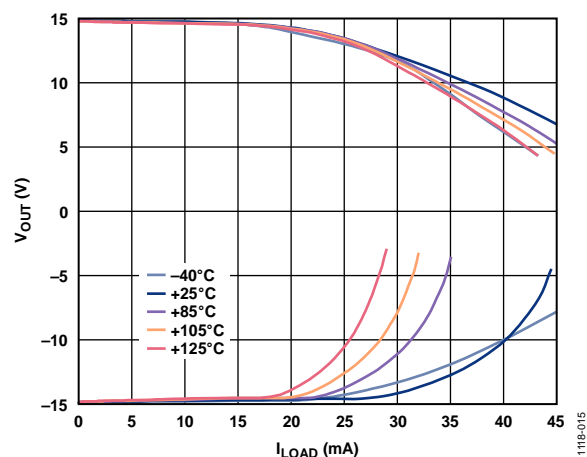


Figure 19. Output Voltage vs. Output Current over Temperature

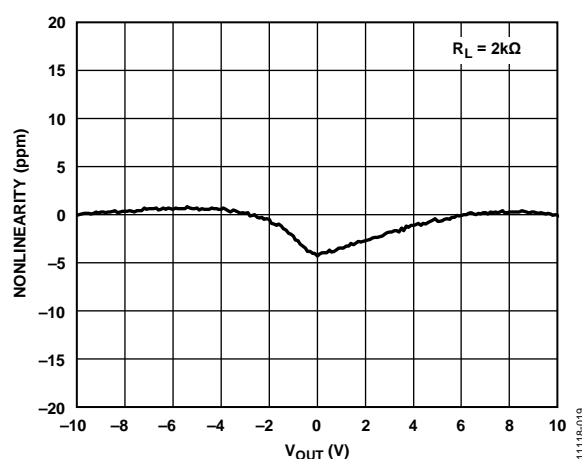
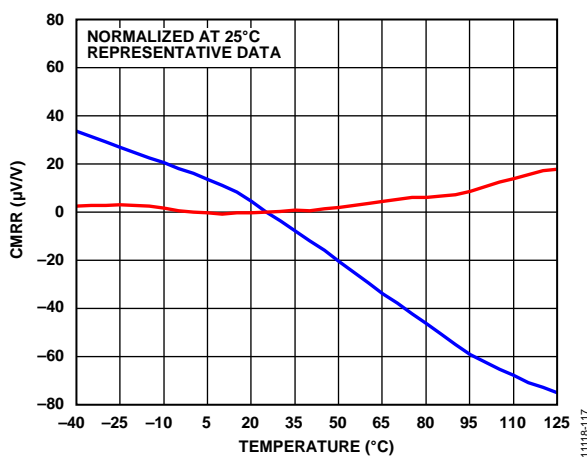
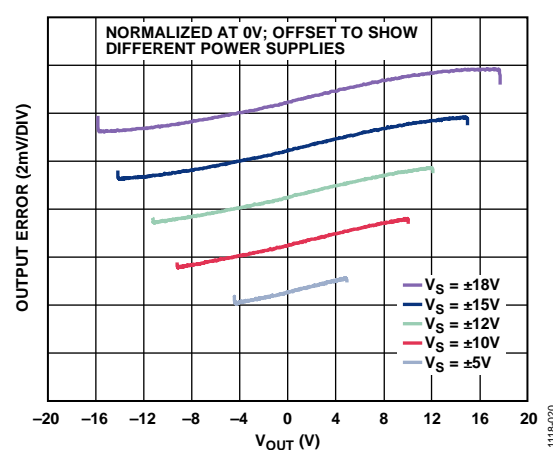


Figure 22. Gain Nonlinearity

Figure 20. CMRR vs. Temperature,  $V_{CM} = \pm 20\text{ V}$ Figure 23. Output Error vs. Output Voltage,  $R_L = 10\text{ k}\Omega$

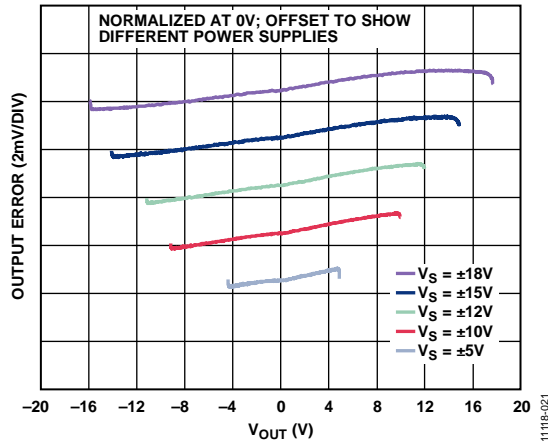
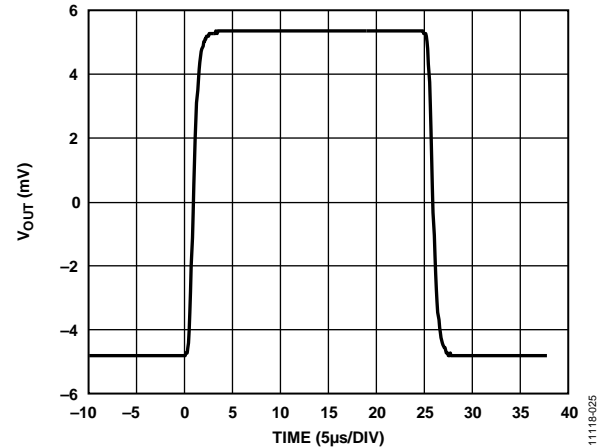
Figure 24. Output Error vs. Output Voltage,  $R_L = 2\text{ k}\Omega$ 

Figure 27. Small Signal Pulse Response

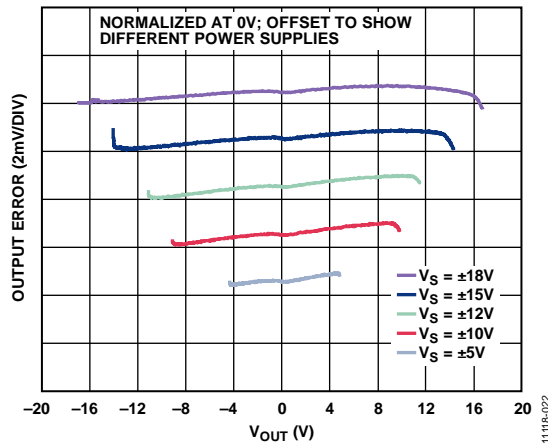
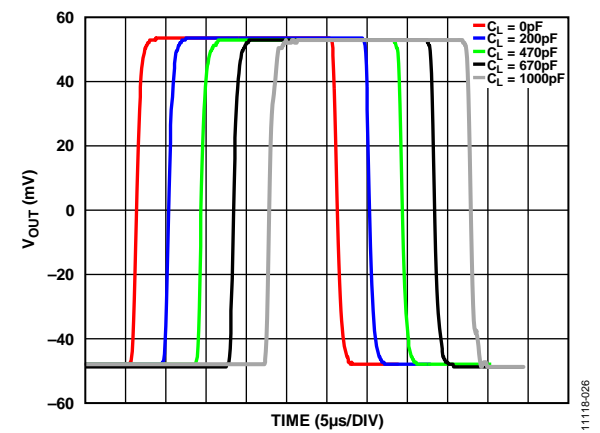
Figure 25. Output Error vs. Output Voltage,  $R_L = 1\text{ k}\Omega$ 

Figure 28. Small Signal Pulse Response vs. Capacitive Load

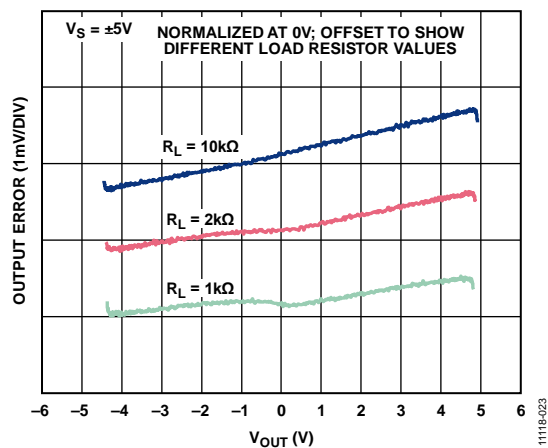
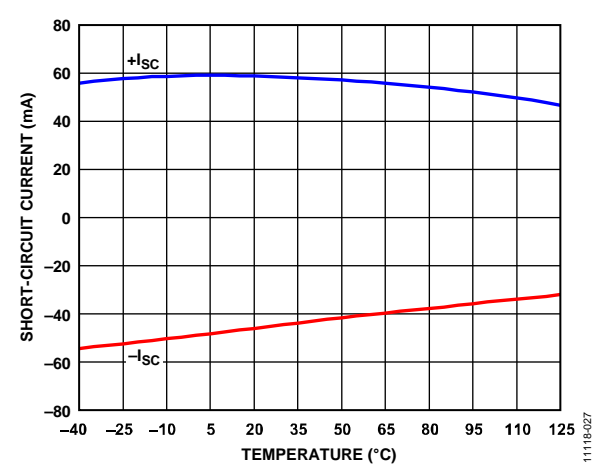
Figure 26. Output Error vs. Output Voltage,  $V_S = \pm 5\text{ V}$ 

Figure 29. Short-Circuit Current vs. Temperature

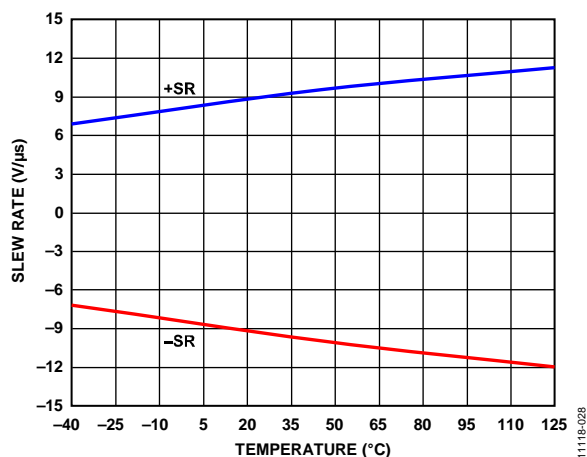


Figure 30. Slew Rate vs. Temperature

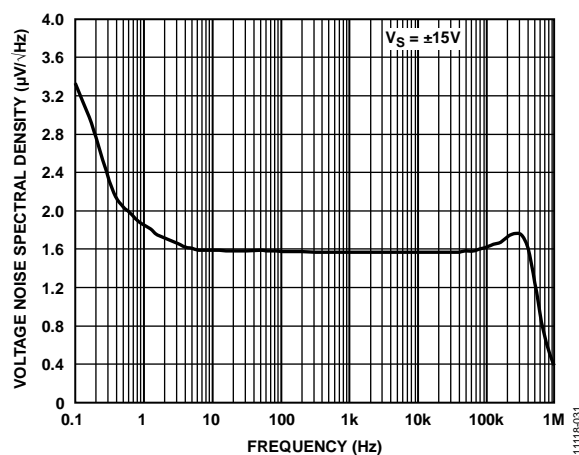


Figure 33. Voltage Noise Spectral Density vs. Frequency

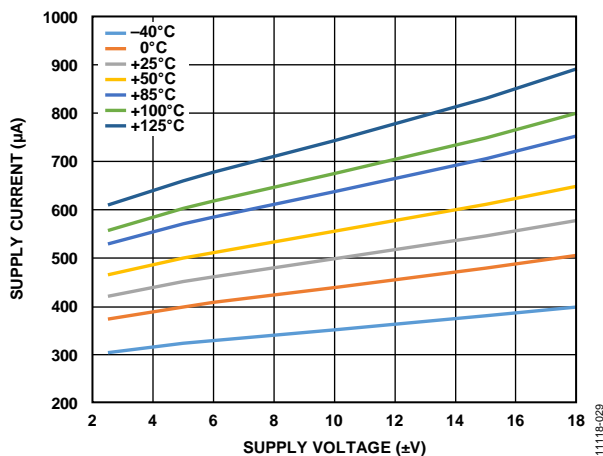


Figure 31. Supply Current vs. Supply Voltage

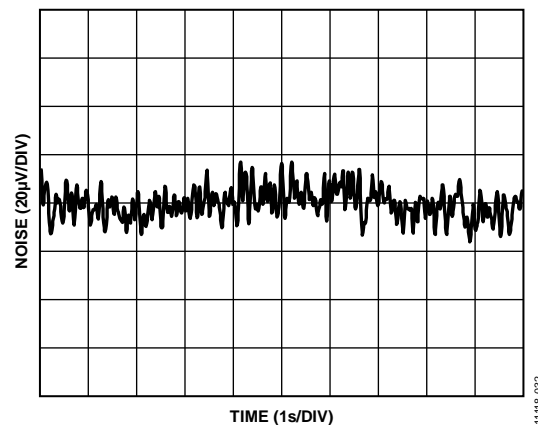


Figure 34. 0.1 Hz to 10 Hz Noise

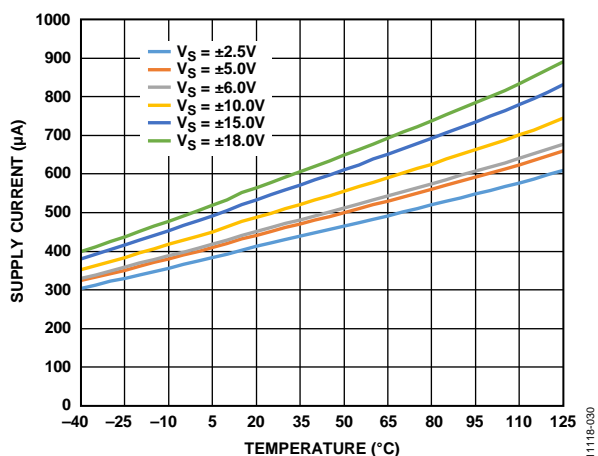
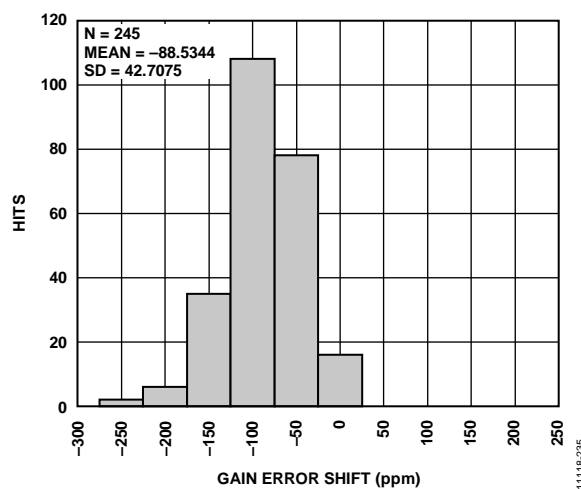
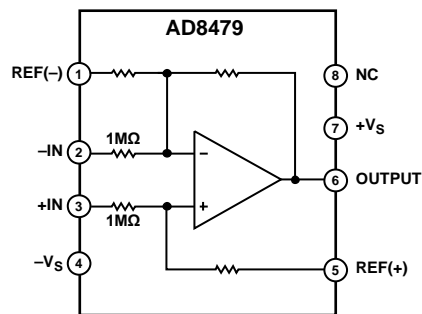


Figure 32. Supply Current vs. Temperature

Figure 35. Gain Error Shift (ppm) Over Lifetime; 1000 Hours High Temperature Operating Life (HTOL) at  $\pm 600 V_{CM}$ , 125°C Per JESD22-A108

## THEORY OF OPERATION

The AD8479 is a unity-gain, differential-to-single-ended amplifier that can reject extremely high common-mode signals up to 600 V with  $\pm 15$  V supplies. The AD8479 consists of an operational amplifier (op amp) and a resistor network (see Figure 36).



### NOTES

1. NC = NO CONNECT. DO NOT CONNECT TO THIS PIN.

Figure 36. Functional Block Diagram

11118-033

To achieve the high common-mode voltage range, an internal resistor divider—connected to Pin 3 and Pin 5—attenuates the noninverting signal by a factor of 61. The internal resistors at Pin 1 and Pin 2, as well as the feedback resistor, restore the gain to provide a differential gain of unity.

The complete transfer function is

$$V_{OUT} = V(+IN) - V(-IN)$$

Laser wafer-trimming provides resistor matching so that common-mode signals are rejected and differential input signals are amplified.

To reduce output voltage drift, the op amp uses super beta transistors in its input stage. The input offset current and its associated temperature coefficient contribute no appreciable output voltage offset or drift, which has the added benefit of reducing voltage noise because the corner where  $1/f$  noise becomes dominant is below 5 Hz. To reduce the dependence of gain accuracy on the op amp, the open-loop voltage gain of the op amp exceeds 20 million V/V, and the PSRR exceeds 90 dB.

## APPLICATIONS INFORMATION

### BASIC CONNECTIONS

Figure 37 shows the basic connections for operating the AD8479 with a dual supply. A supply voltage from  $\pm 2.5$  V to  $\pm 18$  V is applied across Pin 7 and Pin 4. Both supplies should be decoupled close to the pins using  $0.1 \mu\text{F}$  capacitors. Electrolytic capacitors of  $10 \mu\text{F}$ , also located close to the supply pins, may be required if low frequency noise is present on the power supply. Although multiple amplifiers can be decoupled by a single set of  $10 \mu\text{F}$  capacitors, each AD8479 should have its own set of  $0.1 \mu\text{F}$  capacitors so that the decoupling point can be located directly at the IC power pins.

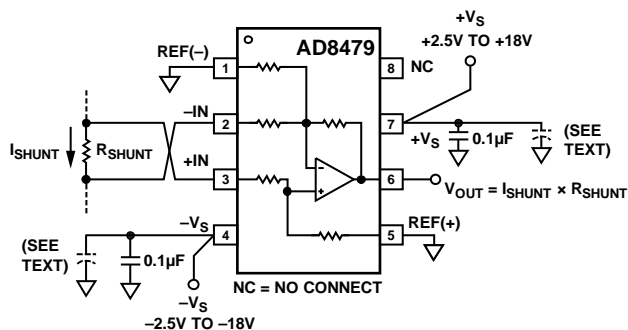


Figure 37. Basic Connections

The differential input signal, which typically results from a load current flowing through a small shunt resistor, is applied to Pin 2 and Pin 3 with the polarity shown in Figure 37 to obtain a positive gain. The common-mode voltage on the differential input signal can range from  $-600$  V to  $+600$  V, and the maximum differential voltage is  $\pm 14.7$  V. When configured as shown in Figure 37, the device operates as a simple gain-of-1, differential-to-single-ended amplifier where the output voltage is the shunt resistance times the shunt current. The output is measured with respect to Pin 1 and Pin 5.

Pin 1 and Pin 5 (REF(-) and (REF(+)) should be grounded for a gain of unity and connected to the same low impedance ground plane. Failure to do this results in degraded common-mode rejection. Pin 8 is a no connect pin and should be left open.

### SINGLE-SUPPLY OPERATION

Figure 38 shows the connections for operating the AD8479 with a single supply. Because the output can swing to within only about  $0.3$  V of either rail, an offset must be applied to the output. This offset can be applied by connecting REF(+) and REF(-) to a low impedance reference voltage that is capable of sinking current (some ADCs provide this voltage as an output). Therefore, for a single supply of  $10$  V,  $V_{REF}$  can be set to  $5$  V for a bipolar input signal, allowing the output to swing  $9.4$  V p-p around the central  $5$  V reference voltage. For unipolar input signals,  $V_{REF}$  can be set to approximately  $1$  V, allowing the output to swing from  $1$  V (for a  $0$  V input) to within  $0.3$  V of the positive rail.

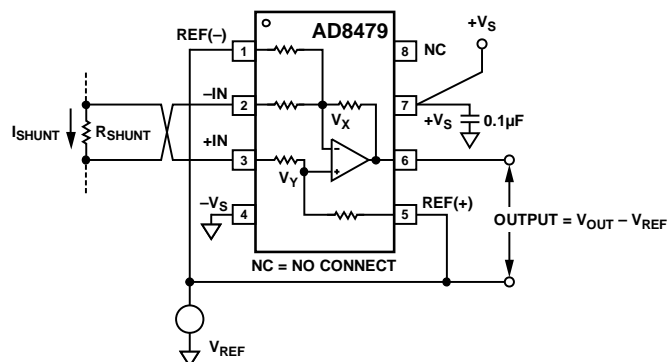


Figure 38. Operation with a Single Supply

When the AD8479 is operated with a single supply and a reference voltage is applied to REF(+) and REF(-), the input common-mode voltage range of the AD8479 is reduced. The reduced input common-mode range depends on the voltage at the inverting and noninverting inputs of the internal op amp, labeled  $V_X$  and  $V_Y$  in Figure 38. These nodes can swing to within  $1$  V of either rail. Therefore, for a single supply voltage of  $10$  V,  $V_X$  and  $V_Y$  can have a value from  $1$  V to  $9$  V. If  $V_{REF}$  is set to  $5$  V, the allowable common-mode voltage range is  $+249$  V to  $-239$  V. The common-mode voltage range can be calculated as follows:

$$V_{CM}(\pm) = 61 \times (V_X \text{ or } V_Y(\pm)) - (60 \times V_{REF})$$

### SYSTEM-LEVEL DECOUPLING AND GROUNDING

The use of ground planes is recommended to minimize the impedance of ground returns and, therefore, the size of dc errors. Figure 39 shows how to use grounding in a mixed-signal environment, that is, with digital and analog signals present. To isolate low level analog signals from a noisy digital environment, many data acquisition components have separate analog and digital ground returns. All ground pins from mixed-signal components, such as ADCs, should return through a low impedance analog ground plane. Digital ground lines of mixed-signal converters should also be connected to the analog ground plane.

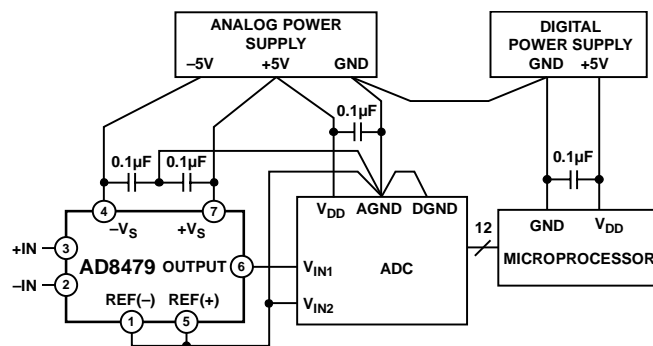


Figure 39. Optimal Grounding Practice for a Dual Supply Environment with Separate Analog and Digital Supplies



## OUTPUT FILTERING

To limit noise at the output, a simple two-pole, low-pass Butterworth filter can be implemented using the [ADA4077-2](#) after the AD8479, as shown in Figure 42.

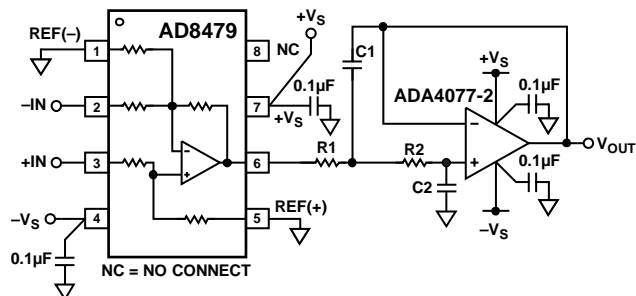


Figure 42. Filtering Output Noise Using a Two-Pole Butterworth Filter

Table 6 provides recommended component values for various corner frequencies and the peak-to-peak output noise for each case.

**Table 6. Recommended Values for Two-Pole Butterworth Filter**

| Corner Frequency | R1                             | R2                              | C1                         | C2                         | Output Noise (p-p) |
|------------------|--------------------------------|---------------------------------|----------------------------|----------------------------|--------------------|
| 50 kHz           | $2.94 \text{ k}\Omega \pm 1\%$ | $1.58 \text{ k}\Omega \pm 1\%$  | $2.2 \text{ nF} \pm 10\%$  | $1 \text{ nF} \pm 10\%$    | 2.9 mV             |
| 5 kHz            | $2.94 \text{ k}\Omega \pm 1\%$ | $1.58 \text{ k}\Omega \pm 1\%$  | $22 \text{ nF} \pm 10\%$   | $10 \text{ nF} \pm 10\%$   | 0.9 mV             |
| 500 Hz           | $2.94 \text{ k}\Omega \pm 1\%$ | $1.58 \text{ k}\Omega \pm 1\%$  | $220 \text{ nF} \pm 10\%$  | $0.1 \mu\text{F} \pm 10\%$ | 0.296 mV           |
| 50 Hz            | $2.7 \text{ k}\Omega \pm 10\%$ | $1.58 \text{ k}\Omega \pm 10\%$ | $2.2 \mu\text{F} \pm 20\%$ | $0.1 \mu\text{F} \pm 20\%$ | 0.095 mV           |
| No Filter        |                                |                                 |                            |                            | 4.7 mV             |

## GAIN OF 60 DIFFERENTIAL AMPLIFIER

Low level signals can be connected directly to the  $-IN$  and  $+IN$  inputs of the AD8479. Differential input signals can also be connected to give a precise gain of 60 (see Figure 43); however, large common-mode voltages are no longer permissible. Cold junction compensation can be implemented using a temperature sensor, such as the [AD590](#).

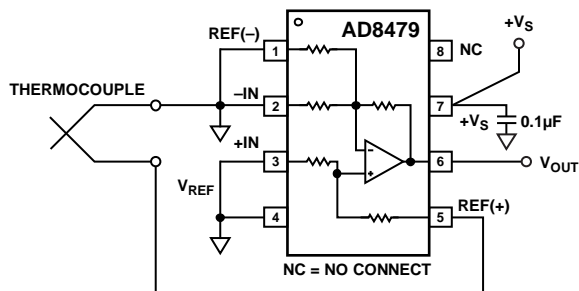


Figure 43. Gain of 60 Thermocouple Amplifier

### ERROR BUDGET ANALYSIS EXAMPLE

In the dc application described in this section, the 10 A output current from a device with a high common-mode voltage (such as a power supply or current-mode amplifier) is sensed across a 1  $\Omega$  shunt resistor (see Figure 44). The common-mode voltage is 600 V, and the resistor terminals are connected through a long pair of lead wires located in a high noise environment, for example, 50 Hz/60 Hz, 440 V ac power lines.

The calculations in Table 7 assume an induced noise level of 1 V p-p at 60 Hz on the lead wires, in addition to a full-scale dc differential voltage of 10 V. The error budget table quantifies the contribution of each error source. Note that the dominant error source in this example is due to the dc common-mode voltage.

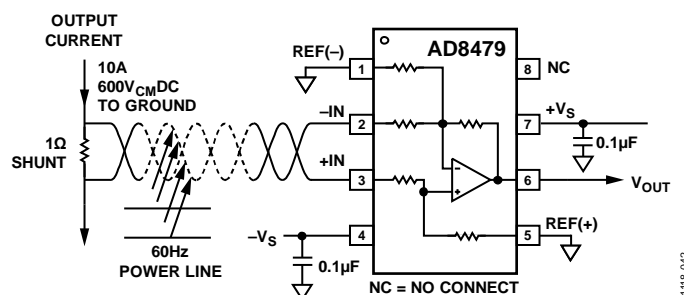


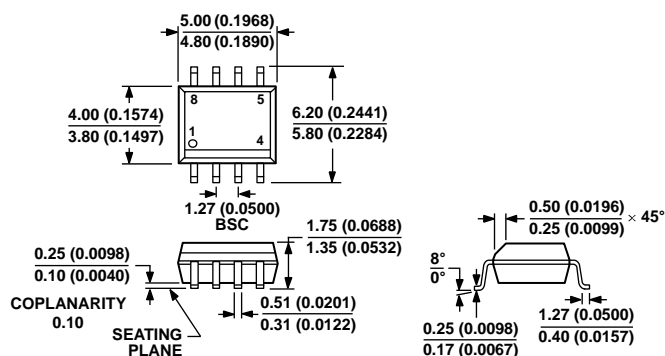
Figure 44. Error Budget Analysis Example:  $V_{IN} = 10\text{ V Full Scale}$ ,  $V_{CM} = 600\text{ V DC}$ ,  $R_{SHUNT} = 1\ \Omega$ , 1 V p-p, 60 Hz Power Line Interference

Table 7. Error Budget Analysis Example ( $V_{CM} = 600\text{ V DC}$ )

| Error Source                                       | Calculation of Error   | Error (ppm of FS) |
|--|--|-------------------|
| ACCURACY, $T_A = 25^\circ\text{C}$                 |  |                   |
| Initial Gain Error                                 | $(0.0001 \times 10)/10\text{ V} \times 10^6$                                       | 100               |
| Offset Voltage                                     | $(0.001\text{ V}/10\text{ V}) \times 10^6$   | 100               |
| DC CMRR  | $(32 \times 10^{-6} \times 600\text{ V})/10\text{ V} \times 10^6$                  | 1920              |
|  | Total Accuracy Error   | 2120              |
| TEMPERATURE DRIFT ( $85^\circ\text{C}$ )           |  |                   |
| Gain Drift   | $5\text{ ppm}/^\circ\text{C} \times 60^\circ\text{C}$                              | 300               |
| Offset Voltage Drift                               | $(10\ \mu\text{V}/^\circ\text{C} \times 60^\circ\text{C}) \times 10^6/10\text{ V}$ | 60                |
| DC CMRR  | $1.3\text{ ppm}/^\circ\text{C} \times 60^\circ\text{C}$                            | 78                |
|  | Total Temperature Drift Error  | 438               |
| RESOLUTION   |  |                   |
| Noise, Maximum, 0.1 Hz to 10 Hz, $\mu\text{V p-p}$ | $40\ \mu\text{V}/10\text{ V} \times 10^6$  | 4                 |
| CMRR, 60 Hz  | $(32 \times 10^{-6} \times 1\text{ V})/10\text{ V} \times 10^6$                    | 3                 |
| Nonlinearity                                       | $(5 \times 10^{-6} \times 10\text{ V})/10\text{ V} \times 10^6$                    | 5                 |
|  | Total Resolution Error   | 12                |
| TOTAL  | Total Error  | 2570              |



## OUTLINE DIMENSIONS



COMPLIANT TO JEDEC STANDARDS MS-012-AA  
CONTROLLING DIMENSIONS ARE IN MILLIMETERS; INCH DIMENSIONS  
(IN PARENTHESES) ARE ROUNDED-OFF MILLIMETER EQUIVALENTS FOR  
REFERENCE ONLY AND ARE NOT APPROPRIATE FOR USE IN DESIGN.

012407-A

Figure 45. 8-Lead Standard Small Outline Package [SOIC\_N]  
Narrow Body  
(R-8)

Dimensions shown in millimeters and (inches)

## ORDERING GUIDE

| Model <sup>1</sup> | Temperature Range | Package Description                  | Package Option | Qty.         |
|--------------------|-------------------|--------------------------------------|----------------|--------------|
| AD8479ARZ          | −40°C to +125°C   | 8-Lead SOIC_N                        | R-8            |              |
| AD8479ARZ-RL       | −40°C to +125°C   | 8-Lead SOIC_N, 13-Inch Tape and Reel | R-8            | 2,500 pieces |
| AD8479BRZ          | −40°C to +125°C   | 8-Lead SOIC_N                        | R-8            |              |
| AD8479BRZ-RL       | −40°C to +125°C   | 8-Lead SOIC_N, 13-Inch Tape and Reel | R-8            | 2,500 pieces |
| AD8479R-EBZ        |                   | Evaluation Board                     |                |              |

<sup>1</sup> Z = RoHS Compliant Part.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Analog Devices Inc.:](#)

[AD8479ARZ-RL](#)