

## ±22 V/44 V, Latch-Up Proof, 8:1 / Dual 4:1 Multiplexers

### Features

- Latch-Up Proof
- $V_{SS}$  to  $V_{DD}$  Analog Signal Range
- Power Supply Range:  $\pm 4.5$  V to  $\pm 22$  V, 9 V to 44 V
- Low On Resistance: 10.7  $\Omega$
- Outstanding Flatness: 0.01  $\Omega$
- Bandwidth: 138 MHz
- Break Before Make Operation
- Specified Temperature Range:  $-40$   $^{\circ}\text{C}$  to  $+125$   $^{\circ}\text{C}$

### Applications

- Relay Replacement
- Automatic Test Instrumentation
- Data Acquisition
- Industrial Control
- Avionics
- Communication Systems
- Audio and Video Switching

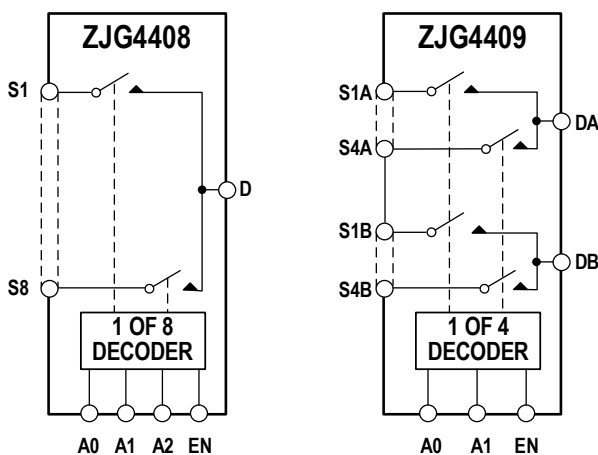
### General Description

The ZJG4408/4409 is 8-ch single ended / 4-ch differential monolithic analog multiplexers respectively. The ZJG4408 switches, by pin A0, A1, and A2, one of eight inputs to a common output. The ZJG4409 switches, by pin A0 and A1, one of four differential inputs to a common differential output. An EN pin on ZJG4408/ZJG4409 enables or disables the device. When EN is low, all channels switch off. When EN is high, one single or differential channel switches on.

The on-resistance is flat over the full analog input range, which provides good linearity and low distortion. High-speed switching also makes the parts suitable for fast switching requirements.

In the off condition, signal up to the supplies is blocked. The ZJG4408/ZJG4409 logic control power supply is generated internally by an on-chip voltage regulator.

### Functional Block Diagram



### Typical Performance Characteristics

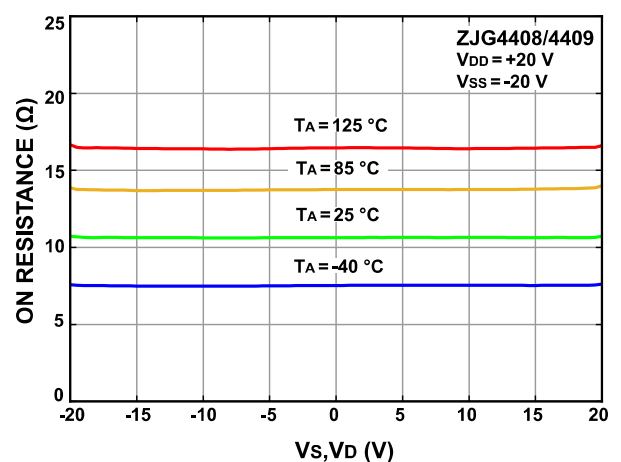


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**Version (Release B) <sup>1</sup>****Revision History****Dec. 2025 — Release B**

Dec. 23: Updated Specifications

Dec. 17: Updated Specifications, Product Order Model and Related Parts.

**Jun. 2025 — Release A****Oct. 2024 — Initial**

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## Pin Configuration and Function Description

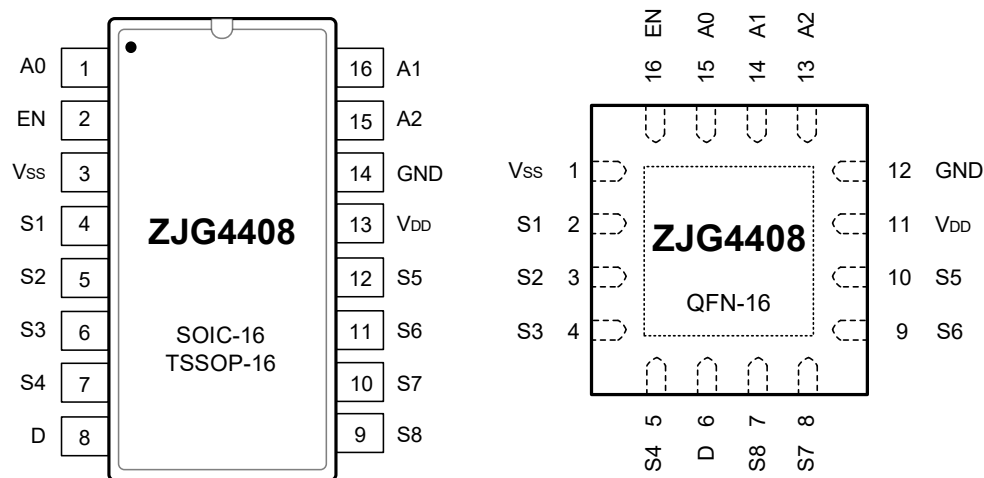


Figure 1. ZJG4408 Pin Configuration (TSSOP-16, SOIC-16 and QFN-16)

| Mnemonic        | Pin No.      |             | Description                                                                                                                             |
|-----------------|--------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------|
|                 | TSSOP / SOIC | QFN         |                                                                                                                                         |
| A0              | 1            | 15          | Logic Control Input LSB.                                                                                                                |
| EN              | 2            | 16          | Active High Digital Input. When low, the device is disabled and all switches are off. When high, Ax logic inputs determine on switches. |
| V <sub>SS</sub> | 3            | 1           | Negative Power Supply.<br>In single-supply applications, this pin can be connected to ground.                                           |
| S1              | 4            | 2           | Source Terminal 1. This pin can be an input or an output.                                                                               |
| S2              | 5            | 3           | Source Terminal 2. This pin can be an input or an output.                                                                               |
| S3              | 6            | 4           | Source Terminal 3. This pin can be an input or an output.                                                                               |
| S4              | 7            | 5           | Source Terminal 4. This pin can be an input or an output.                                                                               |
| D               | 8            | 6           | Drain Terminal. This pin can be an input or an output.                                                                                  |
| S8              | 9            | 7           | Source Terminal 8. This pin can be an input or an output.                                                                               |
| S7              | 10           | 8           | Source Terminal 7. This pin can be an input or an output.                                                                               |
| S6              | 11           | 9           | Source Terminal 6. This pin can be an input or an output.                                                                               |
| S5              | 12           | 10          | Source Terminal 5. This pin can be an input or an output.                                                                               |
| V <sub>DD</sub> | 13           | 11          | Positive Power Supply.                                                                                                                  |
| GND             | 14           | 12          | Ground Reference.                                                                                                                       |
| A2              | 15           | 13          | Logic Control Input MSB.                                                                                                                |
| A1              | 16           | 14          | Logic Control Input.                                                                                                                    |
| EP              | /            | Exposed Pad | The pad should be soldered to V <sub>SS</sub> or left floating.                                                                         |

ZJG4408 Truth Table:

| A2 | A1 | A0 | EN | On Switch |
|----|----|----|----|-----------|
| X  | X  | X  | 0  | None      |
| 0  | 0  | 0  | 1  | S1        |
| 0  | 0  | 1  | 1  | S2        |
| 0  | 1  | 0  | 1  | S3        |
| 0  | 1  | 1  | 1  | S4        |
| 1  | 0  | 0  | 1  | S5        |
| 1  | 0  | 1  | 1  | S6        |
| 1  | 1  | 0  | 1  | S7        |
| 1  | 1  | 1  | 1  | S8        |

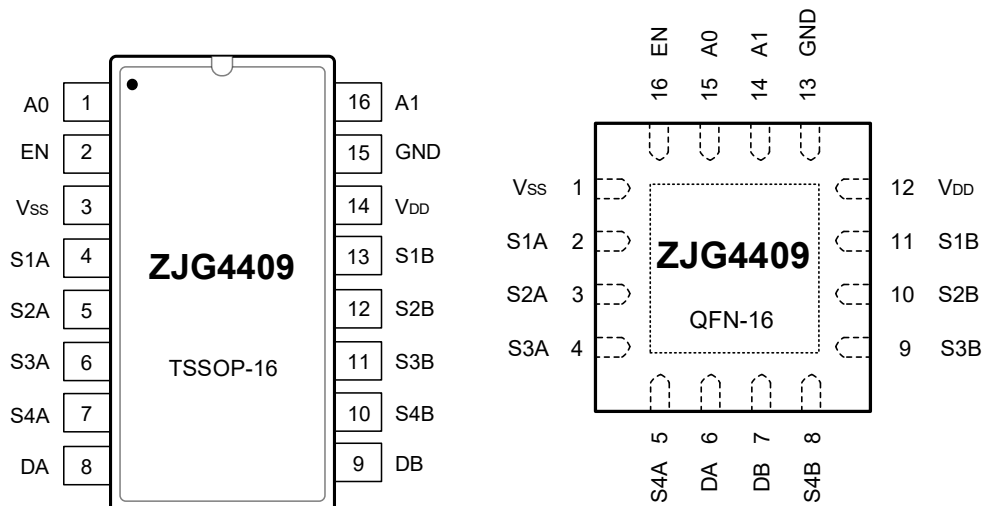


Figure 2. ZJG4409 Pin Configuration (TSSOP-16 and QFN-16)

| Mnemonic        | Pin No. |             | Description                                                                                                                             |
|-----------------|---------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------|
|                 | TSSOP   | QFN         |                                                                                                                                         |
| A0              | 1       | 15          | Logic Control Input LSB.                                                                                                                |
| EN              | 2       | 16          | Active High Digital Input. When low, the device is disabled and all switches are off. When high, Ax logic inputs determine on switches. |
| V <sub>SS</sub> | 3       | 1           | Negative Power Supply.<br>In single-supply applications, this pin can be connected to ground.                                           |
| S1A             | 4       | 2           | Source Terminal 1A. This pin can be an input or an output.                                                                              |
| S2A             | 5       | 3           | Source Terminal 2A. This pin can be an input or an output.                                                                              |
| S3A             | 6       | 4           | Source Terminal 3A. This pin can be an input or an output.                                                                              |
| S4A             | 7       | 5           | Source Terminal 4A. This pin can be an input or an output.                                                                              |
| DA              | 8       | 6           | Drain Terminal A. This pin can be an input or an output.                                                                                |
| DB              | 9       | 7           | Drain Terminal B. This pin can be an input or an output.                                                                                |
| S4B             | 10      | 8           | Source Terminal 4B. This pin can be an input or an output.                                                                              |
| S3B             | 11      | 9           | Source Terminal 3B. This pin can be an input or an output.                                                                              |
| S2B             | 12      | 10          | Source Terminal 2B. This pin can be an input or an output.                                                                              |
| S1B             | 13      | 11          | Source Terminal 1B. This pin can be an input or an output.                                                                              |
| V <sub>DD</sub> | 14      | 12          | Positive Power Supply.                                                                                                                  |
| GND             | 15      | 13          | Ground Reference.                                                                                                                       |
| A1              | 16      | 14          | Logic Control Input MSB.                                                                                                                |
| EP              | /       | Exposed Pad | The pad should be soldered to V <sub>SS</sub> or left floating.                                                                         |

**ZJG4409 Truth Table:**

| A1 | A0 | EN | On Switch Pair |
|----|----|----|----------------|
| X  | X  | 0  | None           |
| 0  | 0  | 1  | S1A/S1B        |
| 0  | 1  | 1  | S2A/S2B        |
| 1  | 0  | 1  | S3A/S3B        |
| 1  | 1  | 1  | S4A/S4B        |

Absolute Maximum Ratings <sup>1</sup>

| Parameter                                                              | Rating                                                                              |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| V <sub>DD</sub> to V <sub>SS</sub>                                     | 44 V                                                                                |
| V <sub>DD</sub> to GND                                                 | -0.3 V to +44 V                                                                     |
| V <sub>SS</sub> to GND                                                 | -44 V to +0.3 V                                                                     |
| Analog Inputs                                                          | V <sub>SS</sub> - 0.3 V to V <sub>DD</sub> + 0.3 V or 30 mA, whichever occurs first |
| Digital Inputs                                                         | V <sub>SS</sub> - 0.3 V to V <sub>DD</sub> + 0.3 V or 30 mA, whichever occurs first |
| Peak Current, Sx or D Pins<br>(pulsed at 1 ms, 10% duty cycle maximum) | 350 mA                                                                              |
| Continuous Current, Sx or D                                            | 200 mA (ZJG4408);<br>150 mA (ZJG4409)                                               |
| Temperature Range                                                      |                                                                                     |
| Operating                                                              | -40 °C to +125 °C                                                                   |
| Storage                                                                | -65 °C to +150 °C                                                                   |
| Reflow Soldering Peak                                                  | As per JEDEC J-STD-020                                                              |
| Electrostatic Discharge (ESD) <sup>2</sup>                             |                                                                                     |
| Human Body Model (HBM) <sup>3</sup>                                    | 2.5 kV                                                                              |
| Charged Device Model (CDM) <sup>4</sup>                                | 2 kV                                                                                |

Thermal Resistance <sup>5</sup>

| Package Type | θ <sub>JA</sub> | θ <sub>JC</sub> | Unit |
|--------------|-----------------|-----------------|------|
| TSSOP-16     | 104             | 60              | °C/W |
| QFN-16       | 51              | 27              | °C/W |
| SOIC-16      | 94              | 23.5            | °C/W |

<sup>1</sup> These ratings apply at 25 °C, unless otherwise noted. Note that stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

<sup>2</sup> 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.

<sup>3</sup> ANSI/ESDA/JEDEC JS-001 Compliant

<sup>4</sup> ANSI/ESDA/JEDEC JS-002 Compliant

<sup>5</sup> θ<sub>JA</sub> addresses the conditions for soldering devices onto circuit boards to achieve surface mount packaging.

## Specifications

The ● denotes the specification which apply over the full operating temperature range, otherwise specifications are at GND = 0 V,  $V_{DD} = +15\text{ V} \pm 10\%$ ,  $V_{SS} = -15\text{ V} \pm 10\%$ ,  $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise noted.

| Parameter | Symbol | Conditions | Min | Typ. | Max | Unit |
|-----------|--------|------------|-----|------|-----|------|
|-----------|--------|------------|-----|------|-----|------|

### Analog Switch

|                                      |                 |                |   |          |      |          |          |
|--------------------------------------|-----------------|----------------|---|----------|------|----------|----------|
| Analog Signal Range                  |                 |                | ● | $V_{SS}$ |      | $V_{DD}$ | V        |
| On Resistance                        | $R_{ON}$        | 25°C           |   |          | 10.7 | 18       | $\Omega$ |
|                                      |                 | -40°C ~ +85°C  |   |          |      | 24       | $\Omega$ |
|                                      |                 | -40°C ~ +125°C | ● |          |      | 30       | $\Omega$ |
| On Resistance Match Between Channels | $\Delta R_{ON}$ | 25°C           |   |          | 0.2  | 0.6      | $\Omega$ |
|                                      |                 | -40°C ~ +85°C  |   |          |      | 1.0      | $\Omega$ |
|                                      |                 | -40°C ~ +125°C | ● |          |      | 1.2      | $\Omega$ |
| On Resistance Flatness               | $R_{FLAT(ON)}$  | 25°C           |   |          | 0.01 | 0.03     | $\Omega$ |
|                                      |                 | -40°C ~ +85°C  |   |          |      | 0.05     | $\Omega$ |
|                                      |                 | -40°C ~ +125°C | ● |          |      | 0.07     | $\Omega$ |

### Leakage Currents

|                    |                        |                |   |  |            |           |    |
|--------------------|------------------------|----------------|---|--|------------|-----------|----|
| Source Off Leakage | $I_{S(OFF)}$           | 25°C           |   |  | $\pm 0.05$ | $\pm 0.5$ | nA |
|                    |                        | -40°C ~ +85°C  |   |  |            | $\pm 1.5$ | nA |
|                    |                        | -40°C ~ +125°C | ● |  |            | $\pm 12$  | nA |
| Drain Off Leakage  | $I_{D(OFF)}$           | 25°C           |   |  | $\pm 0.1$  | $\pm 0.5$ | nA |
|                    |                        | -40°C ~ +85°C  |   |  |            | $\pm 7$   | nA |
|                    |                        | -40°C ~ +125°C | ● |  |            | $\pm 60$  | nA |
| Channel On Leakage | $I_{D(ON)}, I_{S(ON)}$ | 25°C           |   |  | $\pm 0.1$  | $\pm 0.5$ | nA |
|                    |                        | -40°C ~ +85°C  |   |  |            | $\pm 7$   | nA |
|                    |                        | -40°C ~ +125°C | ● |  |            | $\pm 60$  | nA |

### Digital Inputs

|                           |                        |  |   |     |       |           |               |
|---------------------------|------------------------|--|---|-----|-------|-----------|---------------|
| Input High Voltage        | $V_{INH}$              |  | ● | 1.8 |       |           | V             |
| Input Low Voltage         | $V_{INL}$              |  | ● |     |       | 0.4       | V             |
| Input Current             | $I_{INL}$ or $I_{INH}$ |  |   |     | 0.002 |           | $\mu\text{A}$ |
|                           |                        |  | ● |     |       | $\pm 0.1$ | $\mu\text{A}$ |
| Digital Input Capacitance | $C_{IN}$               |  |   |     | 3     |           | pF            |

### Dynamic Characteristics <sup>1</sup>

|                 |                  |                |   |  |     |     |    |
|-----------------|------------------|----------------|---|--|-----|-----|----|
| Transition Time | $t_{TRANSITION}$ | 25°C           |   |  | 160 | 270 | ns |
|                 |                  | -40°C ~ +85°C  |   |  |     | 280 | ns |
|                 |                  | -40°C ~ +125°C | ● |  |     | 290 | ns |

<sup>1</sup> Guaranteed by design; not subject to production test.

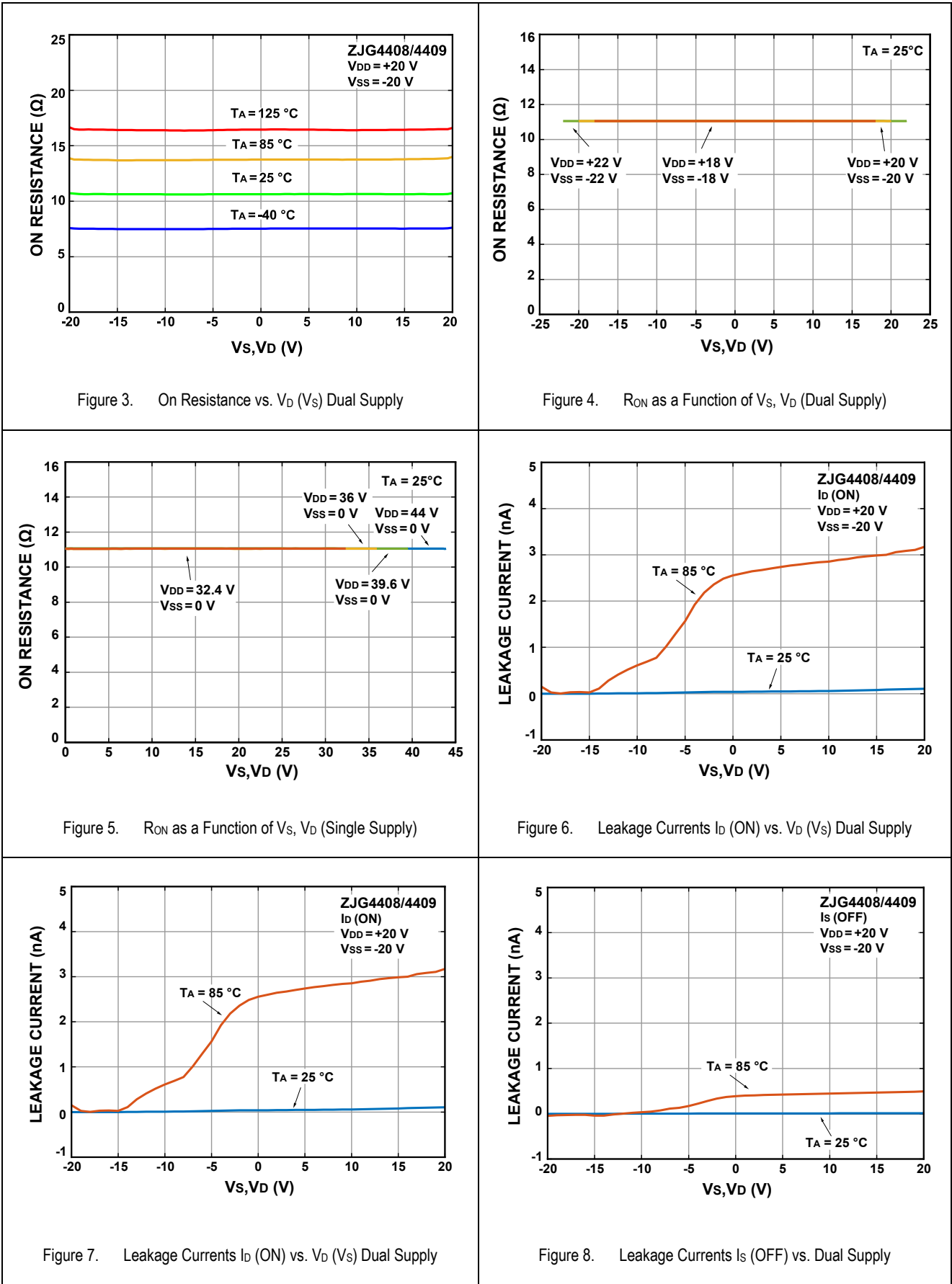


| Parameter                         | Symbol                    | Conditions                                                                          | Min  | Typ. | Max | Unit |
|-----------------------------------|---------------------------|-------------------------------------------------------------------------------------|------|------|-----|------|
| Turn on Time                      | $t_{ON}$ (EN)             | 25°C                                                                                |      | 140  | 270 | ns   |
|                                   |                           | -40°C ~ +85°C                                                                       |      |      | 280 | ns   |
|                                   |                           | -40°C ~ +125°C                                                                      | •    |      | 290 | ns   |
| Turn off Time                     | $t_{OFF}$ (EN)            | 25°C                                                                                |      | 35   | 55  | ns   |
|                                   |                           | -40°C ~ +85°C                                                                       |      |      | 60  | ns   |
|                                   |                           | -40°C ~ +125°C                                                                      | •    |      | 65  | ns   |
| Break-before-make Time Delay      | $t_D$                     | $R_L = 300\ \Omega$ , $C_L = 35\ \text{pF}$ , $V_{S1} = V_{S2} = 10\ \text{V}$      |      | 70   |     | ns   |
|                                   |                           |                                                                                     | • 10 |      |     | ns   |
| Charge Injection                  | $Q_{INJ}$                 | $V_S = 0\ \text{V}$ , $R_S = 0\ \Omega$ , $C_L = 1\ \text{nF}$                      |      | 180  |     | pC   |
| Off Isolation                     | $V_{ISO}$                 | $R_L = 50\ \Omega$ , $C_L = 5\ \text{pF}$ , $f = 1\ \text{MHz}$                     |      | -73  |     | dB   |
| Channel-to-Channel Crosstalk      |                           | $R_L = 50\ \Omega$ , $C_L = 5\ \text{pF}$ , $f = 1\ \text{MHz}$                     |      | -70  |     | dB   |
| Total Harmonic Distortion + Noise | THD+N                     | $R_L = 1\ \text{k}\Omega$ , $15\ V_{P-P}$ , $f = 20\ \text{Hz}$ to $20\ \text{kHz}$ |      | 0.01 |     | %    |
| -3 dB Bandwidth                   | $f_{-3dB}$                | $R_L = 50\ \Omega$ , $C_L = 5\ \text{pF}$                                           |      | 138  |     | MHz  |
| Insertion Loss                    |                           | $R_L = 50\ \Omega$ , $C_L = 5\ \text{pF}$ , $f = 1\ \text{MHz}$                     |      | 0.9  |     | dB   |
| Off-Capacitance                   | $C_S$ (Off)               | $V_S = 0\ \text{V}$ , $f = 1\ \text{MHz}$                                           |      | 15   |     | pF   |
|                                   |                           | ZJG4408                                                                             |      | 102  |     | pF   |
|                                   |                           | ZJG4409                                                                             |      | 50   |     | pF   |
| On-Capacitance                    | $C_D$ (On),<br>$C_S$ (On) | $V_S = 0\ \text{V}$ , $f = 1\ \text{MHz}$                                           |      |      |     |      |
|                                   |                           | ZJG4408                                                                             |      | 133  |     | pF   |
|                                   |                           | ZJG4409                                                                             |      | 81   |     | pF   |

**Power Requirements** ( $V_{DD} = +16.5\ \text{V}$ ,  $V_{SS} = -16.5\ \text{V}$ )

|                         |          |                                  |   |           |          |               |
|-------------------------|----------|----------------------------------|---|-----------|----------|---------------|
| Positive Supply Current | $I_{DD}$ | Digital Inputs = 0 V or $V_{DD}$ |   | 98        | 120      | $\mu\text{A}$ |
|                         |          |                                  | • |           | 175      | $\mu\text{A}$ |
| Negative Supply Current | $I_{SS}$ | Digital Inputs = 0 V or $V_{DD}$ |   | 95        |          | $\mu\text{A}$ |
|                         |          |                                  | • |           | 170      | $\mu\text{A}$ |
| $V_{DD}/V_{SS}$         |          |                                  | • | $\pm 4.5$ | $\pm 22$ | V             |

Typical Performance Characteristics



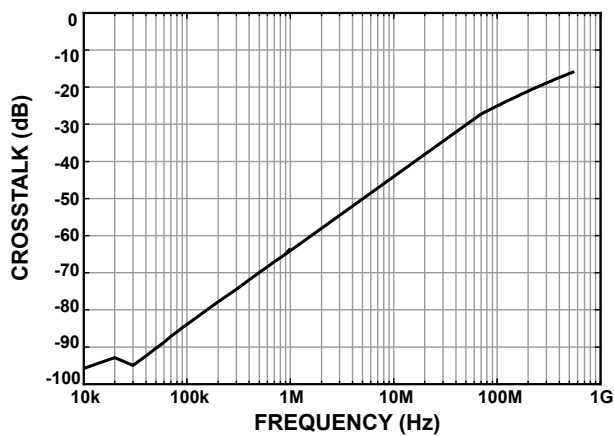
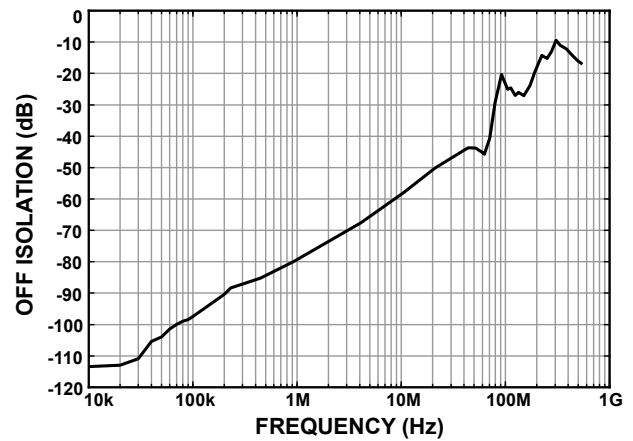
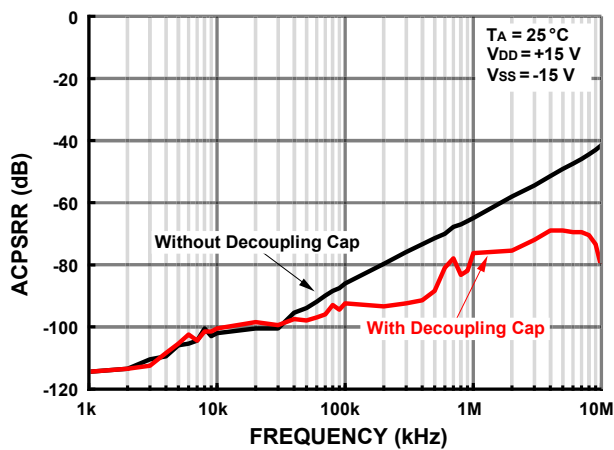
Figure 9. Crosstalk vs. Frequency,  $\pm 15$  V Dual SupplyFigure 10. Off Isolation vs. Frequency  $\pm 15$  V Dual Supply

Figure 11. ACPSRR vs. Frequency

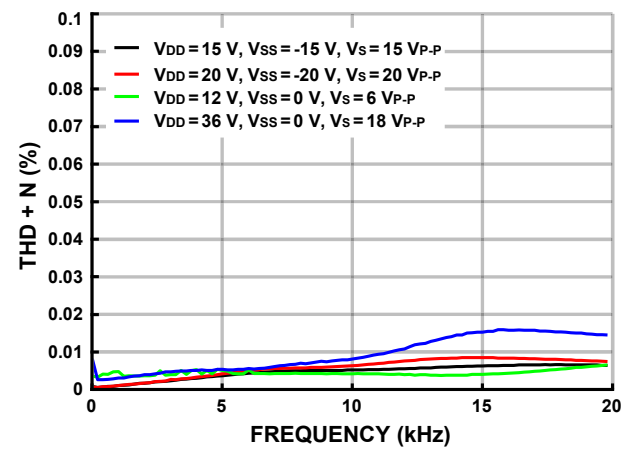
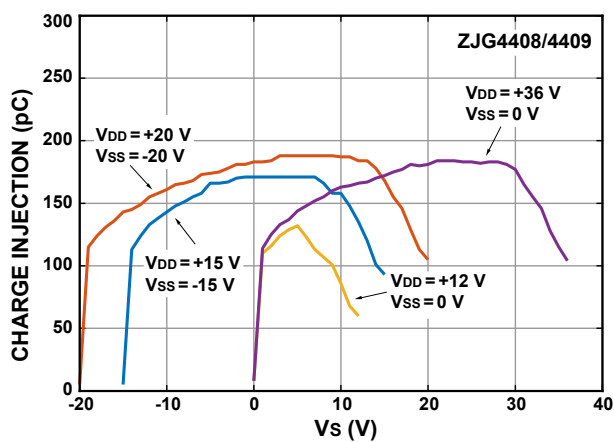


Figure 12. THD+N vs. Frequency

Figure 13. Charge Injection vs.  $V_S$  Supply

Outline Dimensions

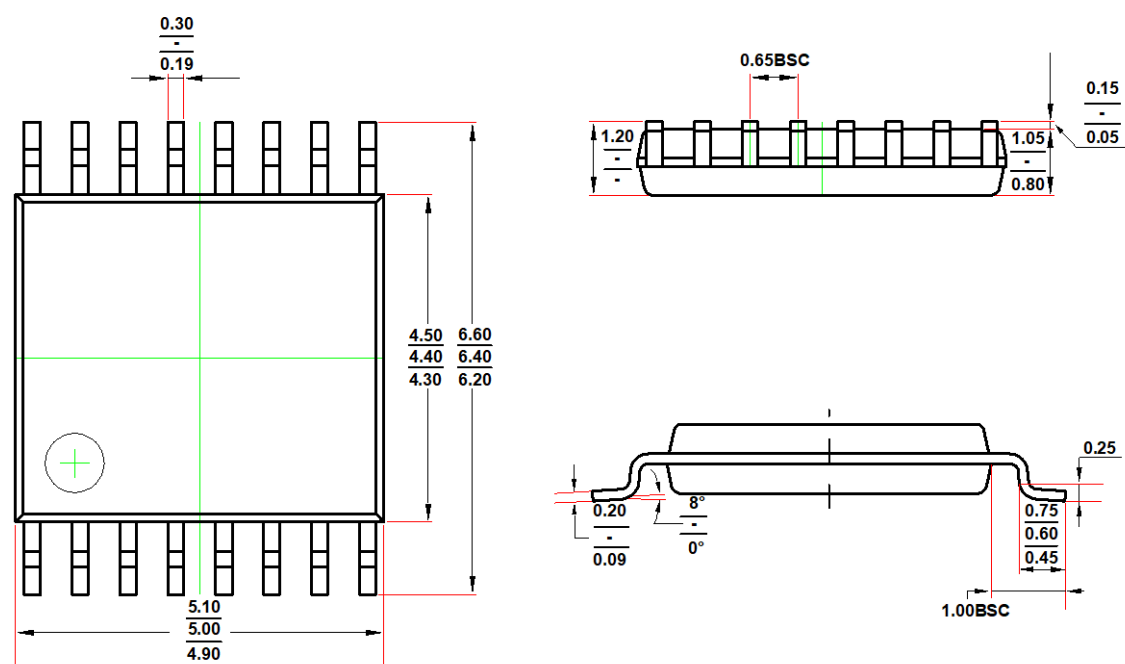


Figure 14. 16-Lead TSSOP Package Dimensions Shown in Millimeters

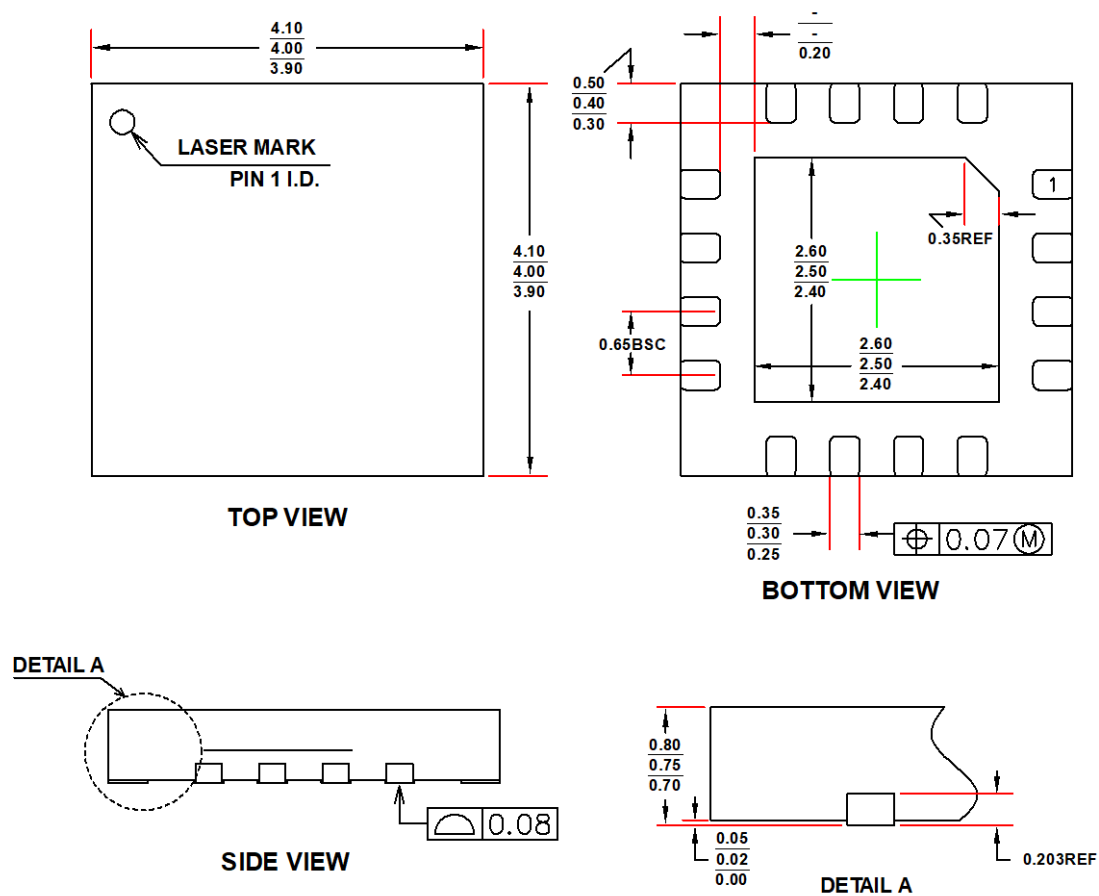


Figure 15. 16-Lead QFN Package Dimensions Shown in Millimeters

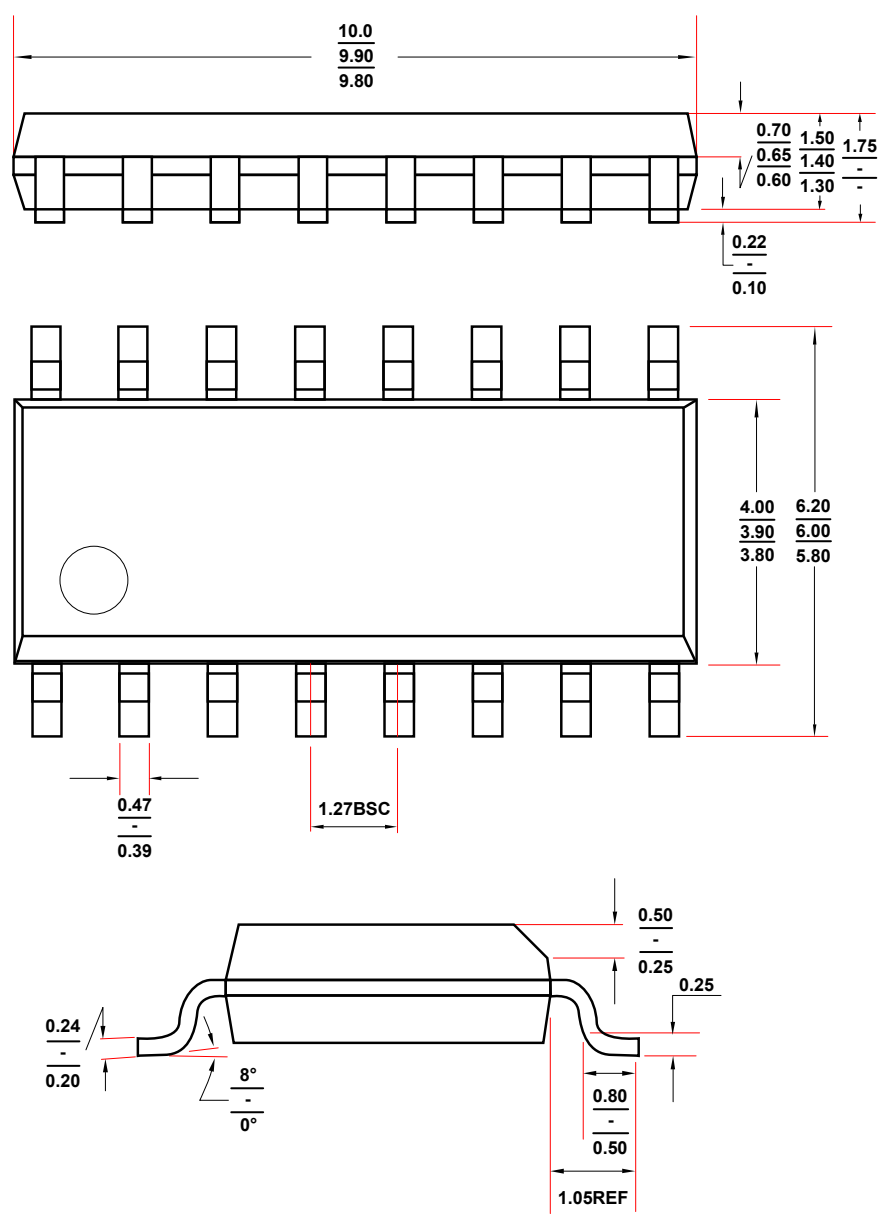


Figure 16. 16-Lead SOIC Package Dimensions Shown in Millimeters

Ordering Guide

| Model   | Orderable Device | Function                      | Temperature Range<br>(°C) | Package  | External Package |
|---------|------------------|-------------------------------|---------------------------|----------|------------------|
| ZJG4408 | ZJG4408AUEBT     | 8-ch multiplexer              | -40 to +125               | TSSOP-16 | Tube             |
|         | ZJG4408AUEBR     |                               |                           |          | 13" Reel         |
|         | ZJG4408ATEBR     |                               |                           | QFN-16   | 13" Reel         |
|         | ZJG4408ASEBT     |                               |                           | SOIC-16  | Tube             |
|         | ZJG4408ASEBR     |                               |                           | SOIC-16  | 13" Reel         |
| ZJG4409 | ZJG4409AUEBT     | 4-ch differential multiplexer |                           | TSSOP-16 | Tube             |
|         | ZJG4409AUEBR     |                               |                           |          | 13" Reel         |
|         | ZJG4409ATEBR     |                               |                           |          | QFN-16           |

Product Order Model

ZJXXXXX

X

X

X

X

X

Q1

Q1: Automotive Grade

External Package: T = Tube; R = Reel

Temperature Range: A = -40 °C to 125 °C Automotive Grade 1, B = -40 °C to 125 °C; E = -40 °C to 85 °C

Number of Pins: R = 3; K =5; T = 6, A = 8; B = 10; D = 14; E = 16; P = 20

Package Type: S = SOIC; U = MSOP, TSSOP, SOT; T = DFN, QFN; X = SC70; W = WLCSP; Z = TSOT23

Grade: B grade is better than A grade

Base: R = Voltage reference; A = Amplifier; C = Data Converter; G = Switches and Multiplexers; M = Others

## Related Parts

| Part Number               | Description                                                                           | Comments                                                                                                                                                          |
|---------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADC                       |                                                                                       |                                                                                                                                                                   |
| ZJC2020                   | 20-bit 350 kSPS SAR ADC                                                               | Fully differential input, SINAD 101.4 dB, THD -118 dB                                                                                                             |
| ZJC2000/2010              | 18-bit 400 kSPS/200 kSPS SAR ADC                                                      | Fully differential input, SINAD 99.3 dB, THD -113 dB                                                                                                              |
| ZJC2001/2011              | 16-bit 500 kSPS/250 kSPS SAR ADC                                                      | Fully differential input, SINAD 95.3 dB, THD -113 dB                                                                                                              |
| ZJC2002/2012              | 16-bit 500 kSPS/250 kSPS SAR ADC                                                      | Pseudo-differential unipolar input, SINAD 91.7 dB, THD -105 dB                                                                                                    |
| ZJC2003/2013              |                                                                                       | Pseudo-differential bipolar input, SINAD 91.7 dB, THD -105 dB                                                                                                     |
| ZJC2004/2014              | 18-bit 400 kSPS/200 kSPS SAR ADC                                                      | Pseudo-differential unipolar input, SINAD 94.2 dB, THD -105 dB                                                                                                    |
| ZJC2005/2015              |                                                                                       | Pseudo-differential bipolar input, SINAD 94.2 dB, THD -105 dB                                                                                                     |
| ZJC2007/2017              | 14-bit 600 kSPS/300 kSPS SAR ADC                                                      | Pseudo-differential unipolar input, SINAD 85 dB, THD -105 dB                                                                                                      |
| ZJC2008/2018              |                                                                                       | Pseudo-differential bipolar input, SINAD 85 dB, THD -105 dB                                                                                                       |
| ZJC2009                   | Small size, 12-bit 1 MSPS SAR ADC                                                     | Single-ended input, SOT23-6, 2.3 V to 5 V, SINAD 73 dB, THD -89 dB                                                                                                |
| ZJC2100/1-18              | 18-bit 400 kSPS/200 kSPS 4-ch differential SAR ADC, SINAD 99.3 dB, THD -113 dB        |                                                                                                                                                                   |
| ZJC2100/1-16              | 16-bit 500 kSPS/250 kSPS 4-ch differential SAR ADC, SINAD 95.3 dB, THD -113 dB        |                                                                                                                                                                   |
| ZJC2102/3-18              | 18-bit 400 kSPS/200 kSPS 8-ch pseudo-differential SAR ADC, SINAD 94.2 dB, THD -105 dB |                                                                                                                                                                   |
| ZJC2102/3-16              | 16-bit 500 kSPS/250 kSPS 8-ch pseudo-differential SAR ADC, SINAD 91.7 dB, THD -105 dB |                                                                                                                                                                   |
| ZJC2102/3-14              | 14-bit 600 kSPS/300 kSPS 8-ch pseudo-differential SAR ADC, SINAD 85 dB, THD -105 dB   |                                                                                                                                                                   |
| ZJC2104/5-18              | 18-bit 400 kSPS/200 kSPS 4-ch pseudo-differential SAR ADC, SINAD 94.2 dB, THD -105 dB |                                                                                                                                                                   |
| ZJC2104/5-16              | 16-bit 500 kSPS/250 kSPS 4-ch pseudo-differential SAR ADC, SINAD 91.7 dB, THD -105 dB |                                                                                                                                                                   |
| DAC                       |                                                                                       |                                                                                                                                                                   |
| ZJC2541-18/16/14          | 18/16/14-bit 1 MSPS single channel DAC with unipolar output                           | Power on reset to 0 V (ZJC2541) or $V_{REF}/2$ (ZJC2543), 1 nV-S glitch, SOIC-8, MSOP-10/8, DFN-10 packages                                                       |
| ZJC2543-18/16/14          |                                                                                       |                                                                                                                                                                   |
| ZJC2542-18/16/14          | 18/16/14-bit 1 MSPS single channel DAC with bipolar output                            | Power on reset to 0 V (ZJC2542) or $V_{REF}/2$ (ZJC2544), 1 nV-S glitch, SOIC-14, TSSOP-16, QFN 16 packages                                                       |
| ZJC2544-18/16/14          |                                                                                       |                                                                                                                                                                   |
| Amplifier                 |                                                                                       |                                                                                                                                                                   |
| ZJA3000-1/2/4             | Single/Dual/Quad 36 V low bias current precision Op Amps                              | 3 MHz, 35 $\mu$ V max Vos, 0.5 $\mu$ V/°C max TCvos, 25 pA max Ibias, 1 mA/ch, input to V- (ZJA3000 only), RRO, 4.5 V to 36 V                                     |
| ZJA3001-1/2/4             |                                                                                       |                                                                                                                                                                   |
| ZJA3018-2                 | OVP $\pm 75$ V, 36 V, Low Power, High Precision Op Amp                                | 1.3 MHz, 10 $\mu$ V max Vos, 0.5 $\mu$ V/°C max TCvos, 25 pA max Ibias, 0.5 mA/ch, OVP $\pm 75$ V (ZJA3018 only), RRO, 4.5 V to 36 V                              |
| ZJA3008-2                 |                                                                                       |                                                                                                                                                                   |
| ZJA3512-2                 | Dual 36 V 7 MHz precision JFET Op Amps                                                | 7 MHz, 35 V/ $\mu$ S, 50 $\mu$ V max Vos, 1 $\mu$ V/°C max TCvos, 2 mA/ch, RRO, 9 V to 36 V                                                                       |
| ZJA3216/06/02-1/2         | Precision 20/10/5 MHz CMOS RRIO Op Amps                                               | 20/10/5 MHz, RRIO, 30 $\mu$ V max Vos, 1 $\mu$ V/°C max TCvos, 0.6 pA Ib, 2.7 V to 5.5 V                                                                          |
| ZJA3600/1                 | 36 V ultra-high precision in-amp                                                      | CMRR 105 dB min (G = 1), 25 pA max Ib, 25 $\mu$ V max Vosi, $\pm 2.4$ V to $\pm 18$ V, -40 °C to 125 °C                                                           |
| ZJA3611, ZJA3609          | 36 V precision wider bandwidth precision in-amp (G $\geq 10$ )                        | CMRR 120 dB min (G = 10), 25 pA max Ibias, 25 $\mu$ V max Vosi, 1.2 MHz BW (G = 10)                                                                               |
| ZJA3676/7                 | Low power, G = 1 Single/Dual 36 V difference amplifier                                | Input protection to $\pm 65$ V, CMRR 104 dB min (G = 1), Vos 100 $\mu$ V max, gain error 15 ppm max, 500 kHz BW (G = 1), 330 $\mu$ A/channel, 2.7 V to 36 V       |
| ZJA3678/9                 | Low power, G = 0.5/2 Single/Dual 36 V difference amplifier                            |                                                                                                                                                                   |
| ZJA3669                   | High Common-Mode Voltage Difference Amplifier                                         | $\pm 270$ V CMV, 2.5 kV ESD, 96 dB min CMRR, 450 kHz BW, 4 V to 36 V, SOIC-8                                                                                      |
| ZJA3100                   | 15 V precision fully differential amplifier                                           | 145 MHz, 447 V/ $\mu$ S, 50 nS to 16-bit, 50 $\mu$ V max Vos, 4.6 mA Iq, SOIC/MSOP-8, QFN-16                                                                      |
| ZJA3236/26/22-2           | Low-cost 20/10/5 MHz CMOS RRIO Op Amps                                                | 20/10/5 MHz, RRIO, 2 mV max Vos, 6 $\mu$ V/°C max TCvos, 0.6 pA Ib, 2.7 V to 5.5 V                                                                                |
| ZJA3622/8                 | 36 V low-cost precision in-amp                                                        | 0.5 nA max Ibias, 125 $\mu$ V max Vosi, 625 kHz BW (G = 10), 3.3 mA Iq, $\pm 2.4$ V to $\pm 18$ V                                                                 |
| Voltage Reference         |                                                                                       |                                                                                                                                                                   |
| ZJR1004                   | 40 V supply precision voltage reference                                               | $V_{OUT} = 2.048/2.5/3/3.3/4.096/5/10$ V, 5 ppm/°C max drift -40 °C to 125 °C                                                                                     |
| ZJR1001/2                 | 5.5 V low power voltage reference (ZJR1001 with noise filter option)                  | $V_{OUT} = 2.048/2.5/3/3.3/4.096/5$ V, 5 ppm/°C max drift -40 °C to 125 °C, $\pm 0.05\%$ initial error, 130 $\mu$ A, ZJR1001/2 in SOT23-6, ZJR1003 in SOIC/MSOP-8 |
| ZJR1003                   |                                                                                       |                                                                                                                                                                   |
| ZJR1302                   | 5.5 V low power compact precision voltage reference                                   | $V_{OUT} = 2.048/2.5/3/3.3/4.096$ V, 30 ppm/°C max drift -40 °C to 125 °C, 130 $\mu$ A, SOT23-3                                                                   |
| Switches and Multiplexers |                                                                                       |                                                                                                                                                                   |
| ZJG4438/4439              | 36 V fault protection 8:1/dual 4:1 multiplexer                                        | Protection to $\pm 50$ V power on & off, latch-up immune, Ron 270 $\Omega$ , 14.8 pC, $t_{ON}$ 166 nS                                                             |
| ZJG4428/4429              | 36 V 8:1/dual 4:1 multiplexer                                                         | Latch-up immune, Ron 270 $\Omega$ , 14.8 pC charge injection, $t_{ON}$ 166 nS                                                                                     |
| Quad Matching Resistor    |                                                                                       |                                                                                                                                                                   |
| ZJM5400                   | $\pm 75$ V precision match resistors                                                  | Mismatch < 100 ppm, 10k:10k:10k:10k, 100k:100k:100k:100k, 100k:10k:10k:100k, 1k:1k:1k:1k, 1M:1M:1M:1M, 5k:1k:1k:5k, 5k:1.25k:1.25k:5k, 9k:1k:1k:9k, ESD: 3.5 kV   |