

FEATURES

- 1.5 pF off capacitance
- 0.5 pC charge injection
- 33 V supply range
- 120 Ω on resistance
- Fully specified at $\pm 15\text{ V}/+12\text{ V}$
- 3 V logic-compatible inputs
- Rail-to-rail operation
- Break-before-make switching action
- 16-lead TSSOP, 20-lead TSSOP, and 4 mm \times 4 mm LFCSP
- Typical power consumption ($<0.03\ \mu\text{W}$)

APPLICATIONS

- Audio and video routing
- Automatic test equipment
- Data acquisition systems
- Battery-powered systems
- Sample-and-hold systems
- Communication systems

GENERAL DESCRIPTION

The [ADG1233](#) and [ADG1234](#) are monolithic *i*CMOS[®] analog switches comprising three independently selectable single-pole, double throw SPDT switches and four independently selectable SPDT switches, respectively.

All channels exhibit break-before-make switching action preventing momentary shorting when switching channels. An $\overline{\text{EN}}$ input on the [ADG1233](#) and [ADG1234](#) enables or disables the device. When disabled, all channels are switched off.

The *i*CMOS (industrial-CMOS) modular manufacturing process combines a high voltage complementary metal-oxide semiconductor (CMOS) and bipolar technologies. It enables the development of a wide range of high performance analog ICs capable of 33 V operation in a footprint that no other generation of high voltage devices has been able to achieve.

Rev. D

[Document Feedback](#)

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

FUNCTIONAL BLOCK DIAGRAMS

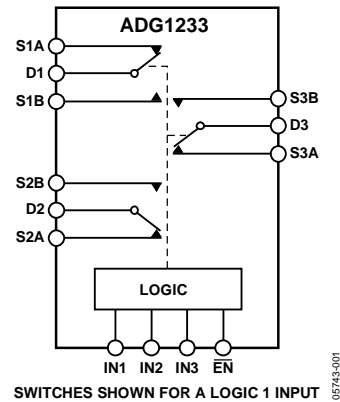


Figure 1.

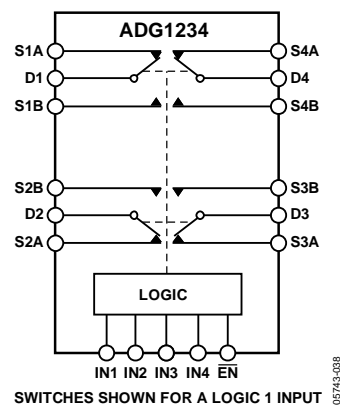


Figure 2.

Unlike analog ICs using conventional CMOS processes, *i*CMOS components can tolerate high supply voltages while providing increased performance, dramatically lowered power consumption, and reduced package size.

The ultralow capacitance and charge injection of these multiplexers make them ideal solutions for data acquisition and sample-and-hold applications, where low glitch and fast settling are required.

Fast switching speed coupled with high signal bandwidth make the devices suitable for video signal switching. *i*CMOS construction ensures ultralow power dissipation, making the devices ideally suited for portable and battery-powered instruments.

PRODUCT HIGHLIGHTS

1. 1.5 pF off capacitance ($\pm 15\text{ V}$ supply).
2. 0.5 pC charge injection.
3. 3 V logic-compatible digital input, $V_{\text{IH}} = 2.0\text{ V}$, $V_{\text{IL}} = 0.8\text{ V}$.
4. 16-lead TSSOP, 20-lead TSSOP, and 4 mm \times 4 mm LFCSP.

TABLE OF CONTENTS

| | | | |
|--------------------------------|---|--|----|
| Features | 1 | Absolute Maximum Ratings | 7 |
| Applications..... | 1 | ESD Caution..... | 7 |
| Functional Block Diagrams..... | 1 | Pin Configurations and Function Descriptions | 8 |
| General Description | 1 | Terminology | 10 |
| Product Highlights | 1 | Typical Performance Characteristics | 11 |
| Revision History | 2 | Test Circuits..... | 14 |
| Specifications..... | 3 | Outline Dimensions | 16 |
| Dual Supply | 3 | Ordering Guide | 17 |
| Single Supply | 5 | | |

REVISION HISTORY

8/2016—Rev. C to Rev. D

| | |
|--|----|
| Changes to Analog Inputs Parameter and Digital Inputs Parameter, Table 3..... | 7 |
| Updated Outline Dimensions | 17 |

3/2016—Rev. B to Rev. C

| | |
|---------------------------------------|----|
| Changes to Figure 5 and Figure 6..... | 9 |
| Updated Outline Dimensions | 17 |
| Changes to Ordering Guide | 17 |

2/2009—Rev. A to Rev. B

| | |
|--|----|
| Change to I _{DD} Parameter, Table 1 | 4 |
| Change to I _{DD} Parameter, Table 2 | 6 |
| Updated Outline Dimensions | 16 |

8/2006—Rev. 0 to Rev. A

| | |
|---------------------------|------------|
| Updated Format..... | \Universal |
| Changes to Table 1..... | 13 |
| Changes to Table 2..... | 14 |
| Changes to Figure 11..... | 110 |
| Changes to Figure 12..... | 111 |

1/2006—Revision 0: Initial Version

SPECIFICATIONS

DUAL SUPPLY

$V_{DD} = +15\text{ V} \pm 10\%$, $V_{SS} = -15\text{ V} \pm 10\%$, $GND = 0\text{ V}$, unless otherwise noted.

Table 1.

| Parameter | Y Version ¹ | | | Unit | Test Conditions/Comments |
|--|------------------------|----------------|----------------------|-------------------|--|
| | +25°C | -40°C to +85°C | -40°C to +125°C | | |
| ANALOG SWITCH | | | | | |
| Analog Signal Range | | | V_{SS} to V_{DD} | V | |
| On Resistance (R_{ON}) | 120 | | | Ω typ | $V_S = \pm 10\text{ V}$, $I_S = -1\text{ mA}$; see Figure 24 |
| | 190 | 230 | 260 | Ω max | $V_{DD} = +13.5\text{ V}$, $V_{SS} = -13.5\text{ V}$ |
| On Resistance Match Between Channels (ΔR_{ON}) | 3.5 | | | Ω typ | $V_S = \pm 10\text{ V}$, $I_S = -1\text{ mA}$ |
| | 6 | 10 | 12 | Ω max | |
| On Resistance Flatness ($R_{FLAT(ON)}$) | 20 | | | Ω typ | $V_S = -5\text{ V}, 0\text{ V}, +5\text{ V}$; $I_S = -1\text{ mA}$ |
| | 60 | 72 | 79 | Ω max | |
| LEAKAGE CURRENTS | | | | | |
| Source Off Leakage I_S (Off) | ± 0.02 | | | nA typ | $V_{DD} = +16.5\text{ V}$, $V_{SS} = -16.5\text{ V}$ |
| | ± 0.1 | ± 0.6 | ± 1 | nA max | $V_D = \pm 10\text{ V}$, $V_S = -10\text{ V}$; see Figure 25 |
| Drain Off Leakage I_D (Off) | ± 0.02 | | | nA typ | $V_S = 1\text{ V}/10\text{ V}$, $V_D = 10\text{ V}/1\text{ V}$; see Figure 25 |
| | ± 0.1 | ± 0.6 | ± 1 | nA max | |
| Channel On Leakage I_D, I_S (On) | ± 0.02 | | | nA typ | $V_S = V_D = \pm 10\text{ V}$; see Figure 26 |
| | ± 0.2 | ± 0.6 | ± 1 | nA max | |
| DIGITAL INPUTS | | | | | |
| Input High Voltage, V_{INH} | | | 2.0 | V min | |
| Input Low Voltage, V_{INL} | | | 0.8 | V max | |
| Input Current | | | | | |
| I_{INL} or I_{INH} | ± 0.005 | | | μA typ | $V_{IN} = V_{INL}$ or V_{INH} |
| | | | ± 0.1 | μA max | |
| Digital Input Capacitance, C_{IN} | 3 | | | pF typ | |
| DYNAMIC CHARACTERISTICS² | | | | | |
| $t_{TRANSITION}$ | 110 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 130 | 150 | 170 | ns max | $V_S = 10\text{ V}$; see Figure 27 |
| t_{BBM} | 25 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | | | 10 | ns min | $V_{S1} = V_{S2} = +10\text{ V}$; see Figure 28 |
| $t_{ON}(\overline{EN})$ | 120 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 140 | 170 | 195 | ns max | $V_S = 10\text{ V}$; see Figure 29 |
| $t_{OFF}(\overline{EN})$ | 40 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 45 | 55 | 60 | ns max | $V_S = 10\text{ V}$; see Figure 29 |
| Charge Injection | 0.5 | | | pC typ | $V_S = 0\text{ V}$, $R_S = 0\ \Omega$, $C_L = 1\text{ nF}$; see Figure 30 |
| Off Isolation | -80 | | | dB typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$, $f = 1\text{ MHz}$; see Figure 31 |
| Channel-to-Channel Crosstalk | -85 | | | dB typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$, $f = 1\text{ MHz}$; see Figure 33 |
| Total Harmonic Distortion, THD + N | 0.14 | | | % typ | $R_L = 10\text{ k}\Omega$, 5 V rms , $f = 20\text{ Hz}$ to 20 kHz ; see Figure 34 |
| -3 dB Bandwidth | 900 | | | MHz typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$; see Figure 32 |
| C_S (Off) | 1.5 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 0\text{ V}$ |
| | 1.7 | | | pF max | $f = 1\text{ MHz}$; $V_S = 0\text{ V}$ |
| C_D (Off) | 1.6 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 0\text{ V}$ |
| | 1.8 | | | pF max | $f = 1\text{ MHz}$; $V_S = 0\text{ V}$ |

| Parameter | Y Version ¹ | | | Unit | Test Conditions/Comments |
|--------------------------------------|------------------------|----------------|-----------------|------------------|--|
| | +25°C | -40°C to +85°C | -40°C to +125°C | | |
| C _D , C _S (On) | 3.5 | | | pF typ | f = 1 MHz; V _S = 0 V |
| | 4 | | | pF max | f = 1 MHz; V _S = 0 V |
| POWER REQUIREMENTS | | | | | V _{DD} = +16.5 V, V _{SS} = -16.5 V |
| I _{DD} | 0.002 | | 1.0 | μA typ μA max | Digital inputs = 0 V or V _{DD} |
| I _{DD} | 260 | | 475 | μA typ μA max | Digital inputs = 5 V |
| I _{SS} | 0.002 | | 1.0 | μA typ μA max | Digital inputs = 0 V or V _{DD} |
| I _{SS} | 0.002 | | 1.0 | μA typ μA max | Digital inputs = 5 V |
| V _{DD} /V _{SS} | | | ±5/±16.5 | V min/max | GND = 0 V |

¹ Temperature range for the Y version: -40°C to +125°C.

² Guaranteed by design, not subject to production test.

SINGLE SUPPLY

$V_{DD} = 12\text{ V} \pm 10\%$, $V_{SS} = 0\text{ V}$, $GND = 0\text{ V}$, unless otherwise noted.

Table 2.

| Parameter | Y Version ¹ | | | Unit | Test Conditions/Comments |
|--|--------------------------------------|----------------|-----------------|--|---|
| | +25°C | −40°C to +85°C | −40°C to +125°C | | |
| ANALOG SWITCH | | | | | |
| Analog Signal Range | | | 0 to V_{DD} | V | |
| On Resistance (R_{ON}) | 300 | | | Ω typ | $V_S = 0\text{ V}$ to 10 V , $I_S = -1\text{ mA}$; see Figure 24 |
| On Resistance Match Between Channels (ΔR_{ON}) | 475 | 567 | 625 | Ω max | $V_{DD} = 10.8\text{ V}$, $V_{SS} = 0\text{ V}$ |
| | 5 | | | Ω typ | $V_S = 0\text{ V}$ to 10 V , $I_S = -1\text{ mA}$ |
| On Resistance Flatness ($R_{FLAT(ON)}$) | 16 | 26 | 27 | Ω max | |
| | 60 | | | Ω typ | $V_S = 3\text{ V}$, 6 V , 9 V , $I_S = -1\text{ mA}$ |
| LEAKAGE CURRENTS | | | | | |
| Source Off Leakage I_S (Off) | ± 0.02 | | | nA typ | $V_{DD} = 13.2\text{ V}$ $V_S = 1\text{ V}/10\text{ V}$, $V_D = 10\text{ V}/1\text{ V}$; see Figure 25 |
| Drain Off Leakage I_D (Off) | ± 0.1 ± 0.02 | ± 0.6 | ± 1 | nA max nA typ | $V_S = 1\text{ V}/10\text{ V}$, $V_D = 10\text{ V}/1\text{ V}$; see Figure 25 |
| Channel On Leakage I_D, I_S (On) | ± 0.1 ± 0.02 ± 0.2 | ± 0.6 | ± 1 | nA max nA typ nA max | $V_S = V_D = 1\text{ V}$ or 10 V , see Figure 26 |
| DIGITAL INPUTS | | | | | |
| Input High Voltage, V_{INH} | | | 2.0 | V min | |
| Input Low Voltage, V_{INL} | | | 0.8 | V max | |
| Input Current, I_{INL} or I_{INH} | ± 0.001 | | | μA typ μA max | $V_{IN} = V_{INL}$ or V_{INH} |
| Digital Input Capacitance, C_{IN} | 2 | | | pF typ | |
| DYNAMIC CHARACTERISTICS² | | | | | |
| $t_{TRANSITION}$ | 135 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ $V_S = 8\text{ V}$; see Figure 27 |
| | 170 | 200 | 230 | | |
| t_{BBM} | 45 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | | | 10 | ns min | $V_{S1} = V_{S2} = 8\text{ V}$; see Figure 28 |
| $t_{ON}(\overline{EN})$ | 150 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 195 | 230 | 265 | | $V_S = 8\text{ V}$; see Figure 29 |
| $t_{OFF}(\overline{EN})$ | 45 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 60 | 70 | 75 | | $V_S = 8\text{ V}$; see Figure 29 |
| Charge Injection | −0.3 | | | pC typ | $V_S = 6\text{ V}$, $R_S = 0\ \Omega$, $C_L = 1\text{ nF}$; see Figure 30 |
| Off Isolation | −80 | | | dB typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$, $f = 1\text{ MHz}$; see Figure 31 |
| Channel-to-Channel Crosstalk | −85 | | | dB typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$, $f = 1\text{ MHz}$; see Figure 33 |
| −3 dB Bandwidth | 600 | | | MHz typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$; see Figure 32 |
| C_S (Off) | 1.5 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| | 1.7 | | | pF max | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| C_D (Off) | 2 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| | 2.2 | | | pF max | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| C_D, C_S (On) | 4 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| | 4.5 | | | pF max | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |

| Parameter | Y Version ¹ | | | Unit | Test Conditions/Comments |
|--------------------|------------------------|----------------|-----------------|-------------------|--|
| | +25°C | -40°C to +85°C | -40°C to +125°C | | |
| POWER REQUIREMENTS | | | | | $V_{DD} = 13.2\text{ V}$ |
| I_{DD} | 0.002 | | | $\mu\text{A typ}$ | Digital inputs = 0 V or V_{DD} |
| | | | 1.0 | $\mu\text{A max}$ | |
| I_{DD} | 260 | | | $\mu\text{A typ}$ | Digital inputs = 5 V |
| | | | 475 | $\mu\text{A max}$ | |
| V_{DD} | | | 5/16.5 | V min/max | $V_{SS} = 0\text{ V}, \text{GND} = 0\text{ V}$ |

¹ Temperature range for the Y version: -40°C to +125°C

² Guaranteed by design, not subject to production test.

ABSOLUTE MAXIMUM RATINGS

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

Table 3.

| Parameter | Rating |
|---|---|
| V_{DD} to V_{SS} | 35 V |
| V_{DD} to GND | -0.3 V to +25 V |
| V_{SS} to GND | +0.3 V to -25 V |
| Analog Inputs ¹ | $V_{SS} - 0.3\text{ V}$ to $V_{DD} + 0.3\text{ V}$ or 30 mA (whichever occurs first) |
| Digital Inputs | GND - 0.3 V to $V_{DD} + 0.3\text{ V}$ or 30 mA (whichever occurs first) |
| Continuous Current, S or D | 24 mA |
| Peak Current, S or D (Pulsed at 1 ms, 10% Duty Cycle Maximum) | 100 mA |
| Operating Temperature Range | |
| Automotive Temperature Range (Y Version) | -40°C to +125°C |
| Storage Temperature Range | -65°C to +150°C |
| Junction Temperature | 150°C |
| TSSOP, θ_{JA} , Thermal Impedance | 112°C/W |
| LFCSP, θ_{JA} , Thermal Impedance | 30.4°C/W |
| Reflow Soldering Peak Temperature, Pb-Free | 260°C |

¹ Overvoltages at A, $\overline{\text{EN}}$, S, or D are clamped by internal diodes. Current must be limited to the maximum ratings given.

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.

Only one absolute maximum rating is applied at any one time.

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 CONFIGURATIONS AND FUNCTION DESCRIPTIONS

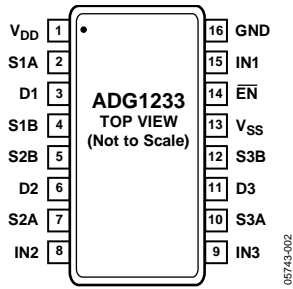


Figure 3. 16-Lead TSSOP Pin Configuration

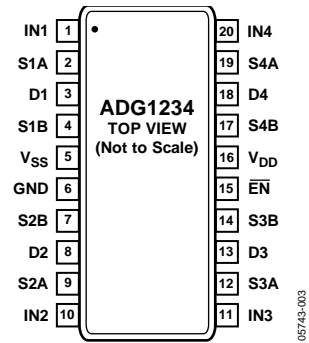
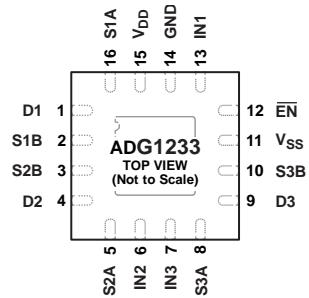


Figure 4. 20-Lead TSSOP Pin Configuration

Table 4. 16-Lead TSSOP/20-Lead TSSOP Pin Configurations

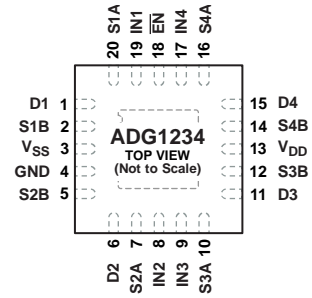
| Pin No. ADG1233 16-Lead TSSOP | Pin No. ADG1234 20-Lead TSSOP | Mnemonic |
|--------------------------------------|--------------------------------------|-----------------|
| 1 | 16 | V _{DD} |
| 2 | 2 | S1A |
| 3 | 3 | D1 |
| 4 | 4 | S1B |
| 5 | 7 | S2B |
| 6 | 8 | D2 |
| 7 | 9 | S2A |
| 8 | 10 | IN2 |
| 9 | 11 | IN3 |
| 10 | 12 | S3A |
| 11 | 13 | D3 |
| 12 | 14 | S3B |
| 13 | 5 | V _{SS} |
| 14 | 15 | EN |
| 15 | 1 | IN1 |
| 16 | 6 | GND |
| Not applicable | 17 | S4B |
| Not applicable | 18 | D4 |
| Not applicable | 19 | S4A |
| Not applicable | 20 | IN4 |



- NOTES
1. NC = NO CONNECT. DO NOT CONNECT TO THIS PIN.
 2. THE EXPOSED PAD MUST BE TIED TO SUBSTRATE, V_{SS} .

05743-004

Figure 5. 16-Lead, 4 mm x 4 mm LFCSP Pin Configuration, Exposed Pad Tied to Substrate, V_{SS}



- NOTES
1. THE EXPOSED PAD MUST BE TIED TO SUBSTRATE, V_{SS} .

05743-005

Figure 6. 20-Lead, 4 mm x 4 mm LFCSP Pin Configuration, Exposed Pad Tied to Substrate, V_{SS}

Table 5. 16-Lead LFCSP/20-Lead LFCSP Pin Configurations

| Pin No. ADG1233 16-Lead LFCSP | Pin No. ADG1234 20-Lead LFCSP | Mnemonic |
|--------------------------------------|--------------------------------------|-----------------|
| 1 | 1 | D1 |
| 2 | 2 | S1B |
| 3 | 5 | S2B |
| 4 | 6 | D2 |
| 5 | 7 | S2A |
| 6 | 8 | IN2 |
| 7 | 9 | IN3 |
| 8 | 10 | S3A |
| 9 | 11 | D3 |
| 10 | 12 | S3B |
| 11 | 3 | V_{SS} |
| 12 | 18 | \overline{EN} |
| 13 | 19 | IN1 |
| 14 | 4 | GND |
| 15 | 13 | V_{DD} |
| 16 | 20 | S1A |
| Not applicable | 14 | S4B |
| Not applicable | 15 | D4 |
| Not applicable | 16 | S4A |
| Not applicable | 17 | IN4 |

Table 6. **ADG1233/ADG1234** Truth Table

| \overline{EN} | INx | Switch xA | Switch xB |
|-----------------|-----|-----------|-----------|
| 1 | X | Off | Off |
| 0 | 0 | Off | On |
| 0 | 1 | On | Off |

TERMINOLOGY

V_{DD}

Most positive supply potential.

V_{SS}

Most negative power supply potential in dual supplies. In single-supply applications, it can be connected to ground.

GND

Ground (0 V) reference.

R_{ON}

Ohmic resistance between D and S.

ΔR_{ON}

Difference between the R_{ON} of any two channels.

I_S (Off)

Source leakage current when switch is off.

I_D (Off)

Drain leakage current when switch is off.

I_D, I_S (On)

Channel leakage current when switch is on.

V_D, V_S

Analog voltage on Terminal D, Terminal S.

C_S (Off)

Channel input capacitance for off condition.

C_D (Off)

Channel output capacitance for off condition.

C_D, C_S (On)

On switch capacitance.

C_{IN}

Digital input capacitance.

$t_{ON}(\overline{EN})$

Delay time between the 50% and 90% points of the digital input and switch on condition.

$t_{OFF}(\overline{EN})$

Delay time between the 50% and 90% points of the digital input and switch off condition.

$t_{TRANSITION}$

Delay time between the 50% and 90% points of the digital inputs and the switch on condition when switching from one address state to another.

t_{BBM}

Off time measured between the 80% point of both switches when switching from one address state to another.

V_{INL}

Maximum input voltage for Logic 0.

V_{INH}

Minimum input voltage for Logic 1.

I_{INL}, I_{INH}

Input current of the digital input.

I_{DD}

Positive supply current.

I_{SS}

Negative supply current.

Off Isolation

A measure of an unwanted signal coupling through an off channel.

Charge Injection

A measure of the glitch impulse transferred from the digital input to the analog output during switching.

Bandwidth

Frequency at which the output is attenuated by 3 dB.

On Response

Frequency response of the on switch.

THD + N

Ratio of the harmonic amplitude plus noise of the signal to the fundamental.

TYPICAL PERFORMANCE CHARACTERISTICS

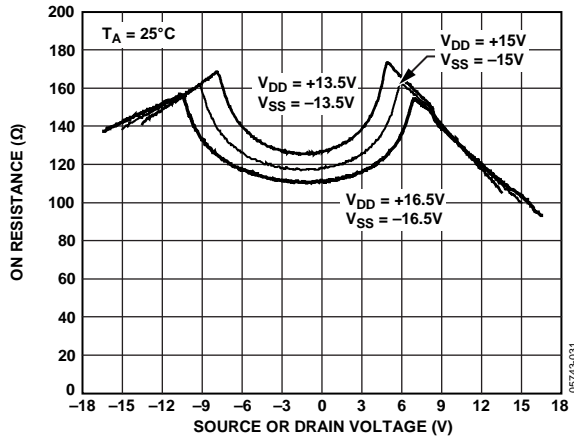


Figure 7. On Resistance as a Function of V_D (V_S) for Dual Supply

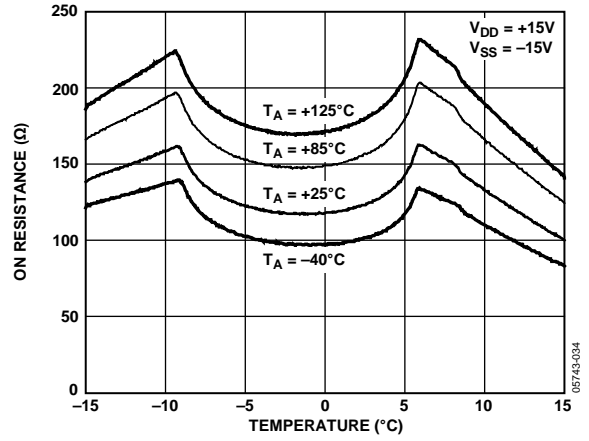


Figure 10. On Resistance as a Function of V_D (V_S) for Different Temperatures, Dual Supply

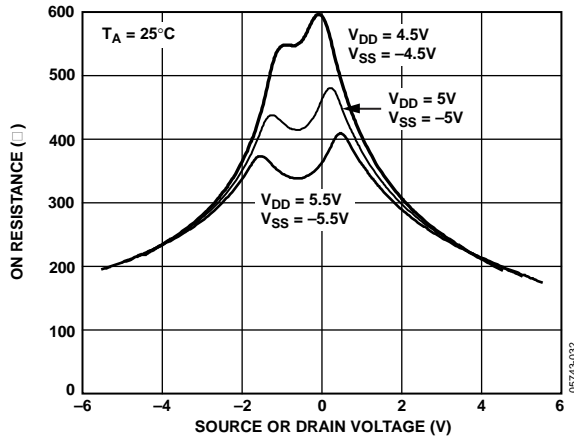


Figure 8. On Resistance as a Function of V_D (V_S) for Dual Supply

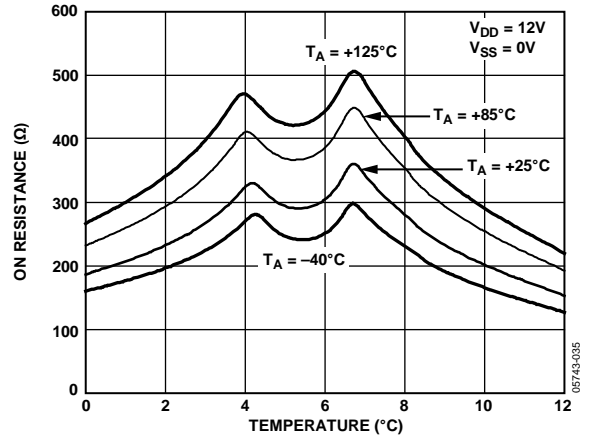


Figure 11. On Resistance as a Function of V_D (V_S) for Different Temperatures, Single Supply

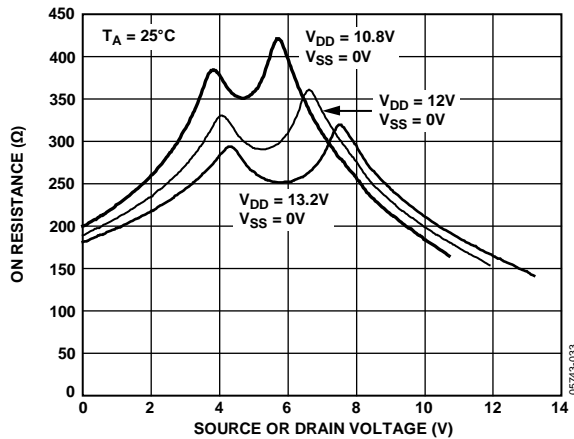


Figure 9. On Resistance as a Function of V_D (V_S) for Single Supply

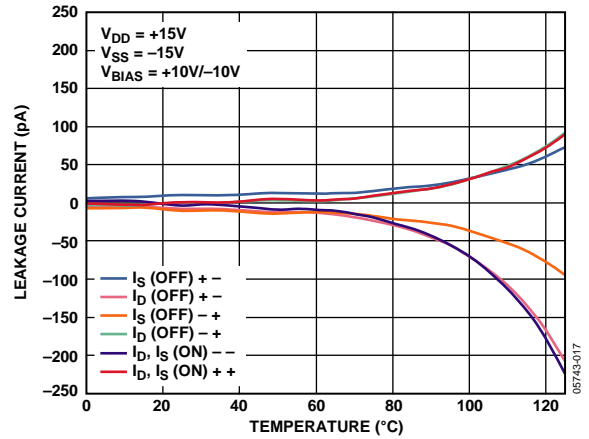


Figure 12. Leakage Currents as a Function of Temperature, Dual Supply

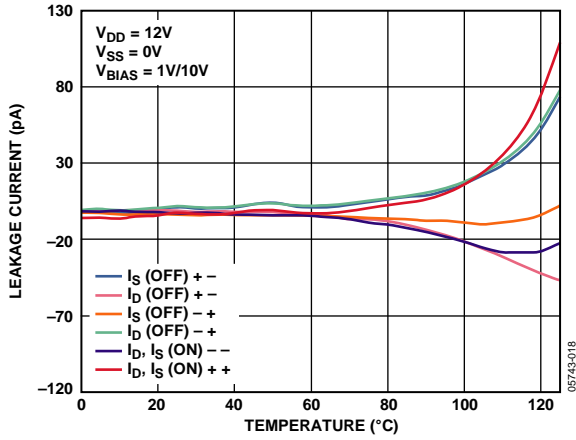


Figure 13. Leakage Currents as a Function of Temperature, Single Supply

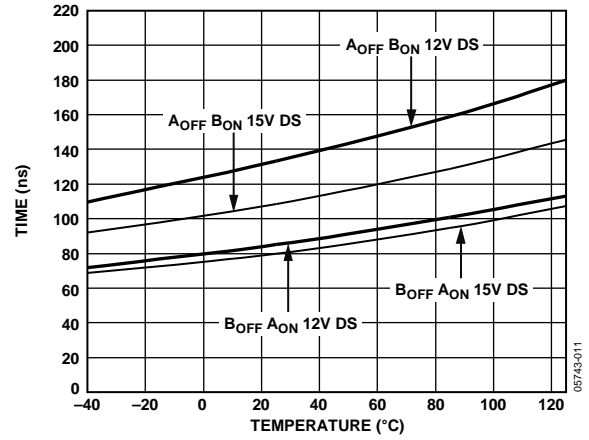


Figure 16. $t_{TRANSITION}$ vs. Temperature

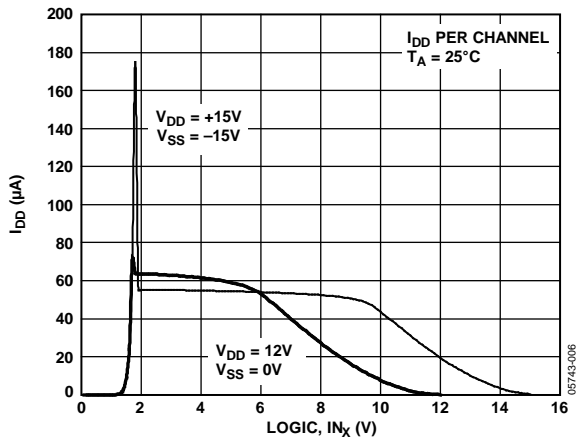


Figure 14. I_{DD} vs. Logic Level

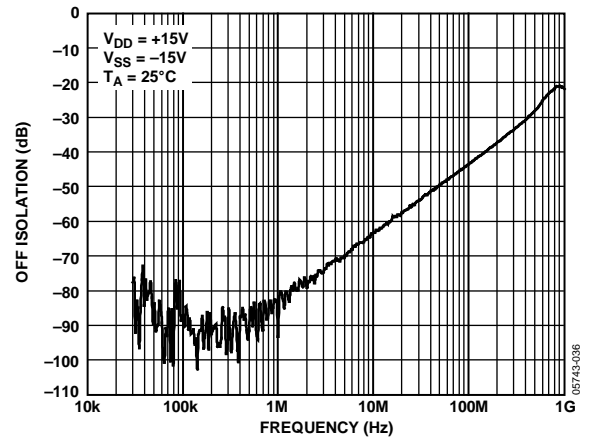


Figure 17. Off Isolation vs. Frequency

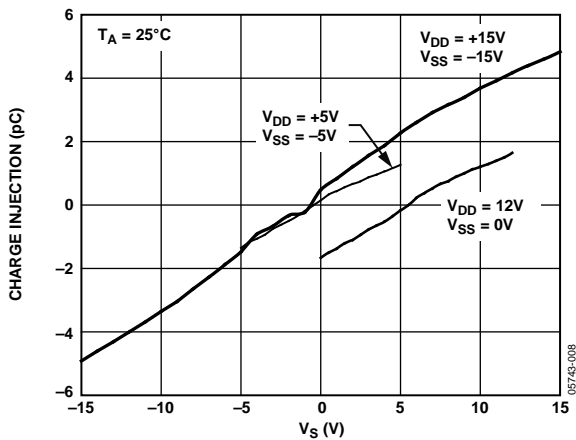


Figure 15. Charge Injection vs. Source Voltage

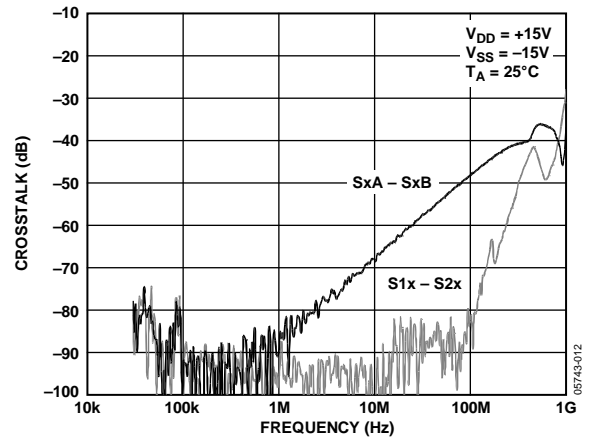


Figure 18. Crosstalk vs. Frequency

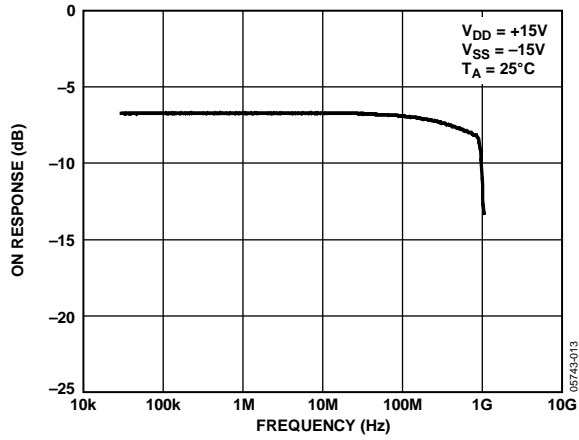


Figure 19. On Response vs. Frequency

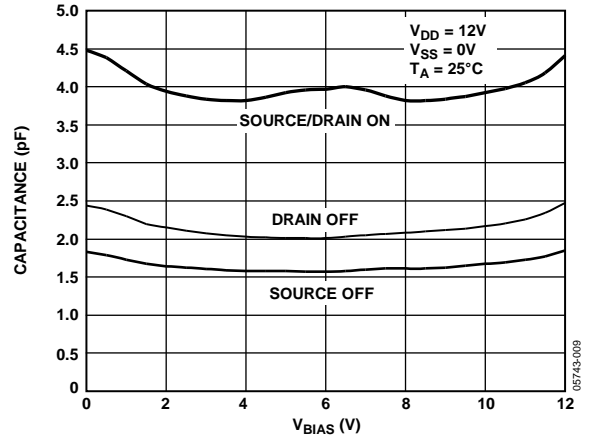


Figure 22. Capacitance vs. Source Voltage for Single Supply

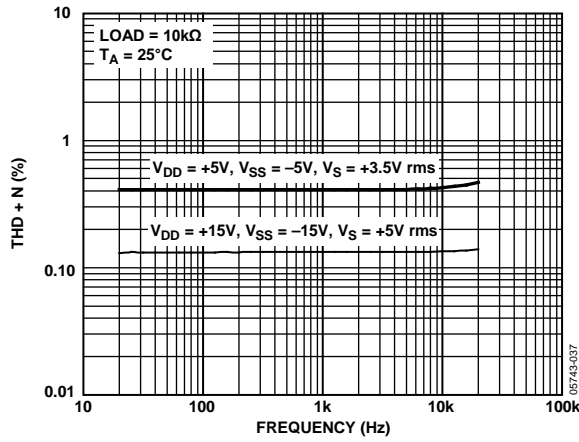


Figure 20. THD + N vs. Frequency

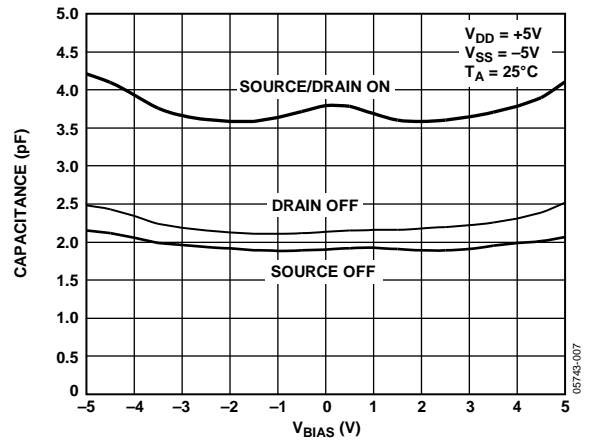


Figure 23. Capacitance vs. Source Voltage for Dual Supply

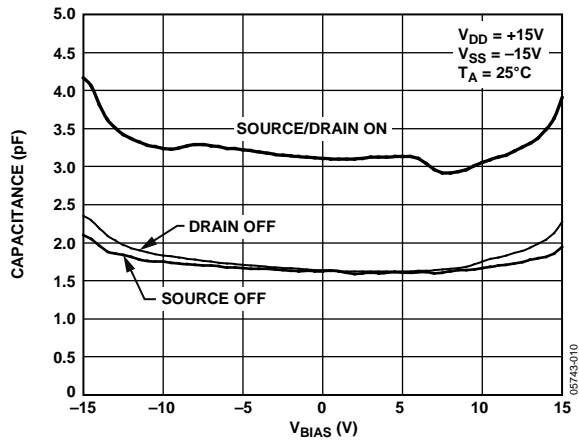


Figure 21. Capacitance vs. Source Voltage for Dual Supply

TEST CIRCUITS

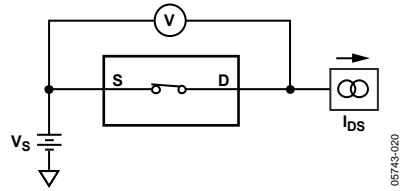


Figure 24. On Resistance

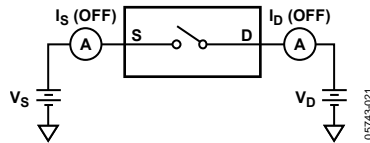


Figure 25. Off Leakage

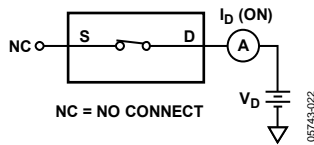


Figure 26. On Leakage

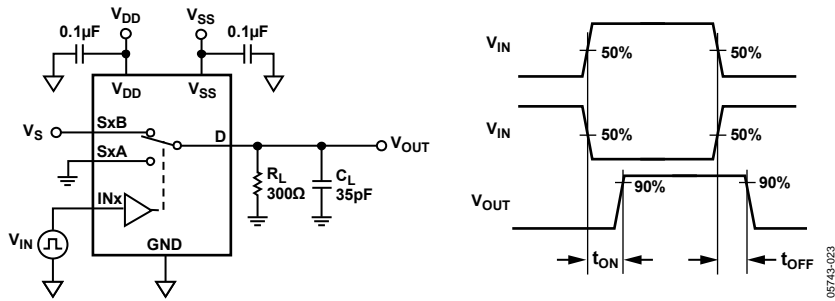


Figure 27. Switching Timing

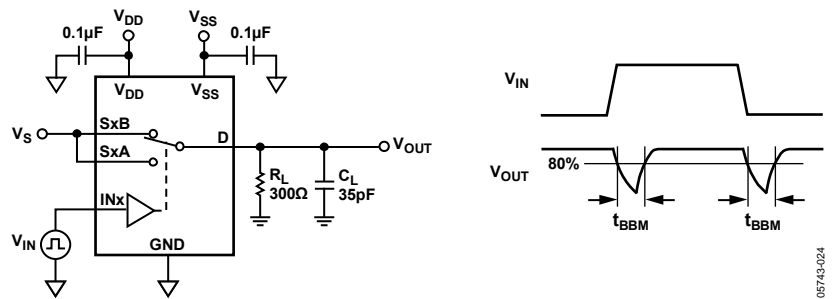


Figure 28. Break-Before-Make Delay

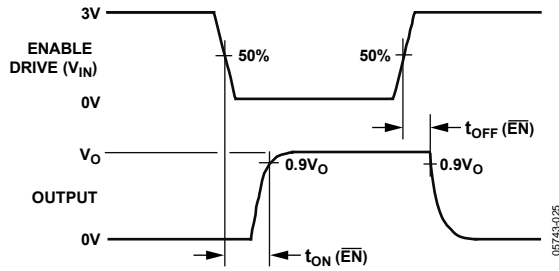
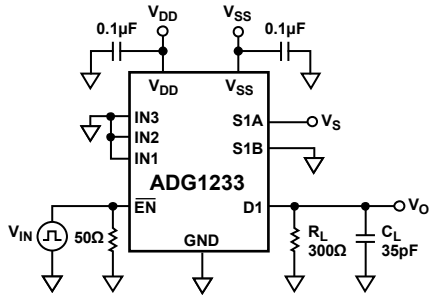


Figure 29. Enable Delay, $t_{ON}(\overline{EN})$, $t_{OFF}(\overline{EN})$

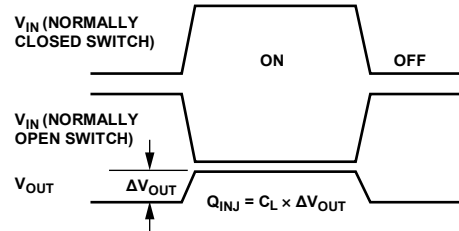
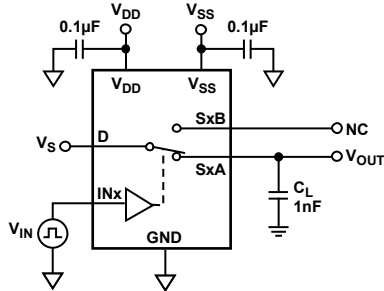
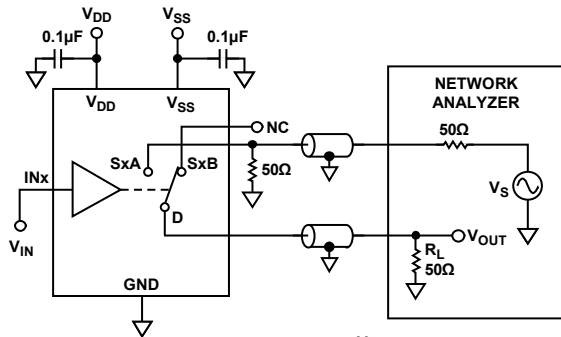
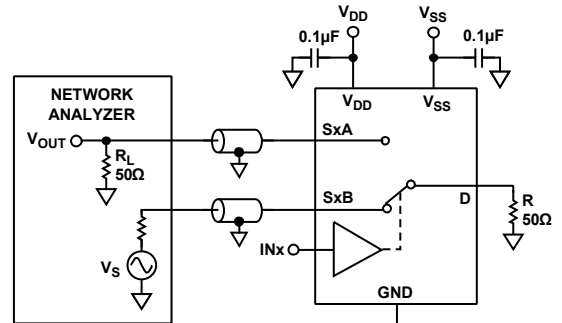


Figure 30. Charge Injection



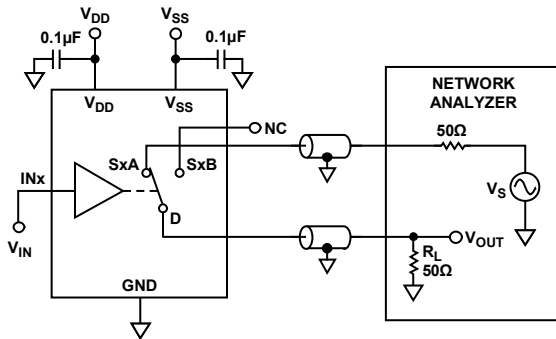
$$\text{OFF ISOLATION} = 20 \log \frac{V_{OUT}}{V_S}$$

Figure 31. Off Isolation



$$\text{CHANNEL-TO-CHANNEL CROSSTALK} = 20 \log \frac{V_{OUT}}{V_S}$$

Figure 33. Channel-to-Channel Crosstalk



$$\text{INSERTION LOSS} = 20 \log \frac{V_{OUT \text{ WITH SWITCH}}}{V_{OUT \text{ WITHOUT SWITCH}}}$$

Figure 32. Bandwidth

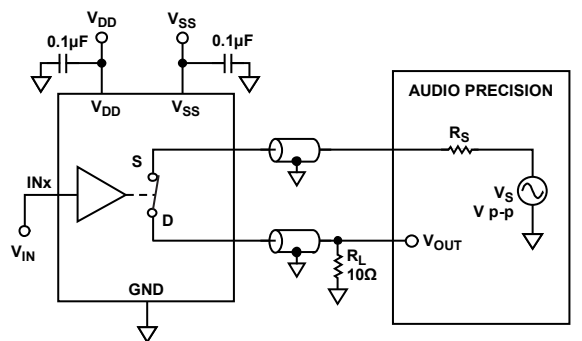
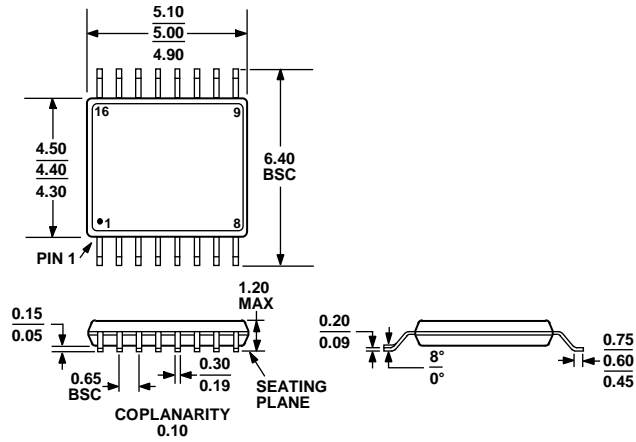


Figure 34. THD + Noise

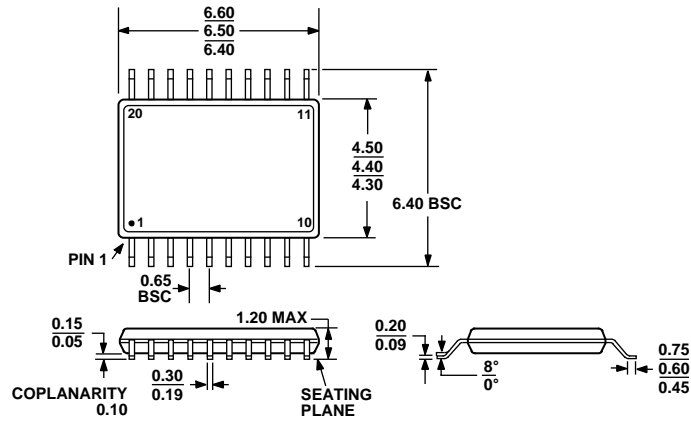
OUTLINE DIMENSIONS



COMPLIANT TO JEDEC STANDARDS MO-153-AB

Figure 35. 16-Lead Thin Shrink Small Outline Package [TSSOP] (RU-16)

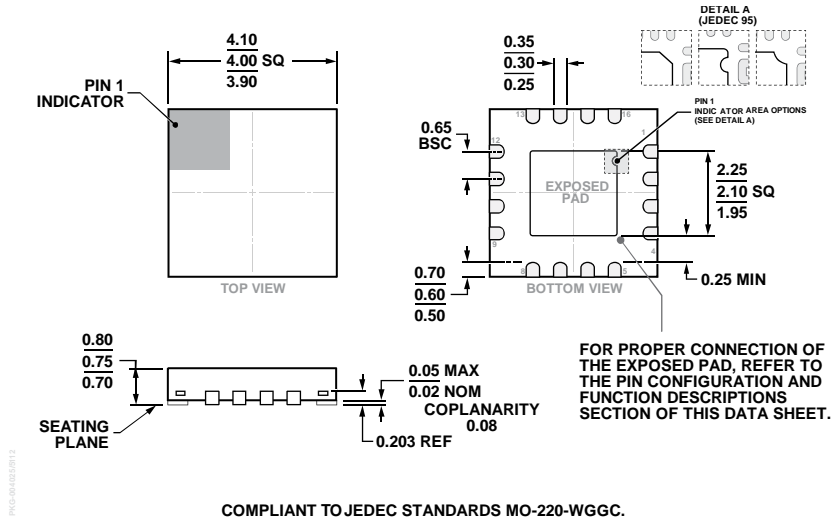
Dimensions shown in millimeters



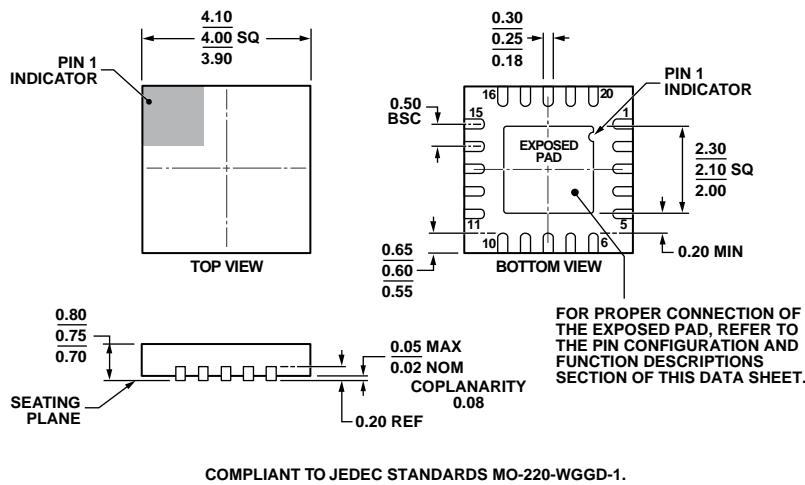
COMPLIANT TO JEDEC STANDARDS MO-153-AC

Figure 36. 20-Lead Thin Shrink Small Outline Package [TSSOP] (RU-20)

Dimensions shown in millimeters



COMPLIANT TO JEDEC STANDARDS MO-220-WGGC.
 Figure 37. 16-Lead Lead Frame Chip Scale Package [LFCS]
 4 mm × 4 mm Body and 0.75 mm Package Height
 (CP-16-23)
 Dimensions shown in millimeters



COMPLIANT TO JEDEC STANDARDS MO-220-WGGD-1.
 Figure 38. 20-Lead Lead Frame Chip Scale Package [LFCS]
 4 mm × 4 mm Body and 0.75 mm Package Height
 (CP-20-6)
 Dimensions shown in millimeters

ORDERING GUIDE

| Model ¹ | Temperature Range | Package Description | Package Option |
|--------------------|-------------------|---|----------------|
| ADG1233YRUZ | -40°C to +125°C | 16-Lead Thin Shrink Small Outline Package [TSSOP] | RU-16 |
| ADG1233YRUZ-REEL7 | -40°C to +125°C | 16-Lead Thin Shrink Small Outline Package [TSSOP] | RU-16 |
| ADG1233YCPZ-REEL7 | -40°C to +125°C | 16-Lead Lead Frame Chip Scale Package [LFCS] | CP-16-23 |
| ADG1234YRUZ | -40°C to +125°C | 20-Lead Thin Shrink Small Outline Package [TSSOP] | RU-20 |
| ADG1234YRUZ-REEL7 | -40°C to +125°C | 20-Lead Thin Shrink Small Outline Package [TSSOP] | RU-20 |
| ADG1234YCPZ-REEL | -40°C to +125°C | 20-Lead Lead Frame Chip Scale Package [LFCS] | CP-20-6 |
| ADG1234YCPZ-REEL7 | -40°C to +125°C | 20-Lead Lead Frame Chip Scale Package [LFCS] | CP-20-6 |

¹ Z = RoHS Compliant Part.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: org@lifeelectronics.ru